



## **Traffic Problems in the Core Area of Historic City of Casbah, Algiers: From Urban Conservation to Sustainable Development**

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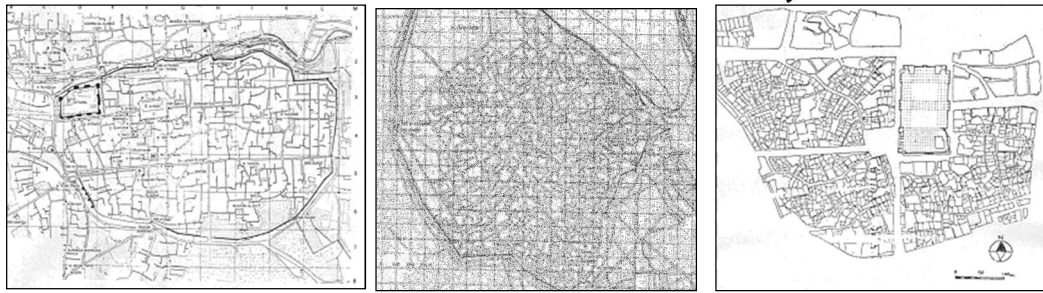
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**Abstract:** *The traditional markets in the core areas have played a significant role in the development of historic cities in the Arab world; they were developed through time in response to socioeconomic and cultural needs of the society. The aim of this paper is to investigate the impact of transportation on the core area of historic cities, in order to suggest some guidelines for improvement and conservation. To achieve the aim the existing condition and problems being faced by core area of Casbah city, Algiers as an example were examined in order to determine its characteristics and the nature of the effects to which it have been subjected. A broad range of information was collected from various sources and through a field survey carried out in the selected case study of traditional market area in Casbah city, Algiers. The collected information was analyzed with particular regard to the special character of the city and its current conditions. This study is an attempt to address the important issue of traffic and its impact that have been raised in the historic cities of the Arab world and it is hoped that it is going to be a significant contribution to the subject of sustainable development as well as urban conservation. conclusion have been arrived at the end and specific suggestions are intended to assist in examining problem and helping in solving problems and developing sustainable guidelines for the improvement of the current situation in the core area of the historic cities of the Arab world.*

**Keywords:** traditional markets, transportation mode, socioeconomic needs, urban conservation, sustainable development

### **Introduction**

It is appropriate to describe the special structure of such historic cities that can be seen all over the Arab world, such as Marrakesh in Morocco, Casabah in Algeria, Kairouan in Tunis, Cairo in Egypt, Aleppo in Syria, and Sana'a in Yemen. All these historic cities appear to share some common characteristics and a somewhat similar urban form. (Jamel. A, 1988). (Figure1). The Casbah is situated on the coast to the north of the city. The complex labyrinths and a fortress from the 1500s remain as th reminders of the past. The Casbah city of Algiers was founded in the 6 Century BC, and was constructed on a steep slope (118m.high), facing the harbour bay and the Mediterranean Sea. Its historical function was military and trade. (Bousaa, D, 2012).



1. Aleppo, Syria

2. Mosul, Iraq

3. Madinah, Saudi Arabia

Figure 1: Plans showing the similarities of the various historic cities in the Arab world

### Problem Statement

Historic city of Casbah, Algiers, is included in UNESCO's strong social identity. It contains the largest concentration of historic monuments in Algeria which together comprise an unrivalled urban heritage and the remaining historic buildings are a finite resource and an irreplaceable due to the pollution generated from transportation modes, congestion and traffic problems. Indeed, despite the fact that transportation has an essential and positive role to play in economic and social development, the traditional transport modes and the existing transportation network in historic city of Casbah, Algiers negatively affects the historical buildings and also the urban heritage of the historic areas.

Accordingly, this paper attempts to diagnose the transport and traffic problems in historic city of Casbah, Algiers in general and in traditional market area in particular, and investigate methods for conserving the urban heritage from the negative effects of traffic congestion and of the traditional modes of transportation. It also attempts to explore possible areas for intervention to mitigate transportation and traffic problems in the light of the principles of the sustainable transportation framework. It aims to draw conclusions and propose recommendations that would increase the efficiency and effectiveness of transportation plans in historic city of Casbah, Algiers and consequently achieve sustainable transportation.

