Pedestrianizing Streets in Amman, Jordan: Contextualized Criteria for Optimum Street Selection

A Thesis submitted in the Partial Fulfilment for the Requirement of the Degree of Master of Science in Integrated Urbanism and Sustainable Design

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July 2018

Acknowledgements

First and most importantly, this thesis will have never been possible without the guidance and support of my two supervisors; Dr. Mohamed Salheen and Prof Jan Dieterle. Time after time, I was amazed by your skills to connect the dots and give clarity to what seemed to my mind like an overwhelming mess of ideas. Thank you for your patient listening and your positive attitude through my moments of despair.

To Giancarlo Muñoz, who was always ready for my "quick consultations" to turn into three-hour conversations, which eventually formulated the structure of my whole research. Thinking every step out loud with you made this thesis feel like another IUSD group project, and for that and much more I thank you, your determination was sufficient to keep both of us going.

To my beloved family, thank you for being brain-storming partners (Rasha, thank you along with Sara Al-Nasser for igniting the thesis idea), study partners (Laith, your company and good music recommendations reminded me that group stress is always fun), connection providers (Lina, thank you for always knowing someone who is helpful), survey testers and re-testers, venue providers and punctual audience for the focus group discussion, and most importantly, I thank my parents for always being there to provide their sharp perspective and generous and constant emotional support.

Warm gratitude goes to my University of Jordan undergraduate family, and especially to Hani Qudah, Maher Bata, and Jawad Dukhgan; I know I will always have your support and constructive criticism.

I extend my gratitude to all of those who gave a local perspective and made the Amman data collection process a little less difficult: From the Greater Amman Municipality: Eng. Nuha Qutaish (Executive Manager), Eng. Neama Qatanani (Executive Director of Engineering), Arch. Rula Khashman (Public Transport Directorate & BRT Project Coordinator), and Dr. Firas Al-Rabadi (Director of the Department of Urban Heritage). From the Statistics Department: Eng. Ala'a Abu Jamal (Head of GIS Depratment), Eng. Khaled Al-Alawneh (GIS Department), and Eng. Ahmad Al-Momany (Director of Census Department). Hazem Zureikat (Board member at Engicon Engineering Consultants), Dr. Rami Farouq Al-Daher (Head of Turath Consultants), David Reich (Fulbright scholar and researcher on Amman Walkability around BRT stations), Tha'er Quba'a (Founder of Tha'er Qub'a Consultant Architects), Deyala Tarawneh (Professor of Parametric Design at the University of Jordan), and all of those who took the time to meet, attend the focus group discussion, or fill in and spread the survey; your generosity is immensely valued.

Abstract

This research aims to influence the reintroduction of pedestrianizing streets[1] in Amman, the capital of Jordan, into the line of strategies of the Greater Amman Municipality, which gave up on this model after a few controversial pedestrianization experiences implemented in the first decade of the 21st century. It forecasts that pedestrianization, if redone in combination with the city's ongoing Bus Rapid Transit plans, can contribute to solving many of the city's accumulating urban issues related to car-dependency and lack of recreational open public space. The research argues that in order to achieve successful pedestrianized streets, four elements have to meet: suitable definition of pedestrianization *motif*, suitable *street selection*, suitable *scheme* selection, and frequent *evaluation* of street performance.

In the scope of this study, the first two elements, *pedestrianization motif* and *street selection,* will be investigated into detail in order to come up with contextualized criteria for selecting the most suitable streets for pedestrianization in Amman. The contextualization of this criteria, which is at the core of this study, will be done through a systematic methodology that combines an expert approach (extracted from global pedestrianization literature, local pedestrianization literature, interviews with local municipality professionals, and a focus group discussion), together with a bottom-up, people-inspired approach (extracted from intuitive opinions of street users collected through a locally-conducted survey).

Upon implementing this methodology, which can as well be transferred to contextualize criteria to suit any other city, three lists of street selection criteria emerged, each tackling a different pedestrianization motif relevant for the context of Amman, and implementable on different street types within the city. The applicability of these criteria lists on the streets of the city is finally verified as follows: The first list, with the motif of *Pedestrianization to Enhance Access to Public Transport* is compared against

characteristics of *Downtown's King Tala Street*; the second, with the motif of *Pedestrianization to Enhance Recreation options (Central City Scale)*, is compared against characteristics of *Zahran* and *Al-Madina Al-Munawwara Streets*; and the third, with the motif of *Pedestrianization to Enhance Recreation Options (Local Neighborhood Scale)* is compared against characteristic of *Al-Shari'a Street*. Accordingly, recommendations are given regarding the criteria lists and resulting streets.

Keywords

Pedestrianization, Pedestrian Streets, Street Selection, Criteria, Motifs, Public Space, Right to the City, Bottom-Up Approach, Jan Gehl, Jane Jacobs, Tom Potsma, Rami Daher, Rainbow Street, Wakalat Street, Thaqafeh Street, Greater Amman Municipality, GAM, Amman, Jordan.

Table of Contents

Chapter 1:
General Introduction

1.1 Background

In the second half of the 20th century, Amman, the capital of Jordan, witnessed substantial growth as a result of increased internal migration and the consecutive influx of refugees escaping war or political turmoil that faced the surrounding countries. The city's population rose from about 20,000 in the early 1940s (Gubser, P., 2004) to a current number of over 4 million inhabitants[2], making it home to approximately 42% of the country's total population (DOS, 2017). The Greater Amman Municipality (GAM), unequipped to deal with this kind of uncertainty, had not been too quick to catch up with that growth; its public transport network was, and still is to this day, limited to an inefficient bus network[3], high dependency on taxis and the private car resulted in gridlocks and increased pollution, and little governmental and municipal ownership of lands within the city's urbanized borders couldn't cater for enough public parks and open spaces (AlBashir, 2018), leaving it lagging behind in reaching the minimum figures of green open space per capita recommended by the World Health Organization (2012)[4].

But the beginning of the 2000's was a time of a paradigm shift for Amman; GAM decided it was time to compete globally and improve livability standards for its residents. The problems of congestion and lack of recreational space that the city faced were not too far from problems that other global cities had faced in the past, so the government sought international support to introduce the scheme of pedestrianizing streets in its new urban renewal plans, which many cities have been implementing to overcome similar issues, especially since the 1960's (Stienstra, 1982).

Over the course of 8 years, GAM employed Dutch architect Tom Postma to design the city's first ever pedestrian street, Al-Thaqafeh Street; Danish renowned architect Jan Gehl to draw strategies for reclaiming public space for the areas of Ashrafiyeh & Sweifieh; and local architect Rami Al-Daher to design the pedestrianization of two commercial streets, Rainbow Street and the Wakalat Street, all in compliance with the proposed 2008 Amman Master Plan, with the motto of "taking back the streets" (Jo Staff, 2008), aiming to revitalize under-used spaces in neighborhoods and create spaces that are friendlier for pedestrians.

1.1.1 Problem Statement

Although this introduction portrays Amman as a winning and transformed city, its victory was not long-lived. GAM had not been aware of the sequence of progression that follows the application of a pedestrianization scheme, and that naturally, the first two years after the implementation face complaints from shop owners regarding decrease in business before conditions stabilize and business figures mount up again (Haus Klau, C., 1993). Soon after the continuous criticism that the municipality received, and without any official evaluation of the changes in financial revenue or pedestrian numbers, GAM rushed to conform to the people's complaints, reintroducing a car lane to both Rainbow and Wakalat streets, and dropping the focus of the 2008 masterplan all together.

Since then, no other public pedestrianization projects in Amman saw the light. GAM, based on its flawed experiences, abandoned a globally successful and vigorously-replicated scheme, labelling it unsuitable and unfit for the context of Amman. No consideration has been made that perhaps the selected streets were not the most suitable for pedestrianization, or that the top-down professional opinions for these selections, both international and local, might not have been sufficient to create successful pedestrianization schemes welcomed by the residents.

Since then, Ammanis' ownership of their public streets became limited to their creative, bottom-up, and socially-driven movements of reclaiming their *right to the city*[5]. Activities like skateboarding, street art, street music, sidewalk cafes, photography tours and walking tours[6] started to emerge in public streets, serving as continuous reminders for city officials that residents want to have a share in a dynamic and cohesive public sphere.

1.2 Research Objectives and Aims

1.2.1 General Objectives

In a general sense, this research aims to influence the reintroduction of pedestrianizing streets as a line of strategies in the Greater Amman Municipality as a contribution to solving the city's accumulating urban problems relating to the low quality of life, high car dependency, traffic congestion, and lack of open public space.

The reintroduction is forseen to have a different turn of events this time for two main reasons: First, it is being proposed in parallel to a major opportunity; the ongoing construction of the Bus Rapid Transit (BRT) system in Amman, which can both enhance and be enhanced by the presence of supporting pedestrian streets; and second, the research will try to avoid past local pedestrianization problems by giving special focus on the processes of motif definition and street selection, making sure that any chosen street for a new pedestrianization scheme is selected in the right location and for the right reason.

1.2.2 Main Aim

Within this special focus on motif definition and street selection, the main aim of this research is to put together a database of context-specific criteria for the selection of optimum streets for pedestrianization in Amman, Jordan, to be used by the city's decision-makers as a tool for selecting streets in upcoming pedestrianization projects.

This database will result from an elaborate and systematic process of contextualization, and will embed within it opinions of experts as well as local street users. The main outcome will be in the form of different lists of street selection criteria, each tackling a different pedestrianization motif identified relevant for the context of Amman, and applicable on different types of streets within the city.

1.2.3 Research Question

How can a mixed-approach of combining the experts' opinion together with the opinions of local users help in the development of a contextualized criteria for selecting the most suitable streets for pedestrianization in Amman, Jordan?

1.3 Research Methodology

1.3.1 General Methodology

To come up with contextualized criteria for selecting streets for pedestrianization in Amman, Jordan, this research will combine an expert approach, based on literature and professional opinions, together with a bottom-up people-inspired approach, based on a locally-conducted survey.

The two approaches will take place simoltaneously (Figure 1). The expert approach, which I will refrain from labeling as "top-down" approach, will be used to create different lists of street selection criteria, each tackling a different pedestrianization motif. These lists will be in the form of *characteristics* that can make a street a successful candidate for pedestrianization. The bottom-up approach will be used to collect a list of potential *streets* that are considered successful pedestrianization candidates according to the people, with or without justification, based on their daily experiences in the streets of their city.

The final step of the methodology, the data synthesis, brings together these two approaches and analyses if the resulting criteria lists from the expert approach apply on the mentioned streets of the bottom-up approach, and accordingly give recommendations and final conclusions of how to best contextualize these criteria lists to make sure that they embed the locals' needs and visions within them. A general methodology is represented in figure 1, and will be explained more into detail with the progression of the thesis chapters.

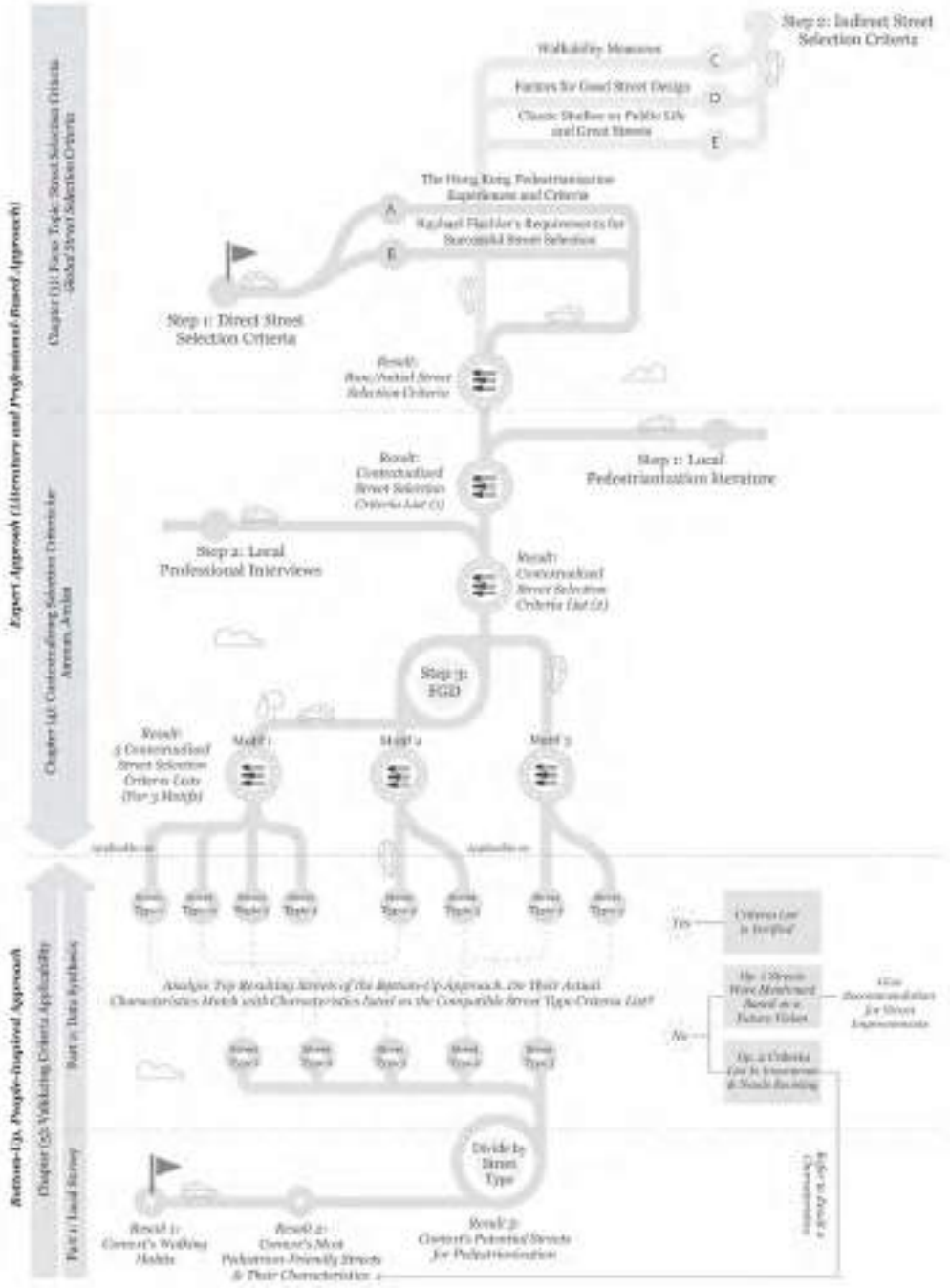


Figure 1: Research methodology used to gather, contextualize, and validate criteria to select street for pedestrianization in Amman, Jordan. *Source: Author.*

1.3.2 Data Collection Methods

Different methods of data collection were used to collect, contextualize, and validate criteria as simplified in Figure 2. These methods will be divided based on the approach as follows:

a. Expert Approach (Literature and Professional-Based Approach):

Within this approach, data collection, or more accurately named *criteria collection*, relied on a snowballing method where the outcomes of each step of the process acted as a base for the following step, in which new criteria were extracted and added to the previously-collected ones. The approach included these four main data collection methods:

1. Analysis of global literature, global pedestrianization experiences or global governmental publications tackling pedestrianization criteria (whether directly or indirectly). This was used to produce a raw/initial street selection criteria list. More details will be presented in Chapter 3.
2. Analysis of local pedestrianization literature, specifically published literature on the case of Rainbow Street pedestrianization in Amman. This was used as a first step of criteria contextualization.
3. Local Professional Interviews: Interviews were conducted with professionals and decision-makers from the local municipality (GAM) and other governmental institutes (e.g. The Department of statistics, The Royal Jordanian Geographic Center). Here, a referral approach was used in order to reach for the right individuals who could provide the most help on the specific topic. These interviews were used as a second step of criteria contextualization.
4. Focus Group Discussion (FGD): Here, different professionals in the fields of architetcture, urban planning, transport planning, as well as a few street activists, none of which has a position in an official decision-making institute in the city, participated in a focus group discussion which was organized as a third step of criteria contextualization. The referral method was also helpful here to reach for the right participants to invite to the event.

b. Bottom-Up, People-Inspired Approach:

For this approach, a locally-conducted survey was the only method of data collection, although to some extent, the focus group discussion which involved some representatives of the local community can also be seen as part of the bottom-up approach. The survey was distributed in different locations in the city in an aim to be inclusive to different perspectives and needs, and succeded in collecting 148 answers.

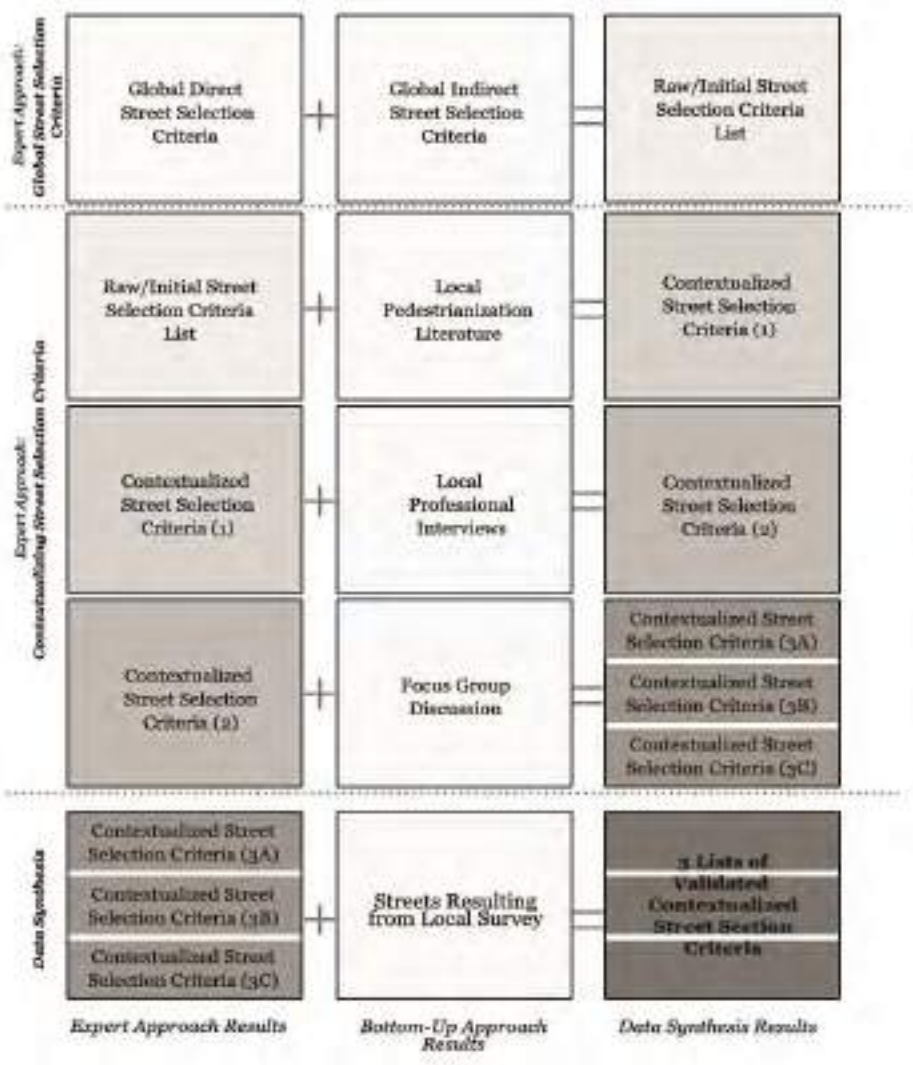


Figure 2: Simplified research methodology and different data collection methods (presented in light grey). *Source: Author.*

1.4 Research Structure

Chapter 1| General Introduction

This chapter aims to orientate the reader on the main research problem and the objectives and aims of this study. It clearly states the research question and presents the methodology of how an answer to this question can be reached. It shows into detail the data collection methods used throughout the process, and concludes with the research structure, presenting the flow of chapters and their specific content throughout the research.

