

ORIGINAL RESEARCH  
PAPER



# Accessibility as a factor for a livable cities: The case of Salt City in Jordan

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## ABSTRACT

Accessibility is known as the ease of reaching destinations. The accessibility is determined by the spatial distribution of potential destinations, and the magnitude, quality, and character of the activities found there. However, modernization and the fast expansion of urban development transform cities' local cultural life from walkable accessible places to just car places. This has encroached into every corner of our urban environment today. In addition, the available services and systems to manage the pedestrian movement in the historic core are inadequate and inefficient, posing risks to both the traffic and the pedestrians. That affects the walkability for cities gradually. Hence, this paper aims to explore the main physical elements that contribute toward accessibility under three main categories (pedestrians, vehicles and public transport) as one of the walkability characters in Salt City in Jordan. Historical review, site analysis, and survey were the main methodology used in this study.

## KEYWORDS

walkability, accessibility, heritage city, Salt City in Jordan

## 1. INTRODUCTION

In the design of cities and public spaces, the hierarchy of importance for users should be taken into account by offering continuous, connected, safe, visible and well-maintained paths and facilities for walking and different transport system. Accessibility is the ability to reach destinations from place A to place B for all types of users and therefore access to pedestrian and transport systems [1]. The accessibility can be determined by the spatial distribution of potential destinations, and the magnitude, quality, and character of the activities found there [2]. Given a travel method, distance, time, and cost constraints, an accessibility measure estimates the level of access to a different type of activity from a starting place or home location to one or more locations. The greater the accessibility, the more potential locations there is within a certain time or distance area. The higher the amount of accessibility, the closer selected destinations are inside this maximum range [3].

Accessibility plays an important role in attracting people as well as enhancing social interactions in public open spaces that contribute toward the livability of a place [4].

The visual and physical linkages to the surroundings reflect the accessibility of a public open area. By this definition, accessibility shows the availability of the place to get through and get to, at the meantime if the place is visible both from afar and near distance these factors affect the social interaction in the public spaces [5].

Levinson [6] mentioned that accessibility is formed by the result of two measures, a time-based element (the travel time between two points) and a spatial element, reflecting the distribution of the activities that occurred in public open spaces [6].

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### 1.1. Access to all places

On other hand, the accessibility of public open space is related to how it is located in a congested fabric, which is well connected to both the neighboring context and the whole city structure.

The strategic location of the major life activities, train station bus stops and people needs and main life services (Fig. 1) by creating a mix used plots enhancing accessibility and livability of cities and important urban factor in attracting the users [7]. Therefore, public open spaces should be visible from different access points.

### 1.2. Access for all people

“Access for all”, defined as providing everyone with equal access to socio-economic opportunities and places regardless of their age, gender, race or health condition [8].

Because the design of a public place plays a significant part in making it responsive to people’s needs, public open spaces should welcome everyone when differences are recognized [9]. They should be accessible to people of all ages, social classes, disabilities, women with baby strollers, cyclists, and even informal organizations [10].

Accessibility refers to the ability to travel from home to public spaces and a variety of social, leisure, and employment destinations, as well as access to pedestrian and transportation systems as step-free stations, low-floor buses, dropped kerbs, and ambient factors as lighting, auditory and visual information, and way-finding to serve all types of users and ensure their safety [5, 11]. In addition to decreasing physical barriers to demonstrate permeable public spaces, pedestrian-friendly landscaping and useful, well-designed street furniture and amenities, e.g. seating,

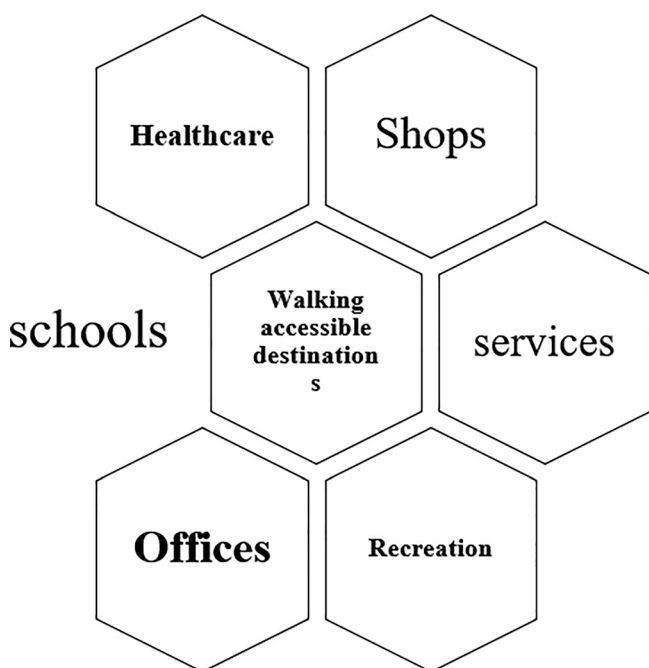


Fig. 1. Diagram for main walkable facilities (Source: Author)

lighting, restrooms, cycle parking/routes that make local trips easier and more pleasant by foot than by car [12].