### Methodology

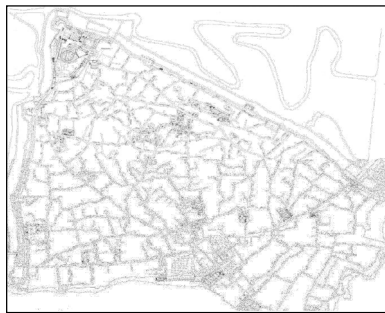
This paper has, so far, provided an overview of the main transportation features and problems of historic city of casbah, Algiers. It attempts to draw conclusions and propose a framework for sustainable transportation in the light of the sustainable urban conservation principles. This paper has highlighted the significance of the interrelationships between the issues related to the preservation of the urban heritage with the efficiency of transportation networks and transport modes and traffic solutions in order to maintain historic buildings and protect them from degradation caused by transportation and other activities.

### Spatial Structure of Historic City of Casbah, Algiers

A typical historic city of Casbah, Algiers as other cities in the Arab world was often surrounded by a fortification wall, having a number of gates, the only access and egress points. (Figure 2). The street system in a typical historic city appears to consist of these types of streets. The primary streets entered the city from different gates and met each other near the main mosque and divide the whole city into a number of residential quarters. (Bianca, S, 2000). The secondary streets often join two or more primary streets and divide a residential quarter into smaller residential units. They tend to house shops needed for the day to day activities of the inhabitants in the residential quarters. The tertiary streets provide access

within the residential areas. *Cul-de-sacs* could be attached to any type of streets. A cluster of ten (10) to fifteen (15) houses are often arranged around these cul-de-sacs.

They are quite private spaces and are only used by people living there. (Hakim B, 1986). In historic city of Casbah, Algiers public paths compose an irregular network enclosing large residential plots. The blocks represent the basic morphology unit in Historic Cairo. Each super block incorporates several uses (i.e. residential, non-residential, service uses and others). Local paths reach the interior of the super blocks in an organized (but organic) manner. Super blocks consist of two main components: (a) the inner core, which deals mainly with residential functions mixed with handicraft activities and is composed of several local path units; (b) the outer core, which is bound by the public paths and contains a combination of residential, commercial and social activities.



*Figure 2: A typical historic city of Casbah, Algiers was often surrounded by a fortification wall and having a number of gates*

### **Traffic Problems in the Traditional Market Area of Casbah City, Algiers** **Population Growth and Economic Challenges**

Many problems have been created by the expanding commercial activity in the traditional market area of Casbah city, Algiers which has been accommodated largely by the conversion of residential buildings and areas. In many cases commercial activity, because of its need for space, has led to speculative land trading and the demolition of residential buildings. In some cases the traditional street pattern has largely disappeared because of the construction of new shops. The new structures that have been erected sometimes do not relate well to their surroundings. Small-scale manufacturing has also spread into the residential areas of the historic cities. It is often the space in old residential buildings which has been converted for production use. In the absence of adequate space, such activities have sometimes been extended onto the adjacent street. Activities of this sort often generate obnoxious smells, fumes and waste of various sorts and have contributed significantly to the decline of the general environmental quality in the streets.

The increase in population and commercial and production activities is responsible for generating a large amount of traffic within the Casbah city, Algiers. The primary streets, which are often those along which traditional markets are also located and are the only access routes which constantly clogged with pedestrians and vehicles of various sorts. This situation has made many market streets hazardous for pedestrians and shopping somewhat less enjoyable. (Figure 3). Even the streets meant largely for pedestrian traffic are often clogged with cycles, motor cycles and hand carts.



*Figure 3: The streets of traditional market area are hazardous for pedestrians and shopping somewhat less enjoyable.*

Although some congestion points is perhaps desirable in core area of the Casbah city, Algiers the present situation is often intolerable. The presence of encroachments of various sorts in the streets has further exacerbated the problem of accessibility within the historic cities. In addition, such encroachments have significantly affected the quality of the street space and the visual and functional relationship of buildings to one another and to the street pattern.

Under the impact of these many changes the historic cities have become predominantly the abode of low income groups with very high residential densities. This situation is further complicated by the fact that the commercial activity in the form of traditional markets is one of the most conspicuous special attributes of the historic city of Casbah, Algiers and its continued existence is highly desirable for the successful functioning of these markets. However, the traditional markets that are worthy of preservation have also been responsible for creating adverse affects on other special attributes of the historic city of Casbah, Algiers particularly because of intensification of commercial activity in more recent times.