Chapter 2| General Topic: Pedestrianization

This chapter gives a brief overview on the general topic being tackled in this research; Pedestrianization. It starts with a theoretical background on the definition of pedestrianization, its history and progression through time, different schemes of how it can be implemented, and different motifs behind its implementation, backed up with some global and local examples. It goes into detail into three local past pedestrianization case studies, and concludes by defining that out of four main elements necessary for the success of any pedestrianization project; the research will only focus on two: *pedestrianization motifs* and *street selection.*

Chapter 3| Focus Topic: Street Selection Criteria

To fulfil the element of right street *selection*, specific criteria for selecting streets should be followed. Assembling these criteria will be the main focus of this whole research and will start to unravel in this chapter. The chapter starts by listing the different literature and references from which global street selection criteria will be assembled. Each assembled criterion will then be described into detail to justify how it is relevant for selecting a street for pedestrianization, and finally, the chapter concludes with a list of *raw* or *initial* criteria list, which will formulate the base for the upcoming chapters.

Chapter 4| Contextualizing Selection Criteria for Amman, Jordan

This chapter builds on the outcomes of chapter 3, taking the raw/ initial list of street selection criteria, and adapting more to the context of Amman using expert opinions. Before proceeding with this process, which will be called "contextualization", the chapter starts with a general orientation about the context of Amman and some information on current social and planning-related topics it is facing.

The context is followed by a *contextualization methodology*, which explains how criteria is extracted and filtered along each step of the expert approach. The chapter then gives a detailed explanation of each step and its extracted criteria, starting with the Local Pedestrianization Literature *(Step 1)*, then with the local professional interviews (*Step 2),* and finally the Focus Group Discussion *(Step 3).* The outputs of this chapter are 3 lists of contextualized street selection criteria, classified according to three different pedestrianization motifs, and the street types on which they can be applied.

Chapter 5| Validating Criteria Applicability

The three criteria lists resulting from the previous chapter (expert approach results) are moved into this chapter to verify their applicability on the streets of Amman, this is done by comparing them against a bottom-up, purely intuitive perspective of the city's most optimum streets for pedestrianization, as mentioned in a locally-conducted survey.

The chapter will be divided into three main sub-chapters; the first will tackle the survey, explaining its structure and most prominent results, the second will explain the

methodology through which the survey's results are going to be used to validate the developed criteria, and the third *(Data Synthesis)* will proceed with this validation process through a detailed analysis of the survey's top-three mentioned streets. According to this analysis, final required modifications will be made to the criteria lists, and recommendations will be given for the analyzed streets to make them more fit for pedestrianization.

Chapter 6| Recommendations and Conclusions

This chapter is a summary of the findings and lessons learnt from this research. The first part tackles the general research outcomes, the transferability of the contextualization criteria methodology to suit other contexts, and some shortcomings and factors affecting the process and credibility of the research results. The second sub-chapter is devoted for recommendations; it offers suggestions for the local municipality regarding the topic of pedestrianization as well as other topics that were brought up in this research, and finally, the thesis is wrapped with recommendations for fellow researchers regarding possibilities of further research.

Figure 3: Structure of the Research & Division of Chapters. *Source: Author*.

Chapter 2:
General Topic: Pedestrianization

2.1 Chapter Overview

This chapter gives a brief overview on the general topic being tackled in this research; Pedestrianization. It starts with a theoretical background on the definition of pedestrianization, its history and progression through time, different schemes of how it can be implemented, and different motifs behind its implementation, backed up with some global and local examples. It goes into detail into three local past pedestrianization case studies, and concludes by defining that out of four main elements necessary for the success of any pedestrianization project; the research will only focus on two: *pedestrianization motifs* and *street selection.*

2.2 Theoretical Background

2.2.2 Pedestrianization History and Progression

Long before the introduction of the automobile as an inseparable part of the human life, streets were considered to be communal spaces where children played, people gathered, and commerce took place. These lively spaces were destinations rather than transitional spaces. After industrialization and the widespread of the automobile, streets changed function. Pedestrians were no longer a planning priority, street planning focused merely on car owners, and pedestrians were marginalized on a narrow sidewalk on both or either sides of the streets. Public spaces where pedestrians could feel welcome without any

endangerment or noise, became limited to large-scale, state-designed parks, only in cases where the government had the resources to provide them.

In the modern day however, and especially since the 1960's (Gehl and Svarre, 2013), concepts started to change with the rising voices of socialists and urbanists criticizing modern-day communities of being "bedroom communities", where life between buildings has been completely abandoned[7]. This has been a wakeup call for many governments, which started works on the reintroduction of the street as a healthy public space, by applying one of many schemes of adaptation.

Germany was amongst the first countries to adopt the pedestrianization schemes (Iranmanesh, N., 2008). The scheme started in the early 1930's and spread in cities that were rebuilding their city centers which were destroyed in WWII (Moosajee, N., 2009). By 1970, the country had around 500 pedestrian areas in 300 towns. The expansion of the pedestrianization model from a few pilot projects to this large number did not happen haphazardly but was highly influenced by the results of accumulative research projects and monitoring studies, most often than not supported by a German governmental body, which proved the positive effect of pedestrianizing streets on trade and livability in Germany (Haus Klau, C., 1993). Since studies proved that the model was successful, it became increasingly hard for shop owners to go against new governmental plans for pedestrianizing. The government even applied amendments to some of its policies and laws, e.g. shop owners should contribute to the costs of implementation of pedestrianization.

Nowadays, one can notice an increasing interest in topics of pedestrianization and opposition of the automotive's ultimate right to the roads in many different cities around the world. Media, blogs, grassroot initiatives, and even progressive governments are involving themselves in such causes like Parklets, Car-Free Days, Open Streets, and Critical Mass events.

2.2.3 Pedestrianization Motifs

"Good streets, sidewalks, parks, and other public spaces bring out the best in human nature and provide the settings for a civil and courteous society". (Ford, 2000, in Fouladkhani, Sh. 2014)

When it comes to analyzing public space in general, many authors start by stating its importance for the city and its residents. For *Gri, D.* (2010) and *Project for Public Spaces* (2012), healthy public space strengthens the economy, creates a sense of identity and belonging, and builds social cohesion in communities of high diversity. Many global examples can be listed where cities have seen major transformations when they put the people and the livability of the city first in their urban development plans, as in the cases of Copenhagen (Gehl, J. and Gemzøe L., 2001), and Hong Kong (DeWolf, C., 2005), that gradually transformed and now serve as role-models for any city seeking to improve its livability and pedestrian experience. But public space is not a notion limited to large-scale, state-designed parks. For Project for Public Spaces (2012) and Gri, D. (2010), it is also inclusive of smaller spaces, such as streets with welcoming atmospheres that can bring people in. This section aims to briefly put together different motifs of why cities implement pedestrianization schemes to their streets, as gathered from different global and local pedestrianization literature.

Motifs for pedestrianizing streets can be grouped and presented into these 4 main categories:

a. Functional Motifs
b. Health and Environmental Motifs
c. Social Motifs
d. Economical Motifs

Functional Motifs	*Health & Environmental Motifs*	*Sociocultural Motifs*	*Economical Motifs*
Enhancing Road Safety & Pedestrian Flow *(LegCo Panel on Transport, Feb 2000) (HKPD, n.d.)* Enhancing Pedestrian Connections to Activity Nodes *(LegCo Panel on Transport, Feb 2000)* Enhancing Access to Public Transit (in turn reducing car dependency) *(Daher, R. 2010)*	Enhancing Personal Health and Fitness Enhancing Sustainability and Environmental Quality *(Daher, R. 2010) (LegCo Panel on Transport, Feb 2000) (HKPD, n.d.)*	Enhancing Social Cohesion *(Daher, R. 2010, p. 3)* Enhancing Recreation Options *(Daher, R. 2010)* Enhancing Atmosphere Safety (e.g. less harassment, drug dealing, etc...) *(Qatanani, N. 2018)* Enhancing/ Preserving Historical Identity (e.g. Historical City Centers) *(Moosajee, N., 2009, p. 2-30)*	Enhancing Business and Economy (by enhancing shopping environment) *(HKPD, n.d.) (Daher, R. 2010)*

Table 1: Pedestrianization motifs as gathered from global and local pedestrianization literature/ case studies. *Source: Author*

2.2.4 Pedestrianization Schemes

Pedestrianization does not necessarily mean closing down a street permanently to car access, it can be implemented in many different schemes, depending on the opportunities and limitations present in the given street. Different pedestrianization schemes include (HKTD, 2013):

a. Full-Time Pedestrianization: This scheme bans cars from entering a street permanently, devoting the street strictly for pedestrian (and sometimes bicycle) access. (Figure AA-1)
b. Part-Time Pedestrianization: This scheme Bans cars from entering a street temporarily, e.g. On weekends, for certain hours during the mornings or afternoons, or on national holidays. (Figure AA-2)
c. Mixed-Priority Pedestrianization: Mixed-priority pedestrianization is a scheme where priority is shared between pedestrian activities and vehicles (LegCo Panel on Transport, Feb 2000) through the enforcement of traffic-calming techniques and laws to reduce the original automobile density and inspire safe walkability.

The Street's pedestrian value can still be reserved without fully preventing the use of the vehicle. (Figures AA-3,4)

d. Winkelerf scheme: This scheme is not included in the HKTD classification of pedestrian schemes. It is an old scheme that some Dutch cities have implemented to improve the quality of their shopping streets. Winkelerf is closest in character to a mixed-priority pedestrianization scheme, but with the priority more inclined towards the pedestrian. Here, car access is not completely prohibited, but the design is done in a way that transmits the message that the pedestrian comes first, and vehicles or bicycles are allowed to access as "guests" only (Stienstra, S., 1982).

Figure 4: (Top Left): Copenhagen's Stroget Street as an example of full-time pedestrianization. *Source: Unknown*
Figure 5 (Top Right): Play Street Detour New York City ca. 1916-1920, as an example of part-time pedestrianization. *Image Credit: New York City Municipal Archives*
Figure 6 (Bottom Left): Example of mixed-priority pedestrianization. *Source: https://www.autoevolution.com/news/traffic-calming-goods-and-bads-44310.html*
Figure 7: (Bottom Right): Street in Mexico City as an example of mixed-priority pedestrianization. *Source: ITDP (2014)*

2.3 Local Pedestrianization Case Studies

2.3.1 Thaqafeh Street

The design of Thaqafeh Street, or what can be directly translated into English as" The Culture Avenue" was commissioned by GAM to Dutch architect Tom Potsma. In the year 2000, Amman was elected to be the Arab Capital of Cultural 2002 (Al-Asad, M., 2012) and thus came the idea of transforming a median in a not-too-busy traffic street in the area of *Al-Shmeisani*, into a pedestrian-exclusive stretch with purposes of being a hub of culture, incorporating an outdoor gallery on a sunken level, in addition to kiosks for books on art and culture surrounding a public space on the upper level.

An opportunity was seen in that street considering that Al-Shmeisani, which is a hub for business companies as well as restaurants and cafes, was already used to one form of the concept of pedestrianization, having its café area surrounding *Haya Cultural Center* closed to traffic once a week on Thursdays. Ahead of the transformation, the median was non-functional for traffic and therefore was expanded by reducing the surrounding traffic lanes and applying some traffic-calming measures to attract safe pedestrian access to it. (Qatanani, N., 2018)

Shortly after the implementation of the scheme, this median which was meant for cultural activities did not receive enough maintenance, surveillance and follow-up activities, and subsequently got vandalized and overtaken by boy gangs or young men who "recklessly cruise[d] around this island in their cars" (Al-Asad, M., 2012). Nowadays, the originally designed book kiosks either shut down or got transformed into snack kiosks, and the sunken gallery is only functional as a spot where skateboarders practice their skills.

Figure 8: Amman's Thaqafeh Street. *Source: Aga Khan Trust for Culture*

2.3.2 Wakalat Street

In 2007, and in compliance to a masterplan prepared by Jan Gehl for Strategies for Public Spaces in Amman, a rough proposal was made for the full-time pedestrianization of Wakalat Street, which was later commissioned to Rami Al-Daher for the detailed design. Wakalat Street, which directly translates to "Street of the Brands", is exactly what it sounds like; it is a shopping street in an upper-middle class neighbourhood where branches of top retail franchises are located, only affordable to a small segment of the city's population.

Prior to the pedestrianization, the street suffered from multiple traffic problems, but was nonetheless vibrant due to the lack of presence of other destinations in the city for shopping like malls, who only got popular after the pedestrianization of *Wakalat.*

After the pedestrianization, the municipality received numerous complaints from shop owners about loss of customers, explaining that the street was only attracting non-buyer crowds or youngsters who see the street merely as a recreational destination, and that this crowdedness, combined with the unavailability of sufficient nearby parking spaces, drove

their customers to other more convenient shopping destinations, like malls, which by that time were being newly-introduced and trending in Amman (Qatanani, N., 2018).
According to Amman's mayor then, Mr. Omar Ma'ani, those young crowds that the street attracted were there because of lack of other recreational options in the city, but with more realization of pedestrian streets and public space projects around the city, these crowds will find their way to dissipate (Ma'ani in JoStaff, 2007).

By 2011, a new mayor was elected for Amman, and in 2014, a car lane was introduced back to the street in an aim to fix conditions for the shop owners. According to Qatanani (2018), even then, the street remained inactive, for people had more access to malls or outlets, and with hindering economic conditions, not many wanted to invest in buying brands anymore.

Figure 9 (Left): Wakalat Street before its pedestrianization (before 2007).
Figure 10 (Middle): Wakalat Street directly after its pedestrianization in 2007.
Figure 11 (Right): Wakalat Street in 2014 after the re-introduction of one traffic lane.
Source: Jo Staff (2008)

2.3.3 Rainbow Street

The Rainbow Street pedestrianization plan was part of the Amman 2008 masterplan aiming to create a city friendlier for pedestrians. Prior to its pedestrianization, and since the 1980's, the street had been part of a vibrant mixed-use neighborhood. GAM commissioned Turath Architects for the design of the project, which gave minimal interventions for the redesign of the street, and in 2008, the 1.5 km stretch was pedestrianized using a full-time pedestrianization scheme and opened to the public. (The Aga Khan Trust for Culture, 2011, in archnet, 2018)

Shortly after, the traffic of the street, which was diverted to surrounding streets, became unbearable for visitors as well as neighborhood residents, forcing the municipality, as in the case of Wakalat Street, to reintroduce a traffic lane into the street in 2011. Nonetheless, Rainbow Street's pedestrianization had tremendous positive effects on the street itself, and the neighborhood of Jabal Amman as a whole, partially because it is continuously kept alive by a neighborhood committee that plans summer weekly markets, concert, and other events keeping the place constantly activated. The project created a boom in tourism, economy, and recreation. And although the excess of cafés and restaurants still cretaes a strain on traffic and an annoyance for the local residents (Qatanani, N., 2018), these issues

can be avoided in next pedestrianization projects by simple regulations and land-use restrictions.

Figure 12 (Left): "Jara flea market vibrant with people and local products for sale". *Photo Credit: Maiss Razem (2009).*
Figure 13 (Right): Rainbow street view at night. *Photo Credit: Arnaldo Gititrini (2009)*
Source: Daher, R. (2010).

2.3.4 Current Status of Pedestrianization in Amman

After the controversial pedestrianization experiences faced by the municipality, and the hassle that came alongside them in trying to get the locals to accept concepts totally new to the city, especially when imposed through a top-down approach, the pedestrianization scheme was abandoned. But residents of Amman, who gradually became more aware and connected to the world through travel and following global trends online (qatanani, 2018), gained more awareness of their right for more inclusive public spaces. Nowadays, trends in streets are emerging like sidewalk cafes, street art, street music, photography tours, and walking tours, amongst many others.

Figure 14 (Left): Fast Walk Amman. Source:
Figure 15 (Right): Cafes extending on sidewalks in Jabal Al-Lweibdeh. Source:

This year, the greater Amman municipality is slowly picking up on the concepts of planning for pedestrians. And even though the schemes are not solely targeting pedestrians, but 5 new projects are being proposed of "ideal streets" where good combinations of street width, sidewalk width, crossing infrastructure, off-street parking, street furniture, and an attention to special needs are considered, to make journeys pleasant for both the vehicle driver and the walker. These 5 projects are (GAM GIS, 2018):

1. Khalid Bin Al-Waleed Street (Jabal AL-Hussein)
2. Al-Ba'oniah Street Street and Al-Shari'a Street (Jabal Al-Lweibdeh)
2. King Ghazi Street (Downtown)

3. King Faisal Bin Abdul-Aziz Street (Between 6th circle and Al-Haramein Circle)
4. Husni Sobar and Jamal Qaitouqah Streets (Wadi Al-Seer)
5. King Abdullah I Street (Downtown)

Figure 16: Projects of "Ideal Streets" Proposed by GAM. *Source: GAM GIS, (2018)*

2.4 Conclusions

2.4.1 Aspects of a Successful Pedestrianization Project

From all the inputs delivered in this chapter about pedestrianization's different motifs, schemes, global and local case studies, and factors contributing to projects' successes or failures, data was synthesized in order to come up with this hypothetical model, suggesting that in order to achieve successful pedestrianized streets, four elements have to meet: suitable definition of pedestrianization *motif*, suitable *street selection*, suitable *scheme* selection, and frequent *evaluation* of street performance.