## 2. CASE STUDY

The city of As-Salt lies around 27 kms northwest of Jordan’s capital, Amman (Fig. 2). It was once the most valuable community in the area between the Jordan Valley and the Eastern Desert. Salt has enticed inhabitants since at least the Iron Age. Its history as a major commerce link between the Eastern Desert and the west, as well as its importance to the region’s many emperors, ensured that it was regularly occupied. The Romans, Byzantines, and Mameluke all contributed to the town’s growth, but it was during Ottoman authority, towards the end of the 19th and beginning of the 20th centuries, that As-Salt was at its most flourishing time [13].

The town is situated on three hills: Jada, Qala’, and Salaleh, with the central city Plaza (Saha) located at the intersection of the valleys (Fig. 3).

The majority of the urban heritage residents and mansions belong to the 1890s through the end of the 1920s. These were mostly constructed of soft yellow marl-lime stone by both local and migrating expert builders, employing local technology and eventually incorporating newly imported metal sections and red roofing tiles [14].

Golden-colored houses are located clusterly on the high mountains, and the architecture’s harmony and historical

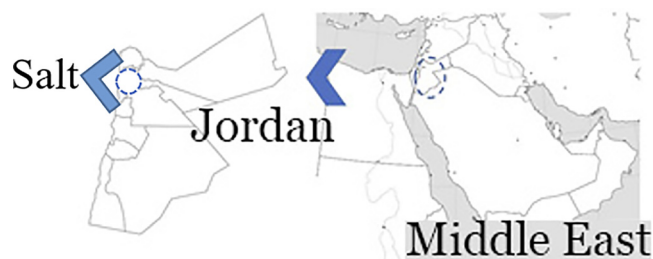


Fig. 2. Salt location (north-west) (Jordan map and Salt map)



Fig. 3. Salt City in Jordan (Source: photo by Author)

importance date to the city's golden age. Jordan values the combination of heritage, charm, and tourism potential [15].

Salt City is known as a rich compacted and containment urban, which can reduce the transference of water, energy, materials, people, and products, while stimulating social interaction. In this regard, narrow streets, front porches and public open space all would encourage people to engage in street life.

The main reason of taking heritage site as case study as the heritage sites are connections between the local needs and the spirit of the place, creates a sense of belonging by evoking a shared experience that connects nations to their past and creates a powerful image for places [16].

The town of As-Salt is selected to be the 6th UNESCO World Heritage Site in Jordan.

### 3. METHODOLOGY

This study inspects the physical elements that lead to accessibility as an initial element for the livable city in the case of Salt City in Jordan. The study was conducted field studies (fieldwork). The main techniques used included, historical review, site analysis and questionnaire; follow is a brief for each method.

- A questionnaire of 330 users of Salt city was conducted; taking into account their age, gender and frequency of visiting Salt city. A questionnaire schedule was used to record the answers given by the respondents. It allowed a large sample of the users to join, thus giving an opportunity to analyze the variations between the elements noticed, experience and perception toward the place. The findings from the questionnaire were analyzed using statistics, namely frequencies and percentages;
- A direct site observation of Salt city neighborhoods was also conducted. The aim is to record the presence and characteristics of physical elements (building attributes, landscape, streets and squares) and human activities that contribute to the city's character;
- Historical and document review of Salt City.

#### 3.1. Results and discussion

The result of the study was divided into three main groups: pedestrian, public transport and private vehicles.

The study suggests the hierarchy of importance for users by offering continuous, connected, visible and well-maintained paths and facilities for each group mentioned.

### 4. FINDINGS

#### 4.1. Pedestrian

Accessibility offers good connectivity and well-maintained footpaths provide pedestrians easy access to key destinations [17].

Many short links, multiple intersections, and few dead-ends characterize a highly permeable network. The type and density of intersections in the network and excellent connectivity have a significant impact on how people move around actively and seek to discourage car use by making local trips easier and more pleasant by foot than by automobile [18]. A pedestrian must feel safe and comfort therefore the walk must be simultaneously useful, safe, comfortable, and interesting to create a walkable accessible place [19].

Then, accessibility could be mentioned as the most necessary quality of public settings in offering well-used spaces that increase social interaction [20].

The factors that influence people to walk are categorized into two main aspects, which is distance and walkway design as it is shown in Fig. 4. Those factors are affecting people who decided to walk.

For Salt case: The results of the survey indicated that public spaces should give more attention for pedestrians in Salt city are:

- Physical structure of the sidewalk of some internal streets being inappropriate for pedestrians;
- Lack of continuous maintained sidewalks;
- No alternate routes for pedestrians.