#### **Accessibility by Various Transportation Mode**

The public service operates within very high traffic densities. The area is served by both public buses and private mini- buses with almost identical routes. Approximately 30,000 vehicular trips are produced or attracted by the traditional market area in Casbah city, Algiers. An additional 3,000 vehicular trips make-up the amount of traffic within the market area, which indicates the relatively low car-ownership of residents within the area. Most network links and intersections in the area suffer from severe traffic congestion during peak hours, due to high volumes in the organic layout system, where roads and sidewalks are used for commercial activities.

The highest traffic portion is the through-traffic (i.e. trips having both their origins and destinations outside the area) and consists of 120,000 vehicular trips daily. Moreover, the mentioned area suffers from severe parking shortage. Parking is unregulated, mostly on sidewalks and vacant lots, burdening the remaining historic paths deep inside the urban fabric. Most parking is currently provided along the streets. One-hour parking in the market area has 55 percent frequency, two-hour parking a 25 percent and subsequent longer parking duration's only 20 percent (Gamal, 2002). Accommodation of short-term parking is important. Enforced parking policies based on a pricing system need to be formulated. The area is neither serviced by parking lots nor underground nor multi-story garages.



Delivery and pick-up trips are important traffic components in the area, and are the main cause of both congestion and over-extension of the network. Regulated access and entry/exit arrangements should be provided for their operation. They serve workshops and handicraft activities which are important to the area's economy. In addition to the presence of the heavy vehicular traffic in the narrow streets of Casbah city, the absence of adequate parking, loading and unloading facilities means these activities have generally to be carried out on the streets, creating severe problems with regard to the mobility and accessibility. (Figure 4).

Despite the fact that the area has a great potential as a walk for tourists, pedestrian movement is very difficult. Indeed, priority should be given to pedestrians. However, there are only few pedestrian zones and therefore the access to the monuments is difficult. At present, the highest pedestrian flows are observed on traditional market area.



*Figure 4: The absence of adequate parking, loading and unloading facilities*

### **Land Use Problems**

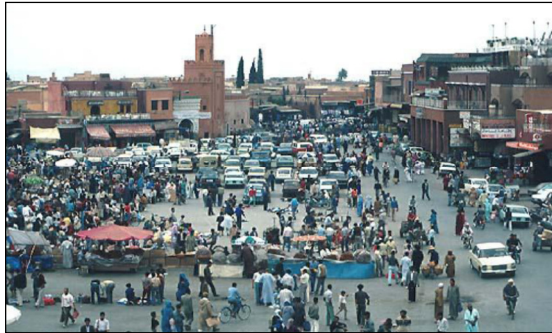
Support activities in the traditional market area such as coffee shops, food outlets and small take-away restaurants are a small proportion of the total number of shops and they provide a poor level of service. However, Casbah city, Algiers lacks public toilets, telephone booths and tourist information facilities. Similarly, public facilities count less than 2 percent of all ground floor activities along the spine. There are also peddlers who park their stalls at strategic locations, generally facing historic monuments and public facilities and sometimes confront other shops, blocking their entrances and colonizing parts of the street.

### **Modern Changes and Its Impact**

The modern changes have made the streets in Casbah city, Algiers hazardous for pedestrians and shopping somewhat less enjoyable. Even the streets meant largely for pedestrian traffic are often clogged with cycles, motor cycles and hand carfts. (Figure 5). Although some congestion is perhaps desirable in commercial areas, the present situation is often intolerable. The presence of encroachments of various sorts in the streets has further exacerbated the problem of accessibility within the historic cities. In addition, such encroachments have significantly affected the quality of the street space and the visual and functional relationship of buildings to one another and to the street pattern.

Under the impact of these changes many core areas of the historic cities have become predominantly the abode of low income groups with very high residential densities. This situation is further complicated by the fact that the commercial activity in the form of traditional markets is one of the most conspicuous special attributes of the historic city of Casbah,Algiers and its continued existence is highly desirable for the successful functioning

of this city. Though many reports and proposals have been made by the planning authorities to improve the situation with regard to the revitalization and preservation of commercial activity in such markets, it appeared that generally they have failed in improving the situation. One major reason for this situation appears to be the fact that very little attention has been paid to the historic spatial structure, transport system, activity pattern and the traditional way of life in this historic city.



*Figure 5: The streets meant largely for pedestrian traffic are often clogged with motor cycles and cars*

### **Sustainable Development and Urban Conservation**

An overall objective for Historic City of Casbah Algiers in general and its traditional market area in particular is to achieve sustainability. The sustainability depends on not only the environmental sustainability (natural, man made and socio-cultural environments), but also the continuity of the urban spaces to preserve their historically prominent identity in the city serving the residents with basic services together with the residential, commercial, recreational, and all other needs. A prerequisite to achieve sustainability is to have an efficient transportation network and smooth traffic flows. MOST (1999) points out that the goal of sustainable transportation is to ensure that environmental, social and economic considerations are factored into decisions affecting transportation activity.