In the scope of this study, and for time constraints, the first two elements, *pedestrianization motif* and *street selection,* will be investigated into detail in order to come up with contextualized criteria for selecting the most suitable streets for pedestrianization in Amman.

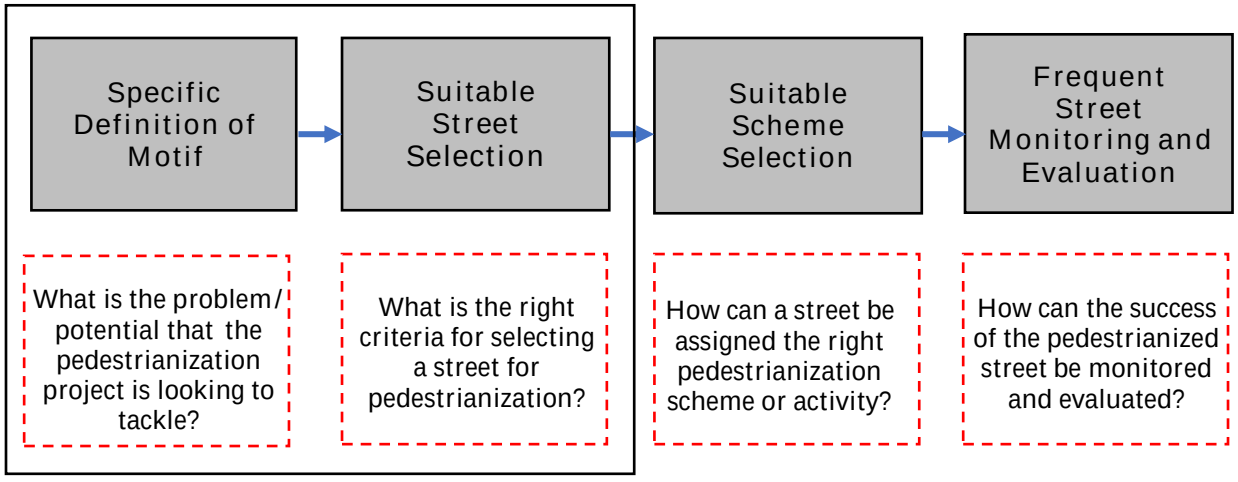


Figure 17: Aspects of a Successful Pedestrianization Project. *Source: Author*

Chapter 3:
Focus Topic: Street Selection Criteria

3.1 Chapter Overview

Vast research has been done on the topic of street pedestrianization. There is an abundant amount of references describing pedestrianization projects and evaluating their successes and failures, but when it comes to a systematic methodology or transferrable criteria justifying how some local municipalities selected those pedestrian streets in their specific locations, references run short, and rather give criteria for *walkable streets*, or *healthy streets* that encourage public life participation. These criteria, although not directly addressing the topic of pedestrianization, will still be considered relevant for the content of this chapter, considering that high walkability and public life participation are key factors for a successful pedestrian street.

This chapter bases itself on several references to assemble criteria for selecting streets for pedestrianization. The list resulting from this chapter is only a *raw* or *initial* criteria list, which can later be contextualized to suit any chosen context. The methodology for that will be presented in upcoming chapters.

3.1.1 Data Collection

a. References directly tackling the topic of selection criteria:

1. Raphaël Fischler's[8] list of requirements for successful selection of pedestrian streets. (Fischler R. in DeWolf, C., 2005).
2. The Hong Kong pedestrianization experiences: Hong Kong has been placing special attention to the topic of pedestrianization since the early 2000's. Since then, different governmental departments have been drawing strategies and implementing projects to improve the pedestrian experience, encourage more people to walk, and enhance the air quality within the city (DeWolf, C., 2005), motifs extent further as mentioned in section 2.2.2, and even though pedestrian streets were not part of the organic growth of the city, Hong Kong managed to gradually transform itself into one of the most pedestrian-oriented cities in the world (DeWolf, C., 2005), and now serves as a role-model for any city seeking to improve its liveability and pedestrian experience, for that, the Hong Kong experience will be used as an important reference for the extraction of criteria.

   Criteria is extracted from the Hong Kong pedestrianization experiences through a review of the following governmental reports:
   -The Hong Kong Planning Department's "Study on Planning for Pedestrians" (HKPD, n.d.)
   - The Hong Kong Transport Department's report on "Pedestrian Schemes for Wan Chai" (HKTD, 2013)
   - The Legislative Council's Panel on Transport report on "Pedestrian Schemes for Mong Kok and Tsim Sha Tsui" (LegCo, Mar 2000)

b. *References indirectly tackling the topic of selection criteria:*

1. Walkability measures as extracted from the document "Using GIS to Measure Walkability: A Case Study in New York City" (Agampatian, R., 2014)
2. Factors for good street design as extracted from the document "Success and Sustainability Criteria for Streets: The Case of Ismet Inonu Boulevard (Salamis Road), Famagusta" (Fouladkhani, Sh., 2014)
3. Classic studies on public life and great streets as extracted from the teachings of Jane Jocobs, Allan Jacobs, Jan Gehl, and William Whyte (multiple references).

Figure 18: Recap of the Global Street Selection Criteria Process. *Source: Author.*

3.2 Global Street Selection Criteria

3.2.1 Street Dimensions, Proportions, and Orientation

Street proportions are crucial for inviting pedestrians into the street. While wide streets are favored by transport planners for the use of the vehicle, pedestrian-oriented planning calls for narrower streets, where the building height is somewhat larger than the street width (Moughtin, C., 1992 in Fouladkhani, S. 2014). This not only affects the image of the street; it also implies less traffic lanes and speeds, meaning that the street is safer, more pedestrian-friendly (Tomalty et al., 2009 in Agampatian, R., 2014), and less prominent in the city's vehicle transportation network.

An ideal street image is achieved in streets with widths that vary from 6-9 meters and are enclosed by buildings 3-4 levels high (Unwine, 1909 in Fouladkhani, S. 2014, p.49). According to Fischler, R., the building-to-building width of pedestrian streets shouldn't exceed 15 meters (Fischler, R. in DeWolf, C. 2014).

Best proportions and orientation of pedestrian streets are relative to the climate of the area where they are being planned. For colder cities, an East-West street orientation is recommended (Fischler, R. in DeWolf, C. 2014) with a greater width that allows for better sun penetration. In contrast, narrower streets with higher enclosing buildings are recommended for hot climates, which could benefit from the additional shade (Palladio, 1965, p. 59)

Street Width and Climate
Figure 19: *left:* Narrow width and high enclosing buildings shade the street of Deira in the hot climate of Dubai, UAE *(Photo Credit: Patryk Kosmider, Shutterstock.com).*
Figure 20: *Right*: Wider proportions of Königstrasse street in the colder climate of Stuttgart, Germany allow enough sun penetration into the street to keep it warm *(Photo Credit: Arco Images GmbH / Alamy Stock Foto)*

3.2.2 Proximity

Proximity is another crucial aspect affecting the number of pedestrians on streets, and therefore an important factor influencing the selection of streets for pedestrianization. Vargo et al. state that when distance between two destinations is less than or equal to 1 km (approximately a 10-minute walk), people will choose walking or cycling rather than driving (Vargo et al., 2011).

Three types of proximity were identified as relevant for pedestrianization:

a. Proximity to Landmarks and Point of Interest

When selecting a street for pedestrianization, one of the Hong Kong Planning Department's strategies is to look for streets in locations that complement the city's existing pedestrian flow network (HKPD, n.d.). This flow is often generated by the presence of landmarks or attractions points separated by distances that can be easily covered by foot. In the words of Duany et al., "Pedestrian life cannot exist in the absence of worthwhile destinations that are easily accessible on foot. Otherwise, there is no reason to walk, and the streets are empty." (Duany et al., 2000, in S Fouladkhani, Sh. 2014, p.22)

Proximity to landmarks like public parks, squares, plazas, shopping complexes, frequently-visited governmental institutions, or simply walkable infrastructure like trails and pathways has been proven to encourage walking and keep streets bustling with pedestrians (Fischler, R. in DeWolf, c., 2005; Agampatian, R., 2014, p.14)

b. Proximity to Public Transit

Another element, which can comply to the previous category, but will be tackled as an individual criterion in this research is the proximity to public transport hubs. Public transport hubs are igniters of a large number of pedestrians, which can be diverted into adjacent pedestrian streets in order to enhance economic activity, and vice versa, pedestrian streets or simply areas of high walkability have the ability to support public transport systems by supporting more ridership (Park, 2010; Frank et al., 2010 in Agampatian, R., 2014). Reich, D., 2018 simplifies it by stating that in order to ride a bus, you have to walk to the bus station, therefore environments that support walking and

create barriers to car use have higher numbers of bus rapid transit (BRT) boardings (Estupinan & Rodreguez, 2008 in Reich, D., 2018).

c. Proximity to Common Services

The last type of proximity affecting pedestrian numbers in a given street is the proximity to common services. This mostly affects local neighbourhoods but can also exist in a more central scale. Close presence of common day-to-day services like markets, pharmacies, stationary shops, hair dressers, dry clean shops, gyms, schools, kindergartens, cafes, banks, house appliances, and many other services encourages neighbourhood residents to reach their destination by walking or cycling (Tomalty et al., 2009 in Agampatian, R., 2014), this was also be proven right for the local case of Amman, Jordan through the survey results. (Refer to 5.2.2-Survey Results or Annex xx)

3.2.3 Density

According to Jane Jacobs, city life is strongly connected to density (Jacobs, J., 1961, p. 163). Density as a general term is a measure of the compactness of an element in a given area. This section will identify four types of densities relevant for the selection of optimum streets for pedestrianization:

a. Existing Density of Pedestrian Activity:

Pedestrianizing a half active block to revive it isn't a successful approach (DeWolf, C. 2014). According to Gehl, J. (1987) and Whyte, W. (1980), most sociable spaces are those located on busy streets. This has been proven right in many of Hong Kong's implemented pedestrianization schemes, where the city only sought to transform streets with the most concentration of pedestrian activity, one example is the Mong Kok pedestrianization scheme (LegCo, Mar 2000). This concentration of pedestrian numbers is sometimes seen as a potential, and other times seen as a threat (an unhealthy crowdedness) where pedestrians and vehicles continuously clash, but nonetheless, Hong Kong handled both with the approach of pedestrianization (HKTD, 2013).

Fischler believes that pedestrianization doesn't have to extend for the full length of the street, but should be limited to the street's most active blocks. (Fischler, R. in DeWolf, C. 2014).

b. Existing or Anticipated Economic Density

Economically-dense areas attract pedestrians and improve walkability (Brownson et al., 2009). Pedestrianizing an economically-dense area, whether existing or anticipated, can create a more favourable environment for the walkers (HKPD, n.d.). Economic density can be one or a mix of the following:

-Density of food and café outlets

-Density of commerce and retail

-Density of firms and businesses

-Density of hotel developments

For example, Hong Kong's *Mong Kok Street* was characterized by substantial commercial, retail and other economic activities before its pedestrianization, while the *Tsim Sha Tsui Area* was characterized by a concentration of commercial and hotel developments. (LegCo, Mar 2000). Both are now successful and vibrant pedestrianized zones.

c. Population Density

Population density has positive effects on walkability; when a dense population is within a walking distance of a destination, more people are likely to walk towards it (Curran et al., 2006, in Agampatian, R., 2014). For example, when a high population resides at walking distance from a transit station, the possibility of transit ridership is expected to be higher (Agampatian, R., 2014). The same works for pedestrian streets; Fischler believes that for a street pedestrianization scheme to be successful, the surrounding area should have a high population density (Fischler, R. in DeWolf, c., 2005)

Another positive impact that high population density can have on pedestrianization, is that highly-dense areas tend to have higher household densities, and therefore a density of commerce, recreation and services is likely to be found in the vicinity (Tomalty et al., 2009, Saelens et al., 2003; Brennan Ramirez et al., 2006; Brownson et al., 2009; Robitaille et al., 2009), as mentioned earlier, the density of these elements impact pedestrianization positively.

In some cases, high population and household densities can result in neighbourhoods with poor environmental qualities (Fouladkhani, Sh., 2014, p.76). This threshold between healthy and unhealthy densities has not been clearly identified from literature reviews, and is necessary to be contextually defined before proceeding to select areas for pedestrianization.

d. Intersection Density (Interconnectivity)

From a pedestrian perspective, intersection density has been abundantly praised in walkability literature. Larger intersection count, or in other words *smaller blocks*, offer more chances for pedestrians to enter, exit or chose an alternative route in a given area or street (Jacobs, 1961, p. 162). This interconnectivity and higher variety of "walking itineraries" affect walkability positively. (Tomalty et al., 2009; Vargo et al., 2011; Robitaille et al., 2009; Pelletier, 2009; Berrigan et al., 2010 in Agampatian, R., 2014)

Intersection density is easily quantifiable; a higher density of four-way intersections in a street is favourable as it implies shorter travels distances, and more chances for physical as well as visual permeability (Robitaille et al., 2009; Pelletier, 2009 in Agampatian, R., 2014; Fouladkhani, Sh., 2014, p. 78).

From a vehicle perspective on the other hand, intersection density in the proximity of the street to be pedestrianized can mean better options for a divertible traffic. When

considering whether to pedestrianize a street or not, divertible traffic and alternative solutions for vehicular servicing of buildings are some of the criteria adopted by the Hong Kong Planning Department in their pedestrianization schemes, as explained in their publication *Study on Planning for Pedestrians* (HKPD, n.d.), this criterion is more applicable in street selection processes that involve full or part-time pedestrianization schemes, but can possibly be avoided for mixed-priority pedestrianization schemes, which allow, although at a much lower momentum, vehicle movement and servicing.

3.2.4 Diversity of Uses (Mixed-Use)

Diversity brings life to streets and invites locals to take part in city public life. According to Fouladkhani, this is done by combining living, working, and shopping activities at walking distances from one another (Fouladkhani, Sh., 2014, p.24). It has been proven that areas of higher diversity are associated with lower car use and car ownership figures (Song et al., 2005 in Agampatian, R., 2014).

Mono-functionality, on the other hand, is a major cause of car-dependency (Carmona, 2007 in Fouladkhani, Sh., 2014, p.75), and can be avoided by combining a minimum of two functions together (Jacobs, 1961, p. 162).

3.2.5 Architectural Identity

Fouladkhani emphasizes the value of good architecture in influencing public life in streets. He explains that interesting building facades, with sensible choices of massing, materials, and small-scaled details have the power to establish a sense of place, and keep the pass-by "confused, delighted, and intrigued" (Buchanan, 1988, p.25- 27 in Fouladkhani, Sh., 2014). To Carmona (2003), small-scaled details have a much stronger impact on pedestrians than large-scaled ones, which can be easily observed from a distance or from a moving vehicle. For example when asking London's residents about their opinions towards the municipal plans of pedestrianizing Bold Street, many interviewees believed that the street is a good pedestrianization candidate, elaborating that it will give users the opportunity to notice the street's beautiful architecture on foot, which is otherwise hardly noticeable when travelling through the street using the car. (Cockerham, 2017)

3.2.6 Trees and Greenery

The role of trees in streets can be a functional or an aesthetic one. Aesthetically, Allan Jacobs (1993) believes that "some streets may be remembered and identified by their trees". When it comes to function, trees enhance air quality, create shelter from winter rains (when evergreen), and shade from the harsh summer sun. For colder climates (Figure xx-b), deciduous trees are preferred for pedestrian streets, or simply for sidewalks, to allow for better sun ray penetration to keep the street warm. For sidewalks and mixed-priority pedestrianization schemes, lining trees close enough to one another on a sidewalk can create a pleasant atmosphere and a safe separation between pedestrian-only zones and car lanes (Jacobs, A. 1993 in Fouladkhani, Sh., 2014, p.68).

3.3 Conclusions

Based on the characteristic presented above, this chapter will be concluded by presenting a *Raw or Initial Selection Criteria List* which will formulate the base used for the next steps of this research (contextualizing selection criteria to the context of Amman, Jordan). The compiled criteria will be grouped based on characteristic into 3 categories: Physical, Functional, and Socio-Cultural criteria. *Physical* criteria are those concerning the street's form, placement, or components; *functional* criteria are those related to the street's operation and its role as an artery of movement and activity; and *socio-cultural* are those criteria that give the street its value in society and culture. This division was adapted from the one used in Fouladkhani's research on "Success and Sustainability Criteria for Streets" (Fouladkhani, Sh., 2014, p.108).

3.3.1 Raw/ Initial Selection Criteria List

Physical *Relates to Street's Physical Form, Placement & Components*	**Functional** *Relates to street's operation and movement*	**Socio-Cultural** *Relates to street's value in society & culture*
• Narrow Street Width (From 6 to 9 meters) *For hot climates* •Broad Street Width (Maximum 15 meters) *For cold climates* • East-West Street Orientation *For cold climates* • Rich Architectural Value & Small-Scaled Detailing • High Intersection Density (Small Blocks, High Interconnectivity) • Presence of Trees and Greenery	• Non-Arterial Street with Less Traffic Lanes • Divertible Traffic and Servicing Possibility • Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network) • Walking Distance to Public Transit Stations • Walking Distance to Common Services • Existing/ Anticipated Economic Density: 1. Density of Food and Cafes 2. Density of Commerce and Retail 3. Density of Firms and Businesses 4. Density of Hotel Developments • Diverse Mix of Uses	• Existing Density of Pedestrian Activity • Walking Distance to High Population Density Neighborhoods

Table 2: Raw/ Initial street selection criteria list as extracted from global literature and case studies. Source: Author, classification system adapted from (Fouladkhani, Sh., 2014, p.108).