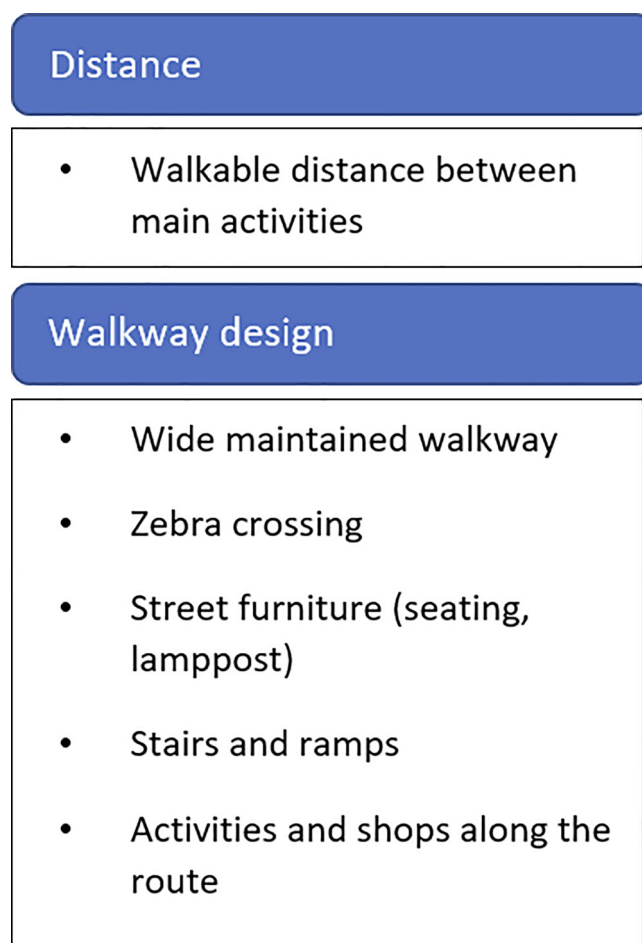


Fig. 4. Walking needs (Source: Author)



One of the respondents mentioned ‘Pedestrians must be careful while using sidewalk according to narrow unmaintained paths, they should offer good sidewalk in all places in the city not just in the center even we can’t find zebra crossing to cross trafficked streets during the day’.

This study found that to provide a walkable accessible environment along the in the city (Fig. 5), not just the center at the same time the following elements must be taken into account in the planning for cities:

- i) Provide a well-lit, continuous, and well-maintained pedestrian walkway; use a kind of pavement that does not slip;
- ii) Offering visual interest (example: wall articulation or flower pots) and high volume of pedestrian activity in the walking journey;
- iii) Crossing safety using zebra crossing;
- iv) Offering amenities, e.g. coverage, benches, public toilets.

## 4.2. Public transport

Public transportation is a more cost-effective, safe and efficient way of moving people than the private automobile (Fig. 6). Thus, providing good public transportation allows all



Fig. 6. Public transportation in Salt city (Source: Author)

types of users to reach their different activities and needs. 60% of respondents in the survey complain lacking well-maintained public transport services and bad facilities with no attention for disabled users. Therefore, this element should be taken into account for design livable accessible cities:

- Availability of public transport that means that the public transport service must be able to use for all people and within a suitable distance from where they are and where they want to be;
- Bus stops must be placed at an acceptable walking distance (max 400 m) of a bus stop with a public function.

## 4.3. Private vehicle

In the case of Salt city, there is an urgent need to reduce the traffic pressure on the historic cores and the main city



a)

b)



c)

Fig. 5. The differences between the sidewalk in the city center and in the internal streets, a) and b) internal and c) city center, (Source: Author)



Fig. 7. Unmaintained street in Salt city causes a dangerous accident (Source: Author)

activities. Congestion and dense traffic during the day in additional lack of parking lead to serious traffic congestion. Thus this study suggest for streets and parking as follow:

- Path: Continuous maintenance of city streets to achieve safety for city users (Fig. 7);
- Parking: The study found that parking facilities (type, location, and sufficient number) affect the accessibility in the city.

In considering the quality of parking, three factors should be taken into consideration: (i) diversity of types with an adequate number of parking spaces; (ii) the accessibility of parking spaces within walking distance (500 m maximum) to any distention inside the street; (iii) the quality of the walkway to parking spaces must be well paved, well maintained, and have sufficient lighting to ensure user comfort and safety.

## 5. CONCLUSION

Quality of access and linkages in the neighborhood's city center, and urban areas, the quality of transportation and sidewalks will reduce noise, air pollution and encourage residents to walk. That promotes the livability and success of cities would help to create a sustainable environment and as well as a livable place.

This research contributes to serving as a general guide for developing and designing livable accessible cities from the aspect of physical elements that are connected with urban quality in the context of urban space in Jordan.

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