Urban transportation systems play a critical role in city planning decisions due to their interaction with other urban systems such as environment, energy, land- use, safety and security, and in many cases may be viewed as the nucleus for sustainable cities. Sustainability in cities is extremely unlikely to be achieved without addressing the urban transportation problems (WIT, 2000). Indeed, transportation could have unfavourable & negative impacts on the city, for example: -Environmental impacts: air, noise and visual pollution are the most environmental pollution, which are produced or emitted by traditional modes of transportation (UNEP 2001, Cohn 1981, Buchanan 1963).

- Economic Impacts: transportation affects the efficiency of city activities and its function, wastes time and money that sometimes increases the costs of freight delivery due to the congestion of city streets and the resulting delay.
- Social Impacts: transport could have a negative effect on city street life, social isolation, and social insulation (Crawford 2000, Buchanan 1963).
- Historic Impacts: deterioration of historic buildings and monuments: chemicals reactions caused by traffic pollutants such as SO<sub>2</sub> are damaging the structure of the rocks, which used in many historical buildings (Mediterranean Kit 1996). In addition, it can be safely argued that transportation facilities and activities could have significant negative impacts, including those listed below in table 1.



*Table 1: Transportation Impacts on Sustainability*

<b>Economic</b>	<b>Social</b>	<b>Environmental</b>
Traffic congestion	Inequity of impacts	Air and water pollution
Mobility barriers	Mobility disadvantaged	Habitat loss
Accident damages	Human health impacts	Hydrologic impacts
Facility costs	Community interaction	DNRR
Consumer costs	Community livability	
DNRR	Aesthetics	

DNRR= Depletion of Non- Renewable Resources ( Source: Litman (1999))

Therefore, as Barten (1995) argues, transportation, as one of any city activities, can be planned through maintaining the global ecology, husbanding natural resources and improving the quality of the local human environment. Unsustainable transportation would negatively affect the urban heritage and indeed the livelihoods.

### **Conclusion and Recommendations**

Though many reports and proposals have been made by the government bodies and planning authority in the historic city of Casbah, Algiers to improve the situation with regard to solve the traffic problems in such congested areas; it appeared that generally they have failed in improving the situation. One major reason for this situation appears to be the fact that very little attention has been paid to the historic spatial structure, streets pattern and the traditional market areas. It is argued that without such an understanding it is very difficult to engage in meaningful preservation and revitalization of such historic city. It is very important that the issue of traffic and its impact in the traditional market area that have been raised in this paper and it is hoped that it is going to be a significant contribution to the subject of transport management, sustainable development as well as urban conservation of historic city. It is worthy to end up with some recommendations, which could be as guidelines that will be useful for future development of the historic cities. Thus, these recommendations are as follows:

1. A comprehensive conservation plan of historic city of Casbah, Algiers should pay special attention to the significant role of traffic and its impact on the core area.
2. To provide amenity, convenience and comfort for visitors and people who live and work in the area. Pedestrianisation, accessibility and safety are to be reinforced while respecting the organic urban pattern. To enhance street life, vitality and activity, in order to attract people and increase economic prosperity.
3. In order to achieve sustainable transportation, there should be a traffic management system in order to preserve the pedestrian scale and vehicles should not be allowed to enter core area streets other than the main street except only for emergencies. To promote appropriate management system, including maintenance of the uniqueness of the street, parking areas, loading and unloading spaces should be reserved nearby the core area for the use of the workers and visitors.



4. To preserve the human scale of buildings and public open spaces by retaining the traditional nature of the street and by enhancing the unique character of the built form. An attempt should be made to revive an attractive image that, in general, accords with the appearance of the historic buildings, to promote the qualities of architecture in the area and to create the circumstances for contributing to the improvements of the street's aesthetics. Garbage disposal system and supply of goods should be scheduled at night.
5. Traditional market area of historic cities are places of great interest to tourists, tourism may serve to revive the economic life of the traditional city by encouraging artisan activities and using traditional modes of transport.
6. Educational programs should insist and invite new coming generations to understand and respect the local traditional way of life, culture, history and built heritage.

The mentioned recommendations could be adopted as guidelines that will be useful for sustainable development in the historic cities of the Arab world, which can always be modified by future research, and by implementing such framework it is hoped that the situation will be improved in the future.

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