Chapter 4:
Contextualizing Selection Criteria for Amman, Jordan

4.1 Chapter Overview

This chapter builds on the outcomes of chapter 3, taking the initial list of street selection criteria assembled from global literature and case studies, and trying to adapt it more to the context of Amman. Before going into details on the criteria contextualization, section 4.2 will provide the reader with an orientation about the context. It starts off by introducing Amman, its important location as a Middle-Eastern capital, and general facts about its history and demographics. It then explains the current status of some social and planning-related topics that are relevant to justify why re-introducing pedestrianization as a line of strategies within the local municipality is highly recommended by this research at this point in time.

Following the context sub-chapter is a *methodology* of how to contextualize the street selection criteria from a global scale to the local scale of Amman. It starts by extracting local street selection criteria from a document concerning a local pedestrianization case study; the case of Rainbow street, presenting the logic of its selection *(Step 1)*. Step 2 of the contextualization involves opinions and criteria suggested in interviews conducted with city planners from the local municipality and the statistics department, and step 3 will show how the resulting assembled criteria is arranged by the attendees of a focus group discussion in an order of most to least relevant, according to three different pedestrianization motifs:

-Pedestrianization to enhance access to public transit
-Pedestrianization to enhance recreation options (central city scale)
-Pedestrianization to enhance recreation options (local neighbourhood scale)

The outputs of this chapter (the 3 lists of contextualized street selection criteria) will then move into chapter 5 to verify their applicability on the streets of Amman.

4.2 The Context

4.2.1 Context Overview

4.2.2 Amman's Current Conditions

4.2.2.1 Rising Population and Refugee Crisis

Amman, the capital of Jordan, grew from being an uninhabited city prior to 1870, to becoming village of around 5,000 inhabitants in 1921 (Pilder, 2011), to finally becoming the metropolis it is today with approximately 4 million inhabitants (DOS, 2017). This population rise has almost continuously been caused by political conflict in the region, resulting in refugee movements and population inflows into Amman. For example, in the years following the 1948 Palestinian-Israeli war, Amman welcomed 240,000 Palestinian refugees, a number 4 times its inhabitants at the start of the war (Pilder, 2011); waves of refugees continued to settle in the city after each outbreak of a nearby political event, like the 1967 Palestinian-Israeli war, the 1975 Lebanese civil war, the 1990 Gulf War, the 2003 US invasion in Iraq, and most recently the Syrian civil war in 2011 (Bonine, Michael E., 1997).

All this political discourse is being mentioned to raise the understanding that in less than 80 years, Amman's population grew more than 200 times. The city grew not because it planned to grow, but rather because it needed to grow. This growth has often been addressed in the form of crisis management rather than strategies addressing future growth (United nations, 2007, p 8). Efforts to enhance the city's infrastructure and public services, including public transport, were unable to account for the instability caused by population influx. (Pilder, 2011).

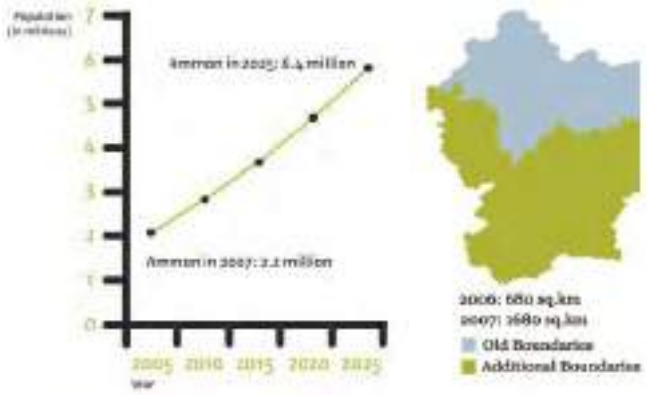


Figure 21 (Left): Amman's Past, Current, and Expected Population Rise.

Figure 22 (Right): Amman's increase of boundaries by 1000 sq.km between 2006 and 2007.
Source: Amman BRT (n.d.)

4.2.2.2 Car Dependency and a Crippled Public Transport System

Figure 23: Traffic in Abdoun Area. Photo Credit: Anonymous. *Source: Obeidat, O. (2014).*

In terms of the city's transportation and mobility plans, pedestrians have often been marginalized with all planning efforts focused on serving the automobile. The city's infrastructure of roads and bridges has encountered a remarkable enhancement in the past years with all investment pouring in its direction (BRT, N.D.), but results only showed more traffic congestion. Reasons for this can be due to the above-mentioned high population rise issues combined with a crippled public transport system, creating more dependency on the use of the private car. But another reason that justifies the problem, directly cited in the words of Poboon (1997) is that "Wide roads and flyovers act as a catalyst for increasing car dependency, creating a car-orientated urban environment". Project for Public Space explain it by stating that "If you plan cities for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places." (Kent, F. 2018).

Not only has this focus on road infrastructure hindered planning for pedestrians, it also hindered investment in a good public transport system. As for public buses, the existing system is inefficient and under-developed for the size of the city, which has grown dramatically between 2006 and 2007 (Figure cc). There are no rail-based transportation modes in the city itself or between different cities within the country, but the city is foreseeing some changes soon after finally pursuing with the construction of a new Rapid Bus Transit (BRT) infrastructure, which was expected to operate in 2011 (BRT, N.D), but still has not operated to this day. The system includes 3 lines; the first line will run from

Sweileh to Al-Mahatta Reference, the second from Sport City to Ras Al-Ein, and the third from Al-Mahatta to Zarqa (BRT, 2018).

4.2.2.3 Low Walkability around Future BRT Stations

As has been mentioned in Chapter 3 on Global Street Selection Criteria, a BRT system which influences rideability cannot be implemented detached from its surroundings, and if the surroundings are more walkable, more users are guaranteed for the BRT system. If GAM, with its new BRT plans aims to cut down car dependency in the city, they have to consider enhancing walking conditions around stations.

4.2.2.4 Amman's Administrative Subdivisions

In general, the Hashemite Kingdom of Jordan follows a relatively complex administrative division system (Figure 24). Primarily, the Kingdom is divided into three regions (*Aqaleem*); the North, the Central, and the South Regions (MOTA, 2005). Together, these three regions are in turn divided into twelve governorates (*Muhafathat*), and the Capital *Amman*, is one of these governorates. Each governorate is then divided into sub-governorates (*Alwiya*), those divided into Districts (*Aqdiya*), then into Localities (*Tajammo'at Sukkaniyyah*), then into Regions (Manateq), and the smallest division is the neighborhoods (*Ahya'*) (DOS GIS, 2018). This structure is being mentioned to provide a base for further data that will be presented later in this research, and therefore give the reader an ability to locate mentioned streets or zones into the holistic scale of the city.

Focusing on the governorate of Amman; it is home to 43.1%[9] of Jordan's population of 10,005,300 inhabitants. It covers 8.5%[10] of Jordan's total area (DOS, 2017), and constitutes of 9 sub-governorates, the core of which is the sub-governorate of "Qasabat Amman" (DOS GIS, 2018), home to the region of "Al-Madinah" which locals refer to as the downtown.

It is worth noting that a lot of variations exist between the official governmental divisions and the informal locally-used divisions; e.g. Neighborhoods like *Al-Rabieh* and *Deir Ghbar*, which were repeatedly mentioned in the surveys (Chapter 5), are inexistent in the official city division system, and are instead referred to as *Al-Salam* and *Al-Diyar* respectively. Annex xx was prepared to break down Amman's complete administrative division system, which can be viewed on the Department of Statistics maps (DOS GIS, 2018) but not in a publicly-accessible list format.

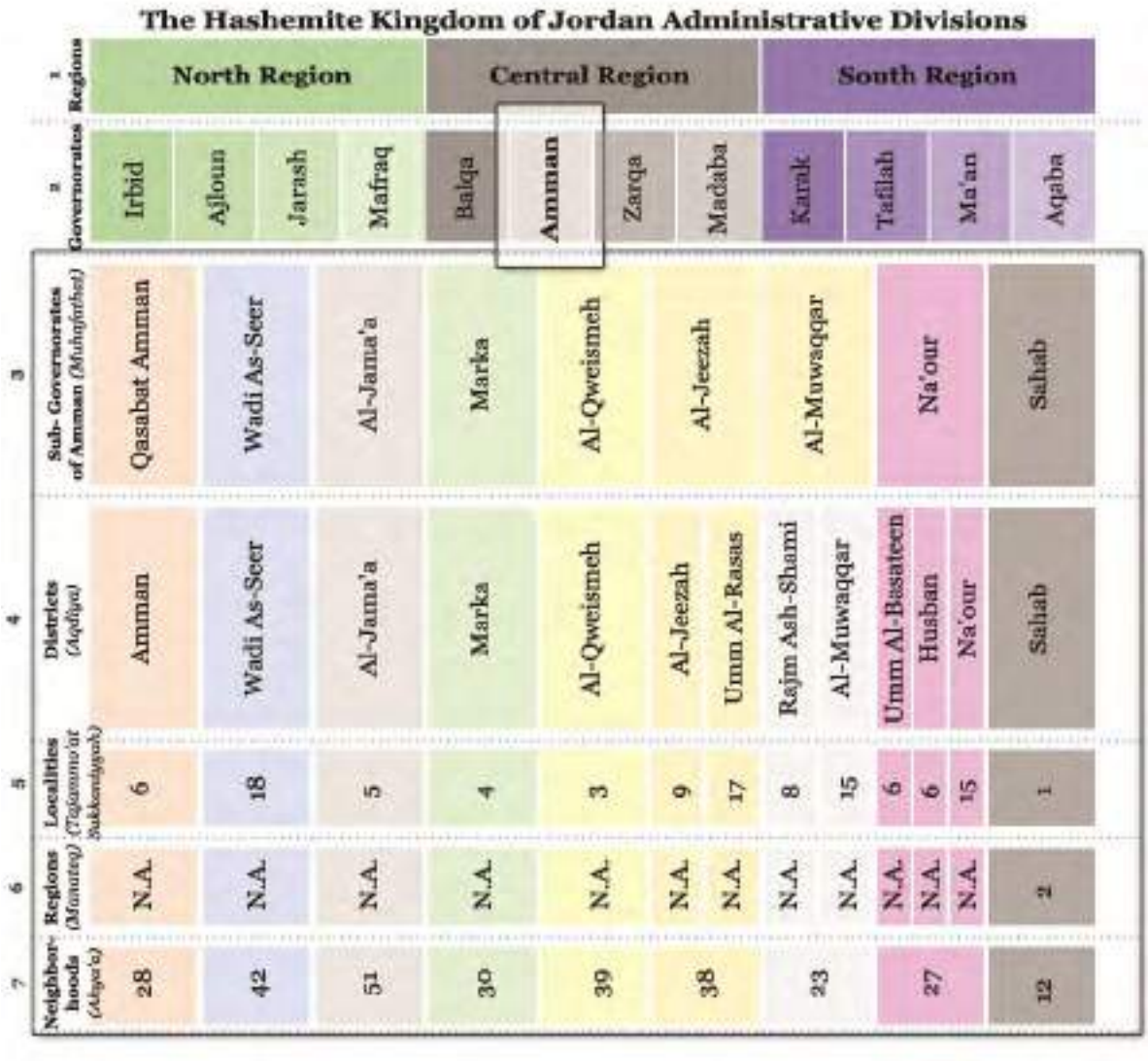


Figure 24: The Hashemite Kingdom of Jordan Administrative Subdivisions (With a Focus on Amman). *Source: Author*

4.2.2.5 Amman's Street Hierarchy

A description of the city's street type categorization and hierarchy will serve as a basis for steps to come in this research and thus will be explained into detail here. It is worth noting that the city of Amman grew quite organically with no clear street hierarchy system used as a planning reference. Finding online information for this existing system was very challenging, but the system eventually chosen for use in this research was the one provided by Open Street Map (Figure 25).

Here, and as can be seen in the figure, the map displays different street colours, indicating the presence of a specific street hierarchy, but no legend is provided for the category of each colour.

Figure 25: Section of Amman Showing the City's Street Hierarchy in a Color Code. Source: https://www.openstreetmap.org

To justify the categories, the street hierarchy system suggested by *Amman Institute* in a master plan concerning a future development project (figure yy) was used as a reference for categorizing these streets (Maani, O., 2007), even though specific physical street standards (e.g. street width) don't perfectly match the conditions of all existing city streets.

Figure 26: The connection made between the Street Hierarchy System proposed for the masterplan for HDMU Development Areas, and the street hierarchy system of OpenStreetMap. *Source: Ma'ani, O. (2007)*

Note that street division system displayed above is transport-oriented and relates more to the street width and infrastructure. In trying to adapt it to suit the street's land-use and the perspective of the local user (the pedestrian), who is the focus of this research, a small

modification will be made to the labels of "local roads" and "service lanes", and the final street categories used in this paper will be as follows:

1. Transit Parkways
2. Main Streets
3. Collector Streets
4. Local Streets (Residential Commercial); in other words, street *central to their local neighborhoods.*
5. Local Streets (Residential)

4.2.2.6 Relevance of the Re-Introduction of Pedestrianization

Based on the current issues and conditions discussed earlier, one can place these issues in parallel to all the pedestrianization motifs discussed in chapter 3, and see the links that arise between the context's issues and the way that pedestrianization can aim to solve them.

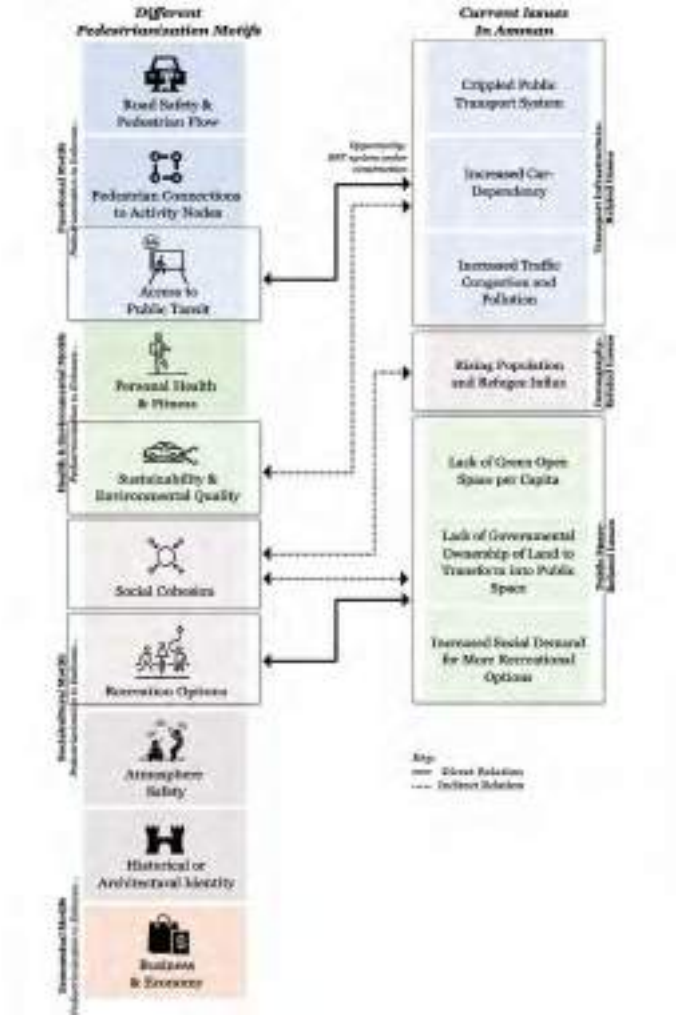


Figure 27: Links between different pedestrianiztion motifs and Amman's current issues are a strong proof of the relevance of the re-Introduction of pedestrianization in Amman at this point in time. *Source: Author.*

4.3 Selection Criteria Contextualization Methodology

The diagram below is part of the bigger methodology and presents the specific methodology used to contextualize the previously gathered street selection criteria (Raw/ Initial Street Selection Criteria) to better suit Amman. More details of each step will be elaborate in its specific section.

Figure 28: Methodology of Contextualizing Street Selection Criteria. *Source: Author.*

4.3.1 Contextualization Step 1: Local Pedestrianization Literature

This section aims to analyse local literature and reports on past local pedestrianization projects in an aim to understand processes preceding their implementation and criteria that the local municipality relied on to come up with their specific street selections.

4.3.1.1 Structure

When looking for literature or governmental reports explaining why and how the city of Amman selected streets for its past pedestrianization projects (Section 2.3), nothing concrete can be found, and although the interview with Ne'ama Qatanani (Section 4.3.2.1- The Process) will reveal that there was a structured approach for the selection of Wakalat Street for pedestrianization, the documentation of this process is not available and therefore hardly amendable or replicable in other parts of the city.

In the two other projects however (*Al-Thaqafeh Street* and *Rainbow Street*) the processes seem more intuitive rather than structured. To pedestrianize Rainbow Street for example, Rami Al-Daher, head of a local architectural office called *Turath Architects*, was

approached by the local municipality with the street pre-selected; he was not asked to develop criteria and accordingly select the street (Daher, R., 2018). Al-Daher saw in the street many potentials and characteristics that he believed would make it a successful pedestrian street as well as public space, which he listed in a report submitted for the Aga Khan Award for Architecture (Daher, R., 2010).

Multiple other streets within the city fulfil Daher's list of characteristics and therefore can be good candidates for new pedestrianization schemes. Unfortunately, the list hasn't gotten the attention it deserves to be adopted into local guidelines for selecting streets for pedestrianization. These characteristics are presented below and will be used as contextual street selection criteria considering the relative success of rainbow street.

1) *Rich History and Heritage*

2) *Vibrant and Authentic Mixed-Use*

3) *Distinct Ammani Character*

Using roughly-cut stone in building facades is a characteristic very distinctive to Amman's architecture since the beginning of the 20th century. Nowadays, newer and more industrial building materials are being introduced (alucobond, concrete, etc...), but most older and more central parts of the city preserve a uniform stone identity, enriching the sense of place and making those areas more attractive to users and visitors.

4) *Rich Cultural Experience*

The dense presence of representations of the Arabic and Jordanian culture, whether through food, art, ornaments, or clothes all make a neighbourhood more attractive and enjoyable to both its residents as well as local and foreign visitors.

5) *Brilliant Adaptations and Creativity*

As the concept of *freelancing* is slowly carving its way into the Jordanian mentality, central parts of the city are currently the hub for that. Many old houses in the central city neighbourhoods are being adapted into creative work spaces, art galleries, cultural venues, or restaurants and cafes, while paying a special focus to bring out the historical and traditional architectural elements of those houses.

6) *Social Diversity and Justice:*

Rami Daher emphasized the relevance of social diversity for pedestrianization twice; once in the report on Rainbow Street pedestrianization (Daher, R., 2010), and once in a personal interview (Daher, R., 2018). He believes that tolerance in a city like Amman, with multi-national and multi-cultural residents, can only be achieved through public spaces that attract all types of people to participate.

Social diversity can be found in two ways; within the neighbourhood itself (e.g. mixed-income and background groups residing within the same area), or within the crowd that the neighbourhood attracts based on what the neighbourhood offers (e.g. varied styles of commerce and businesses that attract people from different incomes and backgrounds).

7) Connectivity and Competitiveness:

Another characteristic distinctive to Amman is its hilly topography. It has always been believed that the 7-pointed star in the Jordanian flag stands for the "7 hills of the city of Amman". These hills all surrounded and were served by the city centre at the bottom of the central valley, where a small water stream used to pass. To access the city centre or travel between the hills, the fastest way was (and still is) by using one of the hills' many connecting stairs.

Since then, Amman expanded tremendously to accommodate many more hills, but stairs as vertical movement facilitators and dominant connecting elements can no longer be spotted in newer parts of the city.

4.3.1.2 Results

The table presented below is the result of *Contextualization Step 1: Local Pedestrianization Literature*. It was generated by adding the previously-mentioned street selection criteria extracted from local pedestrianization literature (Rainbow Street) to the initial street selection criteria extracted from global case studies (Refer to Chapter 3: Table 2).

Physical *Relates to Street's Physical Form, Placement & Componets*	**Functional** *Relates to street's operation and movement*	**Socio-Cultural** *Relates to street's value in society & culture*
• Narrow Street Width (From 6 to 9 meters) *For hot climates*	• Non-Arterial Street with Less Traffic Lanes	• Existing Density of Pedestrian Activity
•Broad Street Width (Maximum 15 meters) *For cold climates*	•Divertible Traffic and Servicing Possibility	• Walking Distance to High Population Density Neighborhoods
• East-West Street Orientation *For cold climates*	• Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	• Rich History and Heritage
• Rich Architectural Value & Small-Scaled Detailing	• Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	• Rich Cultural Experience
• High Intersection Density (Small Blocks, High Interconnectivity)	• Walking Distance to Public Transit Stations	• Brilliant Adaptations and Creativity
• Presence of Trees and Greenery	• Walking Distance to Common Services	• Social Diversity and Justice:
• Distinct Ammani Character	• Existing/ Anticipated Economic Density: 1. Density of Food and Cafes	1. Within a Socially-Diverse Residential Neighborhood
	2. Density of Commerce and Retail	2. Attractive to Socially-Diverse Visitors
	3. Density of Firms and Businesses	
	4. Density of Hotel Developments	
	• Diverse Mix of Uses	

Key:
Newly Mentioned Criteria
Newly Endorsed Criteria

Table 3: Results of Contextualization Step 1
Street selection criteria list as extracted from global literature and case studies, complimented with contextual criteria extracted from local literature and case studies (in green). Source: Author.

4.3.2 Contextualization Step 2: Local Professional Interviews

4.3.2.1 Structure

Since literature was lacking to justify street selections for previous local pedestrianization case studies, an essential step in this research was to interview professionals from the local municipality. These interviews were not only necessary to unveil processes of previous and ongoing pedestrian-oriented projects, but also to endorse or discard some of the previously-assembled criteria from local professionals' points of view.

In an Interview with Ne'ama Qatanani, the Executive Director of Engineering at GAM, Qatanani gave a brief of the workshop they had with Jan Gehl to specify streets or areas to be reclaimed as public spaces for Amman. The workshop resulted in the three following projects:

Street or Area	*Location*	*Proposed Project*	*Project Status*
Al-Wakalat Street	Sweifieh Neighbourhood	Full-Time Pedestrianization	Completed, then transformed into a Mixed-Priority Street
Area surrounding Abu Darwish Mosque	Al-Ashrafieh Neighbourhood	Public Plaza and Commercial Complex	Completed
Ahl Al-Kahf Area	Abu Alanda Neighbourhood	Information not available	Abandoned project

Table 4: GAM Projects to Reclaim Public Spaces in Amman in Collaboration with Jan Gehl
Source: Author based on Qatanani, N. (2018).

The process

To identify these project, the process started with 27 areas that the municipality had previously identified. Each area was then assigned a manager who took off with a team of volunteers to analyse it and nominate its *most active* or *most troubled* street, both of which could benefit from a public space reclamation project.

From these nominations, further assessment was carried out for each street to narrow down the selection and make sure it covers different geographical parts of the city, so that development and privileges are distributed between areas fairly. Records of this assessment could not be tracked, as they were owned by Amman Institute, a private institute that was part of GAM but later got dismantled (Qatanani, N., 2018). Nonetheless, the following criteria was extracted from Qatanani's brief and other conducted interviews:

1. Physical Criteria

    a. *East-West Street Orientation*

    Qatanani believed that this specific street orientation could make the climate and sun in the pedestrianized street much less harsh on the user during the midday hours, but is not easy to find in an organically-planned city like Amman.

    b. *Rich Architectural Value:* Endorsed by Qatanani, N. (2018)
    Qatanani explained that the rich presence of architectural value was a prominent criterion sought for in the previously-mentioned assessed streets to narrow down the number of potential projects.

    c. *Topographically Nonchallenging*

    A new aspect that was introduced to the physical criteria list is *topography*, considering the previously-mentioned hilly identity of Amman.

2. Functional Criteria

a. *Non-Arterial Streets with Less Traffic Lanes*

This criterion was strongly endorsed. Qatanani explains: "You cannot simply consider any street for a pedestrianization scheme; if a street width is 20 meters for example, regulations state that it is obligatory that it includes a median and three traffic lanes, so even if the street fulfils all other set criteria for pedestrianization, we are not simply allowed to take from the street to the people. Adding *non-arterial street*, or even *one-way street* to the criteria list will make the results more achievable" (Qatanani, N. 2018)

b. *Divertible Traffic and Servicing Possibility*

This criterion was endorsed, stating that the reason for re-introducing the traffic lane to *Rainbow Street* three years after its full-time pedestrianization was due to the major impediment that the scheme caused to the whole surrounding street network, requiring a consideration for better traffic planning in future projects. (Qatanani, N. 2018)

c. *Walking Distance to Car Garages*

For any full-time pedestrianization scheme, the presence of a parking lot or a multi-storey parking garage is essential for the success of the scheme, explains Qatanani. This can either be in the form of an existing garage; or a land which is owned by the municipality and can be transformed into a garage; or as in the case of Rainbow street, the municipality can make arrangements with nearby schools or firms to use their garages outside of their official working hours (Qatanani, N. 2018).

d. *Walking Distance to Public Transit Stations*

Here, it was recommended that attention should not only be given to streets close to planned BRT stations, but also to ones that have stops of smaller local coasters (buses) and service cabs (a local term for shared-cabs that only operate when maximum capacity is reached). Qatanani explains that this was the criteria that GAM relied on for the selection of *Husni Sobar and Jamal Qaitouqah Streets* for their "Ideal Streets" project (Refer to Section 2.3.4) (Qatanani, N., 2018)

e. *Existing/ Anticipated Economic Density*

While this is very important, it shouldn't be done in a monotonous manner. In other words, just as it is important to have a diverse mix of uses in a street (Residential, commercial, etc...), it is equally important to have a diverse mix in the types of commerce available in the street. Qatanani explains that one failed aspect in *Rainbow Street* was that there was no regulation specifying the percentages of each type of commerce that can exist, and the street gradually got sold to monotonous and continuously-busy food and drink businesses, in contrast to the cultural and touristic commercial facilities that the municipality had planned for, making the street and the surrounding area too disturbing for its residents.

3. Socio-Cultural Criteria

a. *Rich History and Heritage*

Instead of talking about history and heritage in an abstract manner, Dr. Firas Al-Rabadi, *director of the Department of Urban Heritage in GAM,* makes this criterion quantifiable. GAM has been working for the last years on producing a database of all cultural heritage buildings around the city, dividing heritage into two categories (Rabadi, F., 2018):

-*Historical Buildings*: Buildings from the 1920's, 30's or 40's related to the gradual transformation of Amman from a village to a city, especially those works by *Sharif Fawaz Al Muhanna*, and *Majd Al-Deen Al-Jabiri*; two of the city's first architects who established its architectural identity (Rafieh, M., 2007); or buildings connected to historical events or historical figures (e.g. residence of British General Glubb Pasha).

-"*Good Architecture" Buildings:* First modern style buildings constructed in the city in the 1950's, designed by architects who graduated from international architecture schools.

These documentation efforts are still ongoing, and have not covered the whole city yet, but when the database is finalized, it can facilitate the identification of the "Rich History and Heritage" streets. At the moment, areas rich in cultural heritage (ordered from first to last mentioned by the interviewee) are: Downtown, Jabal Amman (Mostly in Rainbow Street), Jabal Al-Lweibdeh (Mostly in Shari'a Street), Al-Radwan, Al-Shmeisani, Al-Mudarraj, Al-Qala'a (Mostly in Salma Bin Al-Akwa'a Street), Al-Rujoom, Al-Adliyyeh, and Jabal Al-Hussein (Rabadi, F., 2018).

Architectural Heritage in Amman: Historical Buildings

Figure 29 (left): Current Darat Al-Funoun building and previous residence of the British general Glubb Pasha. *Photo Credit: Haupt + Binder.*

Figure 30 (Right): Current Bayt Al-Fann Al-Urduni (1934-1937) by Sharif Fawaz Al Muhanna located in Prince Muhammed Street. *Source: (Rafieh, M., 2007, p.49)*

Architectural Heritage in Amman: „Good Architecture" Buildings

Figure 31 (Left): Modernist Building characterized by thick extruded slabs, horizontality, and external staircases. *Photo Credit: Hamza AbuHamdiya.*

Figure 32 (Right): Modernist entrance estimated to date back to the 1960's close to Hisham Hotel in Jabal Amman. *Photo Credit: Hamza AbuHamdia. (AbuHamdia, 2016)*

b. *Rich Cultural Experience:* Endorsed by Qatanani, N. (2018)

c. *Rich* Touristic Value: Endorsed by Qatanani, N. (2018) and Rabadi, F. (2018) who believed that the combination of a rich cultural experience and a rich touristic value attracts more foreigners to visit or live in the neighbourhood, bringing along their walking culture and traditions.

d. Social Diversity and Justice

Alawneh, Kh. (2018) emphasized the importance of having a mixed-income residential neighbourhood at a walkable distance from any planned street for pedestrianization. According to Alawneh, lack of social diversity in the nearby residential neighbourhood is what made *Al-Wakalat Street* fail as an inclusive public space in the city. Al-Wakalat's main pedestrianization motifs were not for enhancing the street's economical revenue or shopping environment, but mainly for "reclaiming public spaces" for the city's residents as a whole (Maani, O. in Jo Staff, 2008). In the lines of this motif, choosing a top brands' shopping street in the exclusively upper-middle class residential zone of *Sweifieh* might not have been the ideal criteria for an inclusive public space.

e. Low Car Ownership in Surrounding Residential Neighborhoods

Once again Alawneh, Kh. (2018) emphasizes the need to look for mixed-income neighbourhoods where car ownership figures are low when planning for a pedestrian street. This will generate more walking trips to reach to nearest public transport stops, and consequently result in a constantly bustling pedestrianized street.

4.3.2.2 Results

The table presented below is a result of *Contextualization Step 2: Local Professional Interviews*, which involves adding the above-mentioned criteria extracted from interviews with city planners from the local municipality and the statistics department to the previously contextualized street selection criteria presented in table 3. The results presented in this table will form the base for the next contextualization step: *Focus Group Discussion*.

Physical *Relates to Street's Physical Form, Placement & Components*	**Functional** *Relates to street's operation and movement*	**Socio-Cultural** *Relates to street's value in society & culture*
• Narrow Street Width (From 6 to 9 meters) *For hot climates*	• Non-Arterial Street with Less Traffic Lanes	• Existing Density of Pedestrian Activity
• East-West Street Orientation	• One Way Streets	• Walking Distance to High Population Density Neighborhoods
• Rich Architectural Value & Small-Scaled Detailing	• Divertible Traffic and Servicing Possibility	• Rich History and Heritage: *Rich Presence of Buildings Registered on the List of Cultural Heritage*
• High Intersection Density (Small Blocks, High Interconnectivity)	• Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	
• Presence of Trees and Greenery	• Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	• Rich Cultural Experience
• Distinct Ammani Character	• Walking Distance to Car Garages	• Rich Tousitic Value
• Topographically Nonchallenging	• Walking Distance to Public Transit Stations: 1. Walking Distance to Planned BRT Stations 2. Walking Distance to *Coaster* (Small Buses) and *Service* (Shared Cab) Stations	• Brilliant Adaptations and Creativity • Social Diversity and Justice: 1.Within a Socially-Diverse Residential Neighborhood
	• Walking Distance to Common Services	2. Attractive to Socially-Diverse Visitors
	• Existing/ Anticipated Economic Density: 1. Density of Food and Cafes 2. Density of Commerce and Retail 3. Density of Firms and Businesses 4. Density of Hotel Developments	• Low Car Ownership in Surrounding Residential Neighborhoods
	• Diverse Mix of Economic Density	
	• **Diverse Mix of Uses**	

Key:
- Newly Mentioned Criteria
- Newly Endorsed Criteria
- **B** Previously Endorsed Criteria

Table 5: Results of Contextualization Step 2
Street selection criteria list as extracted from global literature and case studies, complimented with contextual criteria extracted from local literature and case studies, as well as contextual criteria extracted from local professional interviews (in purple). *Source: Author*.

4.3.3 Contextualization Step 3: Local Focus Group Discussion (FGD)

4.3.3.1 Structure

Although the contextualized list resulting from the previous step (Table 5) is more holistic and relevant to the context, but it is still not directly applicable for street selection. This is because the relevance of each criterion on the list varies greatly based on the determined pedestrianization motif (Khashman, R., 2018). E.g. If the main motif of pedestrianization is to *enhance access to public transit*, then the criterion of "Walking Distance to BRT Station" would be more relevant than other criteria like "Narrow Street" or "Street Rich in Architectural Value and Small-Scaled Detailing". Therefore, this focus group discussion was arranged with the purpose of classifying the previously-collected criteria in an order of most to least relevant, based on selected pedestrianization motifs that are relevant to the context.

The focus group discussion was a two-hour evening session which took place at the 7iber headquarters in Lweibdeh area. The invited 22 participants were a mix of experts (urban planners/ transportation planners/ architects), as well as local street activists (active walkers/ leaders of group-walking or group-cycling events around the city).

The session was divided into three parts:

Part I: Short Presentation on Pedestrianization

The presentation exhibited some of city's current challenges, past pedestrianization experiences, and different pedestrianization schemes and global movements in an aim to break the misconception that the term "pedestrianization" only addresses full-time permanent interventions.

Part II: Understanding the Local Perspective towards Relevant Pedestrianization Motifs. How? Through an imagination Exercise

Figure 27 in section 4.2 already determined the pedestrianization motifs relevant to resolve current issues that the city is facing (motifs were enhancing *access to public transport*, *sustainability and environmental quality*, *social cohesion*, and *recreation options*). But instead of imposing these motifs on the participants, an "imagination exercise" was initiated to understand the motifs and expectations of this selected group of local experts and activists from the re-introduction of pedestrian streets in their city.

The exercise required from the participants to close their eyes. Meanwhile, a narration guided them to imagine living in an improved version of the city of Amman, 15 years ahead into the future, where planning has become more oriented to the people's demands and the Bus Rapid Transit BRT project had been realized. In that context, they were led to imagine being in a pedestrian street, in any of its schemes, then take note of the exact activity they envisioned doing in it, participants were given a few minutes to contemplate that.

Upon opening their eyes, participants were asked to describe that activity, and whether it was taking place in a currently existing street in the city. These activities and streets were then grouped under the suitable motifs they go under. Below are some selected examples.

	Mentioned Activity	*Street Where Activity Happened*	*Street Type*	*Main Pedestrianization Motif Extracted*
Example 1	"Getting off the bus and walking along commercial shops towards my home"	N.A.	N.A.	Pedestrianization to Enhance Access to Public Transit
Example 2	"Walking with my dog in a calm neighborhood trying to pick one of the places to sit outdoors and get some food."	Louigi's Street[11]	Local Street (Residential Commercial)	Pedestrianization to Enhance Recreation Options
Example 3	"Outdoor movie theatre, live performances, open spaces with people walking around, and many shops"	Zahran Street	Main Street	Pedestrianization to Enhance Recreation Options

Table 6 : Results of the Focus Group Discussion Imagination Exercise: Selected examples of activities taking place in pedestrian streets, and the main pedestrianization motifs extracted from them. *Source: Author.*

Based on the examples in table 6, one can notice that although the activities mentioned in examples 2 and 3 are both placed under the motif of "Enhancing Recreation Options", but one is taking place on a local neighbourhood level (example 2), while the other is another type of recreation that is more central to the city, and involves activities that are more social than personal (example 3). The full list of activities and their classification can be observed in Annex xx.

Figure 33: Participants presenting their results of the imagination exercise. *Source: Author.*

Based on imagination exercise results, it was possible to divide all mentioned activities under these three main motifs:

-Motif 1: Pedestrianization to Enhance Access to Public Transit
-Motif 2: Pedestrianization to Enhance Recreation Options (Central City Scale)
-Motif 3: Pedestrianization to Enhance Recreation Options (Local Neighbourhood Scale)

Each motif could be associated with one or more secondary (complimentary) sub-motifs, and was linked to possible street types that it can be applied onto. A recap of the process is represented in figure 34.

Interestingly, these three motifs for pedestrianizing streets in Amman, as considered relevant by the representative sample of the local community that participated in the focus group discussion, align well with the motifs that this research previously identified as relevant for the context. A representation of this is visible in figure 36.

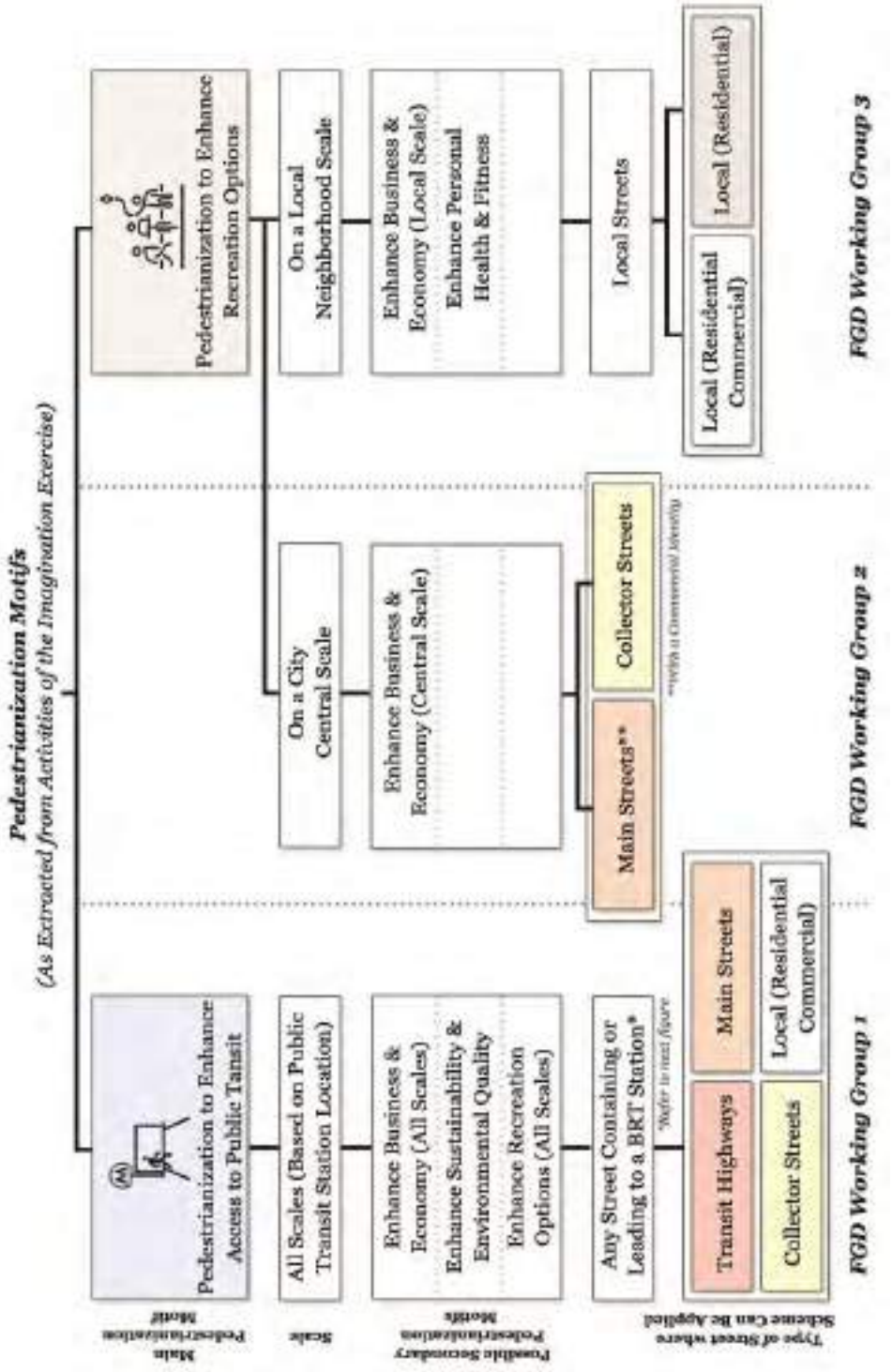


Figure 34: Recap of the Structure and Process of the Focus Group Discussion. *Source: Author*

Source: Base Map: OpenStreetMaps.com. BRT Data: Amman BRT (n.d.).

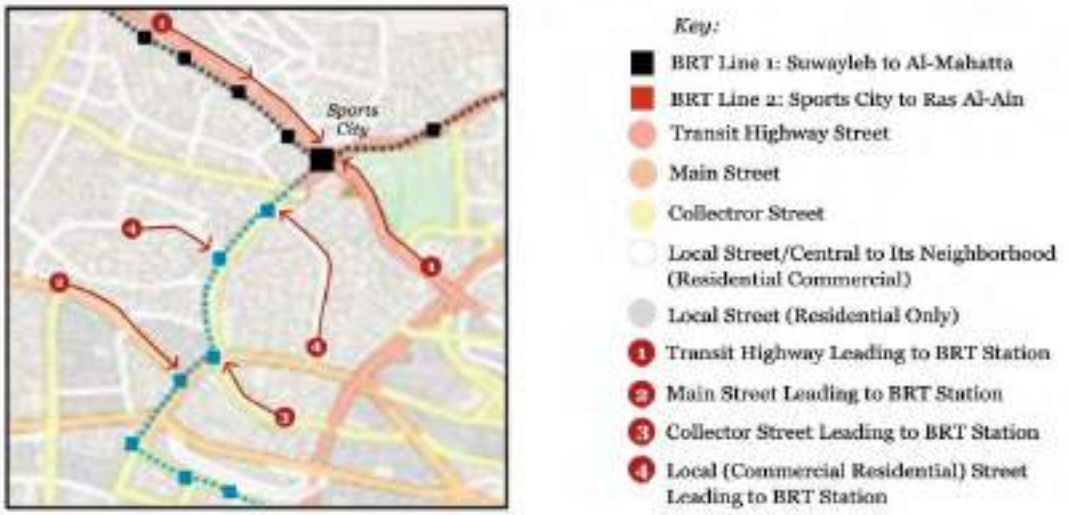


Figure 35: Street hierarchy, planned bus rapid transit (BRT) stations, and different types of linkages between streets and BRT stations. *Source: Author.*

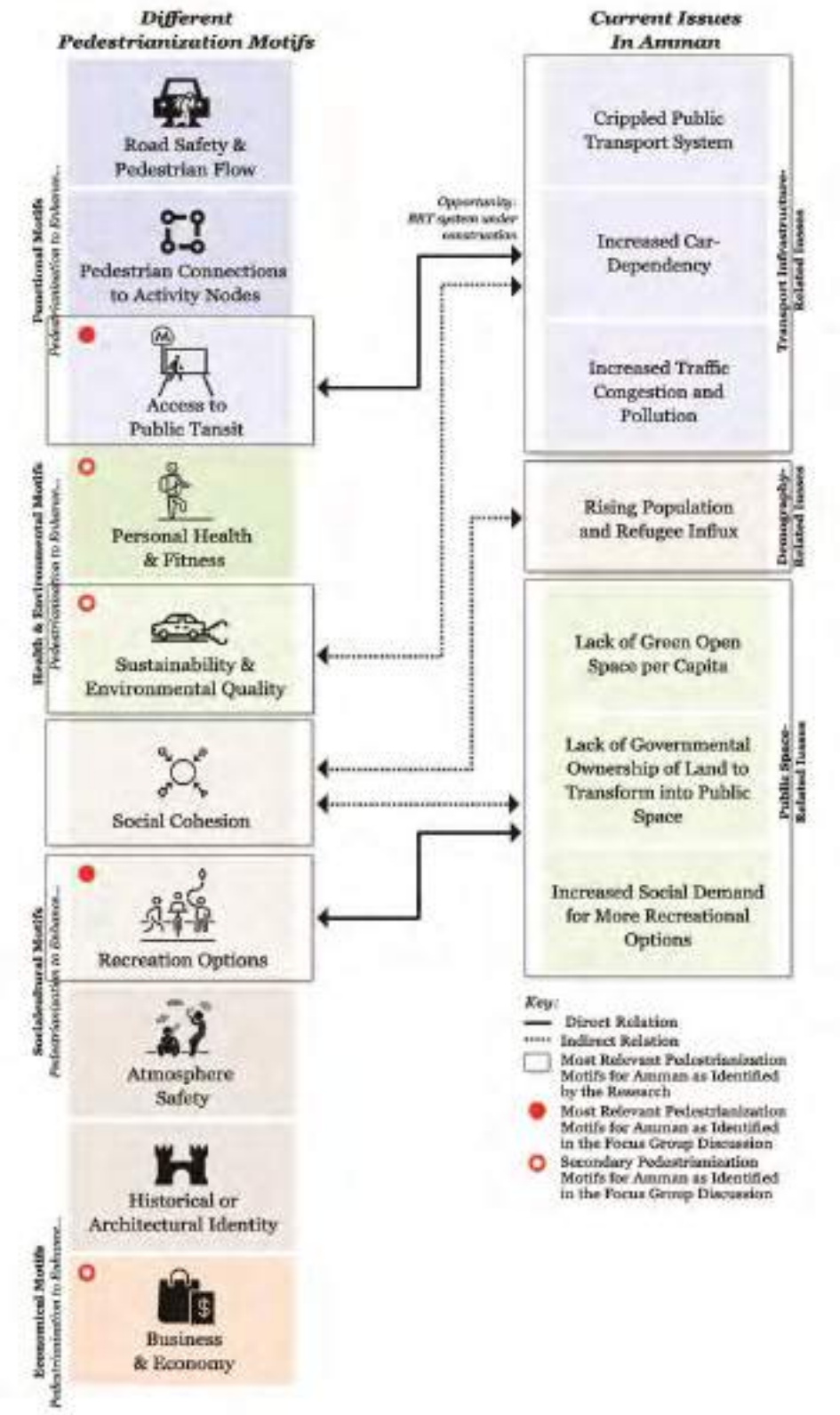


Figure 36: Links between different pedestrianization motifs and Amman's current issues as identified by the research, and by the selected group of local experts and activists of the focus group discussion (representative sample of the local community) *Source: Author*.

Part III: Ordering the Previously-Contextualized Selection Criteria

Based on the three motifs identified from the imagination exercise, participants were divided into three working groups, with which they proceeded to sort out the previously-contextualized list of criteria into "obligatory" and "complementary" criteria, and arranged these in an order of most to least relevant, based on the degree at which they affect the street selection process. Outcomes are presented in the form of three tables in the *results* section below.

Figure 37: The three groups of participants working on three different pedestrianization motifs, sorting out the criteria into obligatory and complimentary categories, then arranging criteria from most to least relevant. *Source: Author*

4.3.3.2 Results

Focus Group Discussion Group 1	
Main Pedestrianization Motif: Pedestrianize to Enhance Access to Public Tranport	
Secondary Pedestrianization Motifs	*Applicable Street Type*
• *Enhance Business & Economy (All Scales)* • *Enhance Sustainability & Environmental Quality* • *Enhance Recreation Options (All Scales)*	*Any Street Containing or Leading to a BRT Station (Transit Highway, Main Streets, Collector Streets, Local "Residential Commercial" Streets)*
Obligatory Criteria	
1. Containing or Leading to a BRT Station*	
2. Walking Distance to Coaster (Small Buses) and Service (Shared Cab) Stations	
3. Topographically Nonchallenging	
4. Walking Distance to High Population Density Neighborhoods 4. Within a Socially-Diverse Residential Neighborhood (Mixed Income)	
5. High Percentage of Young and Middle-Aged Adults in Surrounding Residential Neighborhoods*	
6. Diverse Mix of Uses	
7. Existing/ Anticipated Density of Firms and Businesses	
8. Low Car Ownership in Surrounding Residential Neighborhoods	
9. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	
10. Presence of Trees and Greenery	
11. Walking Distance to Car Garages*	
Complimentary Criteria	
1. Existing Density of Pedestrian Activity	
2. Attractive to Socially-Diverse Visitors	
3. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	
4. Diverse Mix of Economic Density: a. Existing/ Anticipated Density of Food and Cafes b. Walking Distance to Common Services c. Existing/ Anticipated Density of Commerce and Retail	
5. Non-Arterial Street with Less Traffic Lanes	
6. One Way Street	
7. Narrow Street Width (From 6 - 9 Meters in Hot Climates)	
8. High Intersection Density (Small Blocks, High Interconnectivity)	
9. Rich History and Heritage: Rich Presence of Buildings Registered on the List of Cultural Heritage	
10. Distinct Ammani Character	
11. Rich Touristic Value	
12. East-West Street Orientation	
13. Rich Architectural Value and Small-Scaled Detailing	
14. Divertible Traffic*	
Disregarded Criteria	
Existing/ Anticipated Density of Hotel Developments	
Rich Cultural Experience	
Brilliant Adaptations and Creativity	

Table 7: FGD Group 1 Results

Notes on Criteria List 1:

*Containing or Leading to a BRT Station: Here, the previous criterion of "Walking Distance to Planned BRT Stations" was considered insufficient for this motif. Participants believed that a street in walking distance to a public transit station is only able to enhance access to it, if the whole network of streets separating that street from the station is

pedestrianized as well, otherwise a more accurate criterion would be for the street itself to contain or lead to a station.

*High percentage of young adults (ages 15-34 years) and middle-aged adults (ages 35-54 years) in surrounding residential neighbourhoods was a new suggested criterion by the participants (age groups adapted from Petry NM. 2002), and was considered obligatory to this motif, since these age groups are the ones with the most activity and mobility, therefore accounting to the highest percentage of users of pedestrian streets and public transit.

*A conflict between the members of the group occurred when the discussion reached the point of "Walking Distance to Car Garages"; part of the group believed that presence of car garages is very important to urge people to park their cars close to a transit station and switch to using public transit, while the other part believed that in a context like Amman, those choosing to take public transport are mostly those who do not own a car, and therefore do not need a garage. The latter opinion will be discarded, considering that a main aim of this pedestrianization is to enhance accessibility and encourage usability of the public transport system, making it more inclusive.

*Divertible traffic, although strongly endorsed by the professional interviews, was almost disregarded by all groups. They believed that the selection of the street must be done based on all the other characteristics first, then impose this criterion as a follow-up question: "Is the traffic divertible and servicing possibility available?" If yes, then a full-time or part-time pedestrianization schemes can be proposed, if not, then the only available option is the mixed-priority scheme.

Focus Group Discussion Group 2	
Main Pedestrianization Motif: Pedestrianize to Enhance Recreation Options (Central City Scale)	
Secondary Pedestrianization Motifs	*Applicable Street Type*
• *Enhance Business & Economy (Central Scale)*	• *Collector Street* • *Main Street*
Obligatory Criteria	
1. Existing Density of Pedestrian Activity	
2. Diverse Mix of Uses	
3. Diverse Mix of Economic Density: a. Existing/ Anticipated Density of Food and Cafes b. Existing/ Anticipated Density of Commerce and Retail	
4. Walking Distance to Planned BRT Stations 4. Walking Distance to Coaster (Small Buses) and Service (Shared Cab) Stations 4. Walking Distance to Car Garages	
5. Central to the City*	
6. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	
7. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	
8. Existing/ Anticipated Density of Firms and Businesses	
9. Within a Socially-Diverse Residential Neighborhood	
10. Attractive to Socially-Diverse Visitors	
11. Topographically Nonchallenging	
Complimentary Criteria	
1. Rich History and Heritage: Rich Presence of Buildings Registered on the List of Cultural Heritage 1. Rich Architectural Value & Small-Scaled Detailing	
2. Rich Cultural Experience 2. Brilliant Adaptations and Creativity	
3. Distinct Ammani Character	
4. Rich Touristic Value	
5. Presence of Trees and Greenery	
6. Existing/ Anticipated Density of Hotel Developments	
7. High Intersection Density (Small Blocks, High Interconnectivity)	
8. High Percentage of Young and Middle-Aged Adults in Surrounding Residential Neighborhoods*	
9. East-West Street Oientation	
10. Non-Arterial Street with Less Traffic Lanes 10. One Way Streets	
11. Walking Distance to Common Services	
12. Walking Distance to High Population Density Neighborhoods 12. Low Car Ownership in Surrounding Residential Neighborhoods	
Disregarded Criteria	
Narrow Street Width (From 6 - 9 Meters in Hot Climates)	
Divertible Traffic and Servicing Possibility	

Table 8: FGD Group 2 Results

Notes on Criteria List 2:

*Central to the City: This newly suggested criterion was considered an obligatory one for the given motif, considering that to provide a new recreation option that is inclusive to all city residents, then a well-connected location has to be considered, disregarding those sprawling neighbourhoods located at the edges of the city.

Focus Group Discussion Group 3	
Main Pedestrianization Motif: Pedestrianize to Enhance Recreation Options (Local Neighborhood Scale)	
Secondary Pedestrianization Motifs	*Applicable Street Type*
• *Enhance Business & Economy (Local Scale)* • *Enhance Personal Health & Fitness*	• *Local "Residential Commercial" Streets (Central to Their Neighborhoods)* • *Local "Residential" Streets*
Obligatory Criteria	
1. Walking Distance to High Population Density Neighborhoods	
2. Presence of Trees and Greenery	
3. Rich Architectural Value & Small-Scaled Detailing	
4. High Intersection Density (Small Blocks, High Interconnectivity)	
5. Topographically Nonchallenging	
6. Non-Arterial Street with Less Traffic Lanes 6. Narrow Street Width (6 - 9 Meters in Hot Climates)	
7. Diverse Mix of Uses	
8. Existing Density of Pedestrian Activity 8. Walking Distance to Common Services 8. Existing/ Anticipated Density of Food and Cafes	
9. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	
10. East-West Street Orientation	
11. Distinct Ammani Character	
12. Rich History and Heritage: Rich Presence of Buildings Registered on the List of Cultural Heritage	
Complimentary Criteria	
1. Brilliant Adaptations and Creativity	
2. Diverse Mix of Economic Density	
3. Existing/ Anticipated Density of Commerce and Retail	
4. Rich Cultural Experience	
5. Low Car Ownership in Surrounding Residential Neighborhoods	
6. One Way Streets	
7. Walking Distance to Planned BRT Stations	
8. Walking Distance to Coaster (Small Buses) and Service (Shared Cab) Stations	
9. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	
10. Walking Distance to Car Garages	
Disregarded Criteria	
Within a Socially-Diverse Residential Neighborhood	
Attractive to Socially-Diverse Visitors	
Existing/ Anticipated Density of firms and businesses	
Existing/ Anticipated Density of Hotel Developments	
Rich Touristic Value	
Divertible Traffic and Servicing Possibility	

Table 9: FGD Group 3 Results

Interestingly for this group, aspects of diversity were considered irrelevant for recreation on a local neighbourhood scale mainly from a safety concern, explaining that residents feel safer spending time outdoors or letting their kids out to play, knowing that they are surrounded by people sharing the same mentality and social status.

Figure 38: Presenting the final outcomes of each FGD group. *Source: Author*

4.3.4 Conclusions

From here, the expert approach relying on literature and professional opinions ends with three lists of criteria for street selection. The next chapter will present the bottom-up approach and the process of data synthesis.

Chapter 5:
Validating Criteria Applicability

5.1 Chapter Overview

Before advertising the previous resulting lists as contextual criteria for selecting pedestrian streets in Amman and proceeding to use them to select streets that may or may not be optimum pedestrianization candidates, the validity of results that can come out of these lists first needs to be verified. To do this, the three lists resulting from chapter 4 of "Contextualizing Selection Criteria for Amman, Jordan", which were a product of a long and structured process involving literature, professionals as well as selected local experts and activists, will be compared against a bottom-up, purely intuitive perspective of the city's most optimum streets for pedestrianization, as mentioned by local resident in the conducted survey, based on their daily-life experiences in the streets of their city.

The chapter will be divided into three main sub-chapters; the first will tackle the survey, explaining its structure and most prominent results, the second will explain the methodology through which the survey's results are going to be used to validate the developed criteria, and the third *(Data Synthesis)* will proceed with this validation process through a detailed analysis of the survey's top-three mentioned streets. According to this analysis, any final required modifications will be made to the criteria lists.

5.2 Local Survey

5.2.1 Structure

Parallel to the literature and professional-based approach of gathering and contextualizing criteria for selecting pedestrian streets, a local survey was simultaneously being carried out

with the objective of collecting more emotional perspectives on which are the city's best streets for pedestrianization, and discover the underlying characteristics behind the mentioned streets.

The survey was distributed in the context in Arabic language (Annex 2), but a translation can be found in annex 3. In trying to make the survey holistically representative of the city of Amman, the distribution was done in two-formats, a hard-copy format distributed in places of high social diversity (e.g. Shoman Public Library, study lounges and cafes, architecture and consultancy firms), and a digital format generated by Google Docs, distributed though e-mails and social media websites (e.g. facebook, Twitter). 148 responses were collected, with an apparent bias towards the younger age categories (ages 20-34, as shown in figure 39), which can be explained by the author's social media follower reach.

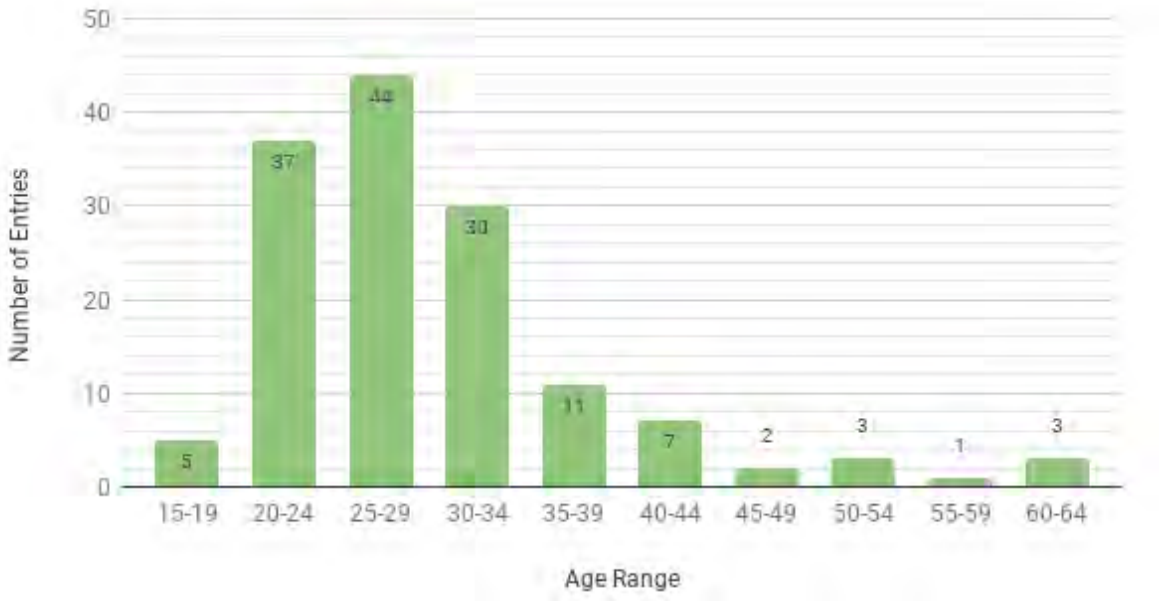


Figure 39: Age Range of the Survey's Sample

The survey was divided into the following four sections:

Section 1: *Personal Background*
Section 2: *Walking on a Daily Basis*
Section 3: *Services in the Local Neighborhood*
Section 4: *Amman's Potential for Pedestrianization*

5.2.2 Survey Results

The outcomes of the survey can be mainly classified into these three categories:

a. An understanding of the sample and their daily walking habits
b. Local opinions on the city's most pedestrian-friendly areas
c. Local opinions on the city's optimum potential streets for pedestrianization

Below is a recap of the results in each category.

a. An understanding of the sample and their daily walking habits

Information gathered included gender (figure 40), car ownership (Figure 41), the daily transport habits of the target group (figures 42, 43 and 44), what factors most influence their decision to walk or use other modes of transport (figure 45), as well as other information like what nearby services strongly motivate them to reach by walking (annex).

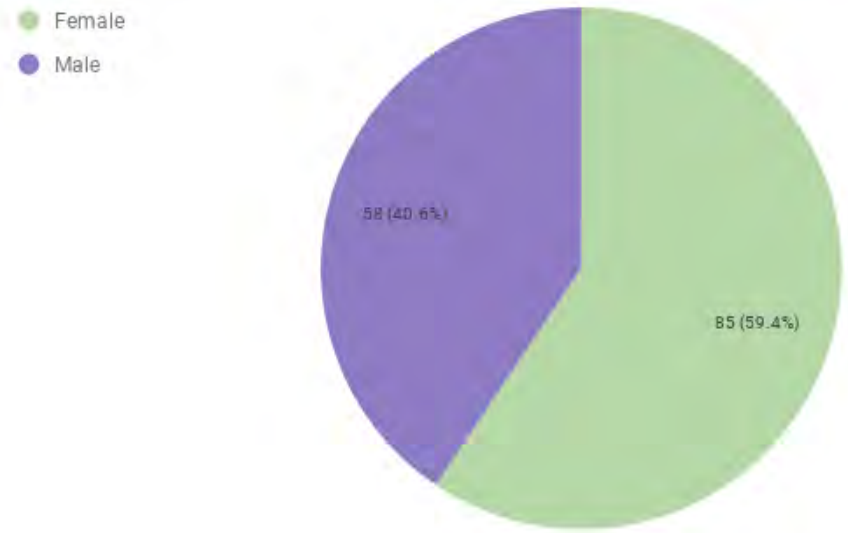


Figure 40: Gender Ratio of the Survey's Sample

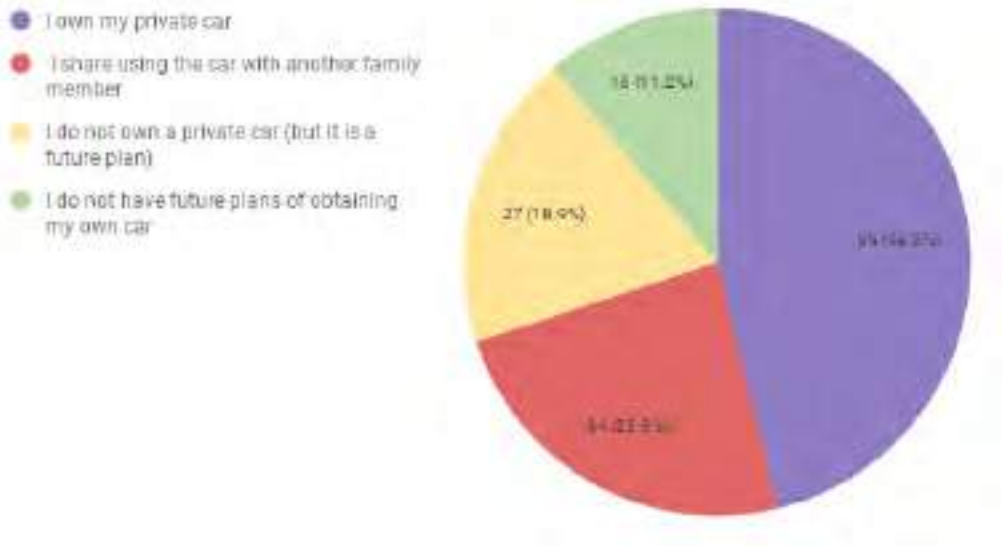


Figure 41: Car Ownership of the Survey's Sample

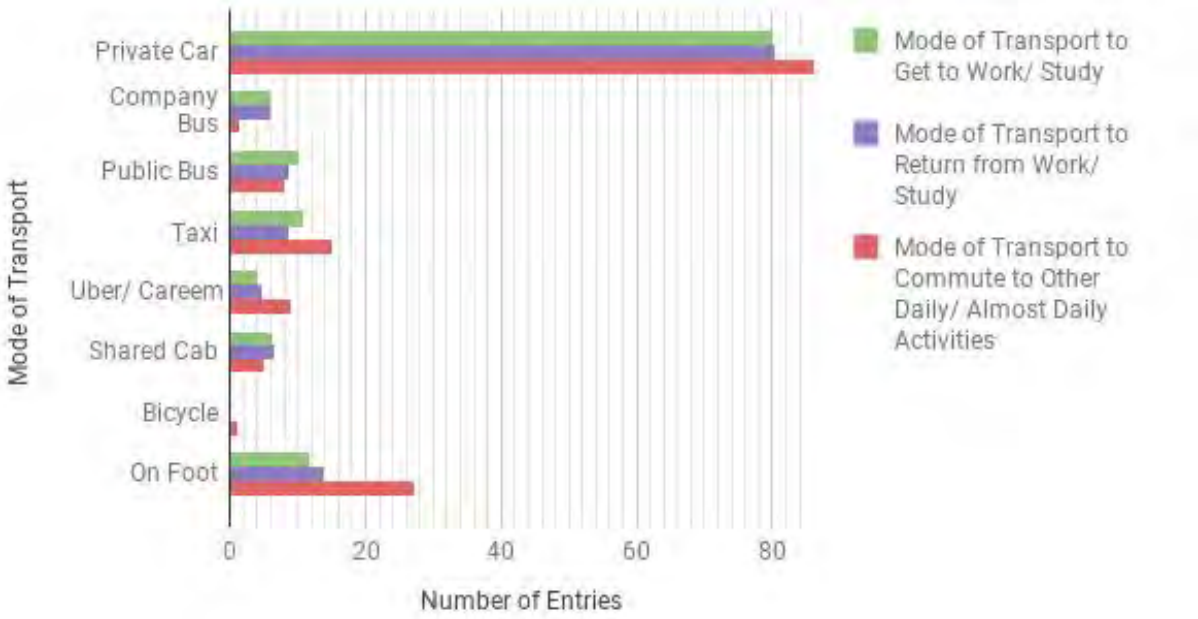


Figure 42: Mode of Transport of the Survey's Sample

The above figure reflects a strong dependency on the car between Amman's residents. When not driving their own car, which represents the highest figures, walking comes in second place after a big gap in the numbers. Here, walking figures are relatively low yet increase when performing after-work or after-school activities that often take place around the place of residence (e.g. buying groceries). Interestingly, dependency on the bicycle as a mode of transport is Amman is almost non-existent due to the lack of infrastructure and road safety supporting cycling, as well as the challenging non-flat topography. When comparing the above statistics of Amman with statistics of another country like Germany, which somehow falls in line with statistics of other European countries (Kuhnimhof, T., 2017), one can see that walking, cycling and public transport figures in Amman has spacious room for an increase over car-dependency figures.

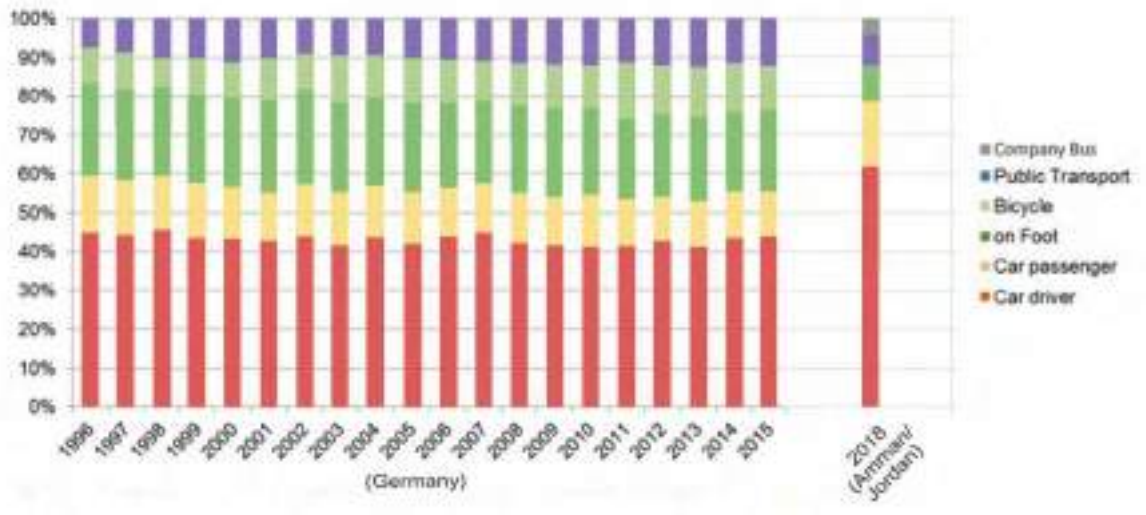


Figure 43: A Comparison between Jordan and Germany's Figures of the Modes of Transport Used. *Source: Left Germany Statistics: The German Mobility Panel (BMVI, 2016) in Kuhnimhof, T., (2017), Right Amman Statistics: Author as extracted from the local survey*

Even when it comes to getting to a destination that is within a walking distance from one's place of residence (within a 1 km radius), approximately half of the sample chose *private car* as the used mode of transport (figure 44). When asking those for the factors affecting their decision not to walk, top ranking reasons were the unfriendliness of sidewalks for pedestrians, presence of primary streets or streets with high speed limits that are unequipped for crossing, the need to save time, or environmental and noise pollution. Figure 45 shows these justifications from a male and female perspective.

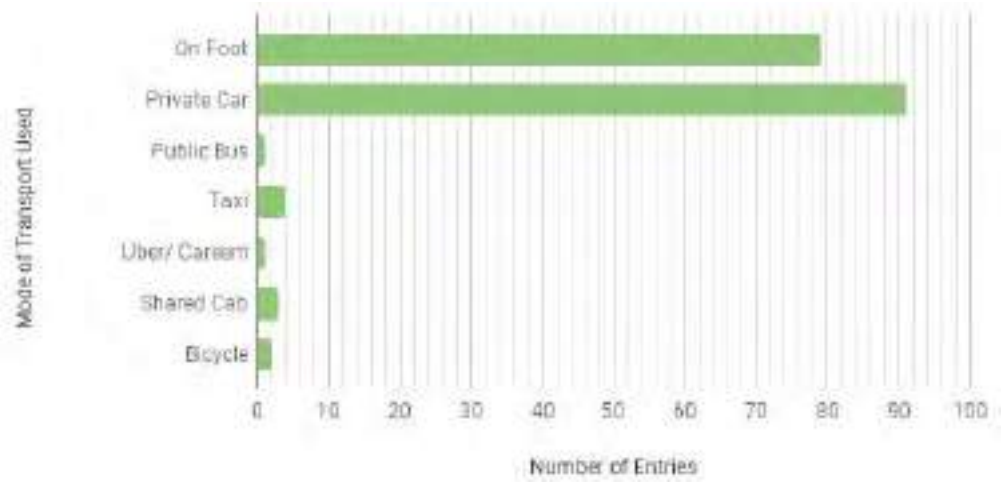


Figure 44: The Mode of Transport Often Used to Get to Services within a 1 km Radius (10 Minute Walk) from the Place of Residence

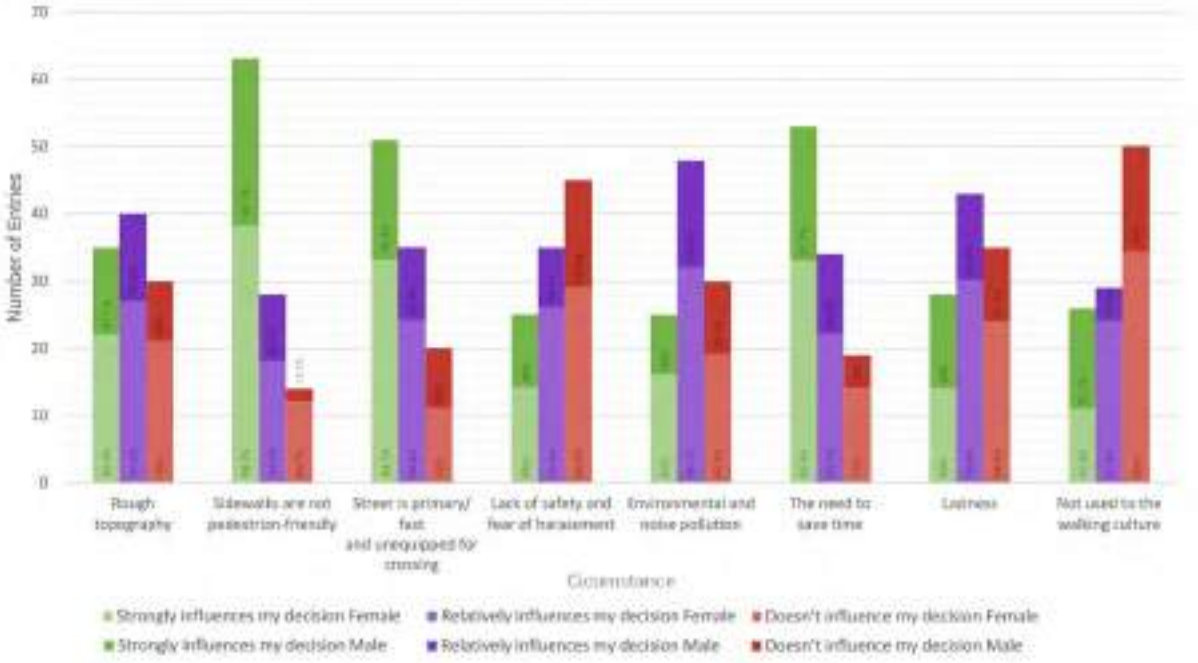


Figure 45: Circumstances Affecting the Decision to Walk to Services within a 1 km Radius from the Place of Residence (Divided by Gender)

b. Local opinions on the city's most pedestrian-friendly areas

It has already been established by the survey that walking as a mode of transport is not a widespread habit in Amman for several infrastructural, environmental and personal reasons already stated. So, what are the other motifs that drive *Ammanis* to choose to walk on the streets of the city? What are the characteristics that these streets have that make them more inviting to pedestrians than others? And can some of these characteristics be adapted into criteria for selecting streets for pedestrianization?

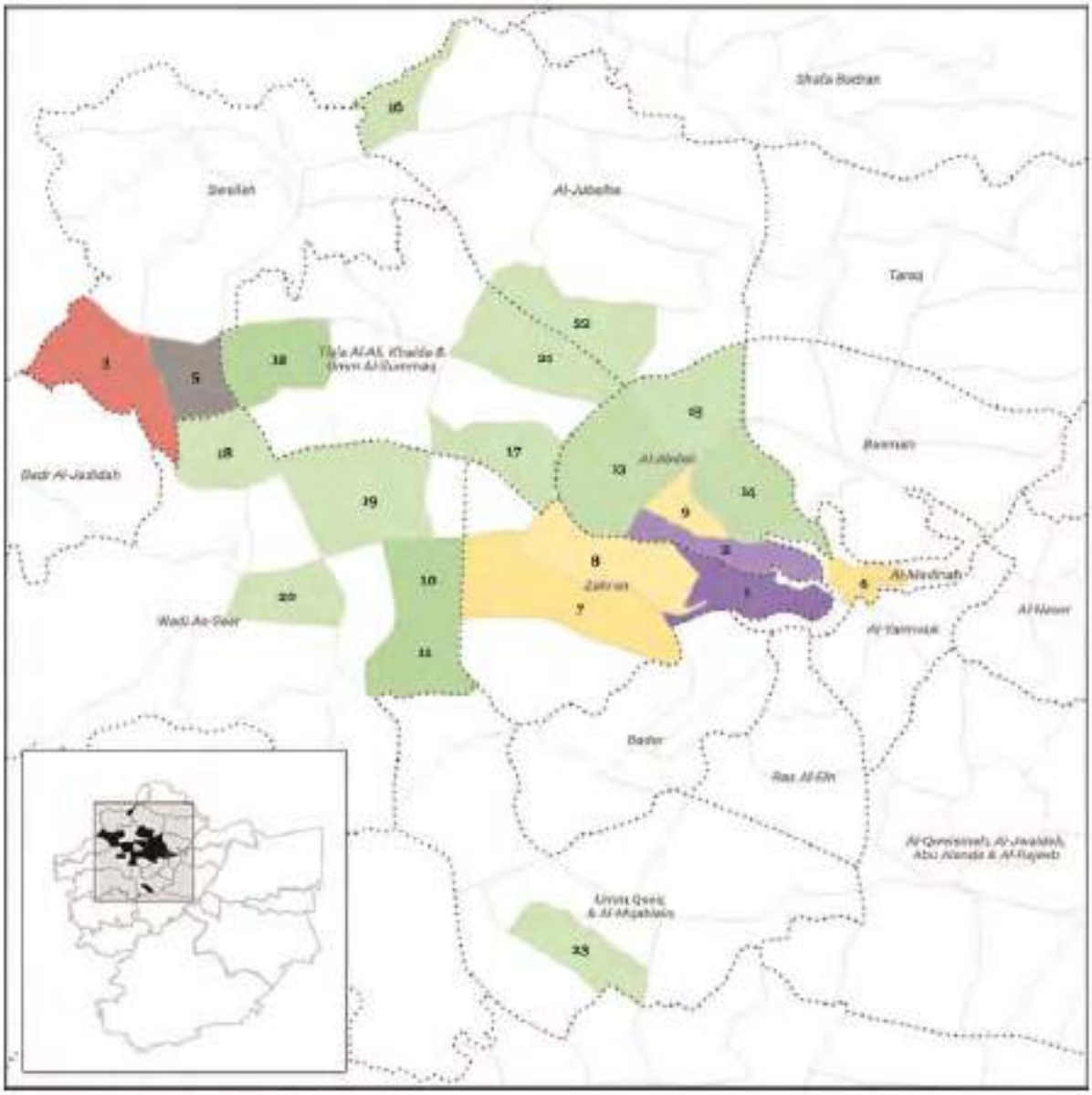
Answers for these questions will be reached by analyzing responses of two of the survey's questions (refer to Annex 2); the first asked people which they believed to be Amman's most pedestrian-friendly neighborhoods and streets and justify it (Section 4- Question 1), while the other asked them to identify some of the motifs behind their daily walking and the areas where they practice them (section 2- Question 2). Results of these questions are represented below:

From the 148 surveys gathered, 22 neighborhoods of the entire city (290 neighborhoods) were mentioned at least once as being pedestrian-friendly (figures 46 & 47, table 10), these are distributed in 4 of Amman's 9 sub-governorates; Qasabat Amman, Wadi Al-Seer, Al-Jama'a, and Na'our.

The top three pedestrian-friendly neighborhoods mentioned were *Jabal Amman* (specifically *Rainbow Street*), *Jabal Al-Lweibdeh* (specifically *Al-Shari'a Street*), and *Dabouq* with over 25 mentions for each neighborhood. 17 people believed that none of the city's neighborhoods were pedestrian-friendly, while 1 person believed that all of them were, the latter will be disregarded for being non-representative. Annex qq- Survey Results shows the detailed justification for the selections of neighborhoods and streets as mentioned in the survey results, directly translated from the words of the participants.

Number of Mentions (Range)	Neighborhood Number on Map	Neighborhood/ Street Name	Number of Mentions
36-41 Mentions	1	Jabal Amman	41
		Rainbow Street	16
		3rd-4th Circles	5
		1st-2nd Circles	3
36-41 Mentions	2	Jabal Al-Lweibdeh	39
		Al-Shari'a Street	6
		Al-Ba'oniah Street	2
		All Jabal Al-Lweibdeh Streets	1
29-35 Mentions	3	Dabouq	29
15-21 Mentions	4	None	17
15-21 Mentions	5	Hada'eq Al-Hussein	16
		Al-Hussein Public Parks	7
		Al-Shari'b Street	5
		Mohammed As-Saeed Al-Batayneh Street	4
8-14 Mentions	6	Downtown Area (Al-Qala'a/ Al-Muderraj)	12
8-14 Mentions	7	Abdoun	11
		Al-Qahira Street	1
		Dimashq Street	1
8-14 Mentions	8	Al-Radwan	9
		4th-5th Circles	2
8-14 Mentions	9	Al-Abdali PSC	8
1-7 Mentions	10	Al-Sweifieh	6
		Wakalat Street	3
1-7 Mentions	11	Deir Ghbar (Al-Diyar)	6
1-7 Mentions	12	Khalda	5
		Al-Ma'aref Street	1
		Bahjat Al-Talhouni Street	1
1-7 Mentions	13	Al-Shmeisani	4
1-7 Mentions	14	Jabal Al-Hussein	4
1-7 Mentions	15	Sport City	3
1-7 Mentions	16	Ibn Ouf	2
1-7 Mentions	17	Al-Rabieh (Al-Salam)	2
1-7 Mentions	18	Al-Madinah Al-Tabyeh	1
1-7 Mentions	19	Al-Rawabi	1
1-7 Mentions	20	Al-Rawnaq	1
1-7 Mentions	21	Baraka, Al-Tala'a Al-Shargi	1
		Wasfi Al-Tal Street	1
1-7 Mentions	22	Dahyit Al-Rashid	1
1-7 Mentions	23	Al-Bnayyat Al-Shamali	1
1-7 Mentions	24	All-Of Amman	1

Table 10: Intuitive Results of Amman's Most Pedestrian-Friendly Neighborhoods and Streets



Source: Author Based on Local Interview Results.

Figure 46: Intuitive Map of Amman's Most Pedestrian-Friendly Neighborhoods, Bottom-Left: Highlighted in grey is the area covered by the answers in relation to the entire scale of the Amman governorate, with the mentioned neighborhoods highlighted in black.

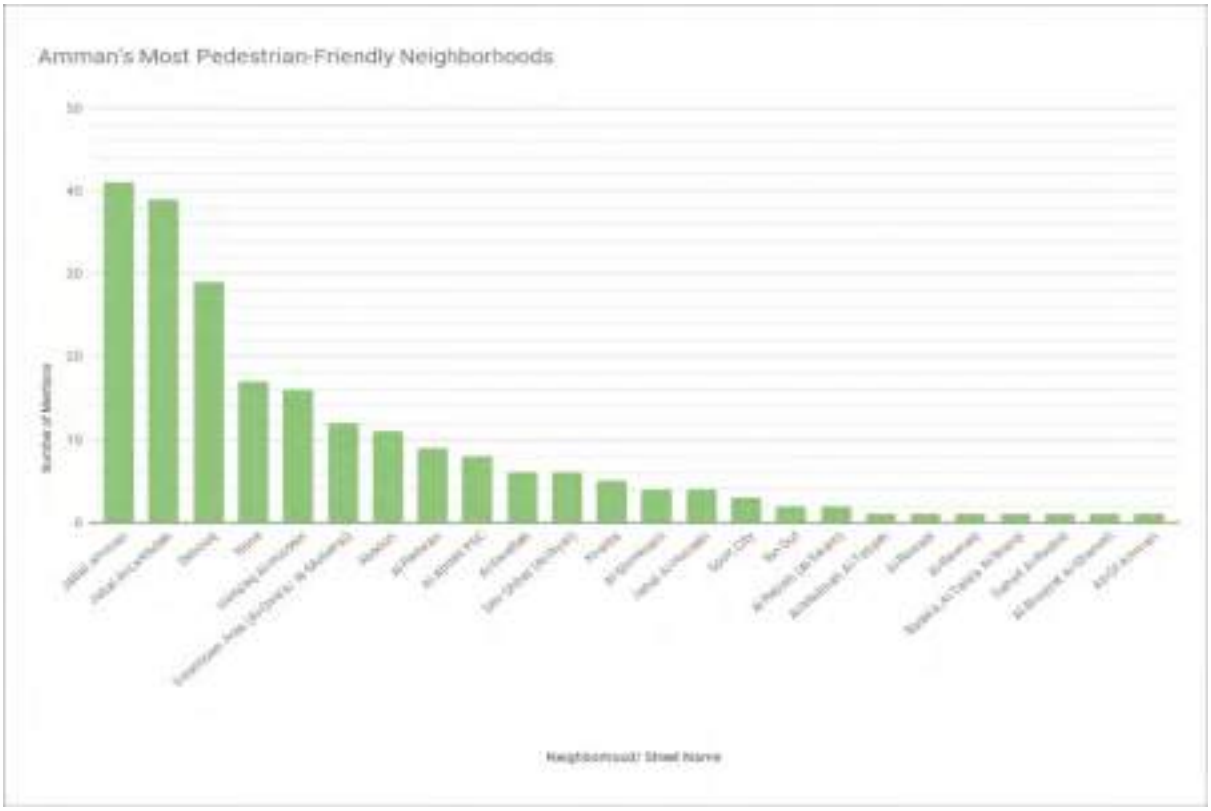


Figure 47: Intuitive Results of Amman's Most Pedestrian-Friendly Neighborhoods and Streets

Conclusions and characteristics that can be extracted from the table are:

1. *Jabal Amman* and *Jabal Al-Lweibdeh*, despite their narrow and low-quality sidewalk conditions, are still the most favored by pedestrians, who mostly walk in those areas for recreational and exploration motifs (figure kk-a). Most mentioned characteristics justifying their pedestrian-friendliness were the narrow width of streets preventing cars from speeding up, the serenity, presence of shade offered by trees, presence of nice architecture, valuable history, flat topography inside the neighborhoods, social and cultural diversity (home to many foreigners, who transmit their walking habits to the context), centrality within the city, and links to the surrounding neighborhoods provided through interconnecting stairs.

   Less-mentioned characteristics include: High density of recreation and commerce, mixed-use, interesting destinations and a "European" vibe, presence of culture, presence of parks, position at a high altitude providing vast views over old Amman, safety, low car traffic, and presence of close-by parking lands allowing users to park their cars and access most of the streets by foot.

2. As for Dabouq and Hada'eq Al-Hussein, which came in 3rd and 4th positions, the characteristics differ drastically. The two areas are far from being central, in fact, both are located at the fringes of the city along the transit highway leading to the presidential palaces (numbers 3 & 5 in figure 46), yet they remain the destination for a large portion of the city's residents when it comes to personal health and

fitness motifs. As per figure 49 below, 23% of those who answered that they often practice walking as an exercise, specified that they do it in Dabouq and behind Al-Hussein Public Parks.

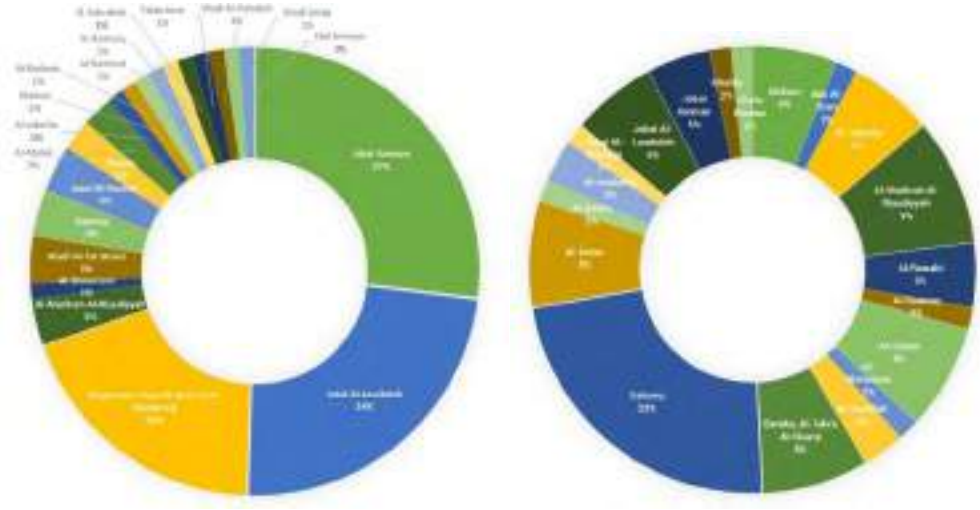


Figure 48 (Left): Areas where walking is practiced for recreational and exploration purposes
Figure 49 (Right): Areas where walking is practiced for personal health and fitness purposes
Source: Author (Refer to Annex xx for raw data)

Top-mentioned characteristics justifying the selection of *Dabouq* and *Hada'eq Al-Hussein* as some of the city's most pedestrian-friendly neighborhoods for the motifs of personal health and fitness based on Annex qq- Survey Results are:

-Presence of wide and well-equipped sidewalks and streets.
-Calm and serene atmosphere.
-Safe areas with no harassment, due to constant presence of people exercising, and frequent surveillance of watch guards.
-Presence of trees and green cover.

Other mentioned yet less-relevant characteristics for people were cleanliness, good planning and maintenance, low traffic and crowdedness, and presence of an elite community or users who respect their streets.

While most of the characteristics of points 1 and 2 have already been mentioned in the FGD resulting criteria lists, some new characteristics can be extracted from the above discussion (serenity, centrality within the city, presence of parks (mentioned separately from landmarks and points of interest), "European" vibes, position at a high altitude providing vast views over the old Amman, safety, presence of wide and well-equipped sidewalks and streets, frequent surveillance of watch guards). Ideally, these results should have been extracted early enough to be included in the motif-based classification that took place in the FGD, but instead, and only if proven relevant[12], some of the characteristics that make these streets appealing for pedestrians will be inserted manually into the final criteria lists by the author. Those characteristics mentioned repeatedly can be adapted into "obligatory criteria", while the less mentioned ones can be adapted into "complimentary criteria". Further explanation on this will be provided in Chapter 6 - Method Transferability Section.

c. Local opinions on the city's optimum potential streets for pedestrianization

This was the last extracted outcome of the survey and will formulate the core of the data synthesis and validation of criteria applicability, as will be explained further in Section 5.3: *Methodology of Validating Criteria Applicability.*

Here, a survey question (Section 4- Question 2) listed three possible pedestrianization schemes (full-time, part-time, or mixed-priority pedestrianization) and their definitions, and asked locals to name streets of Amman that they could imagine pedestrianized, in any of the above-mentioned schemes.

The 10 most-answered streets that locals saw as best potential streets for pedestrianization are listed below, with figure 50 representing the pedestrianization schemes envisioned for them. The full list of mentioned streets and the types of pedestrianization suggested for each can be found in annex xx-survey results.

1. Zahran Street *(16 mentions)*
2. Al-Shari'a Street *(15 mentions)*
3. Al-Madina Al-Munawwara Street *(14 mentions)*
4. Rainbow Street *(13 mentions)*
5. Downtown Streets: All Streets *(8 mentions)*
6. Jabal Al-Lweibdeh: All Streets *(5 mentions)*
7. Wasfi Al-Tal Street *(5 mentions)*
8. Khalid Bin Al-Waleed Street *(4 mentions)*
9. Mecca Street *(4 mentions)*
10. Queen Rania Street (Al-Jama'a Street) *(4 mentions)*

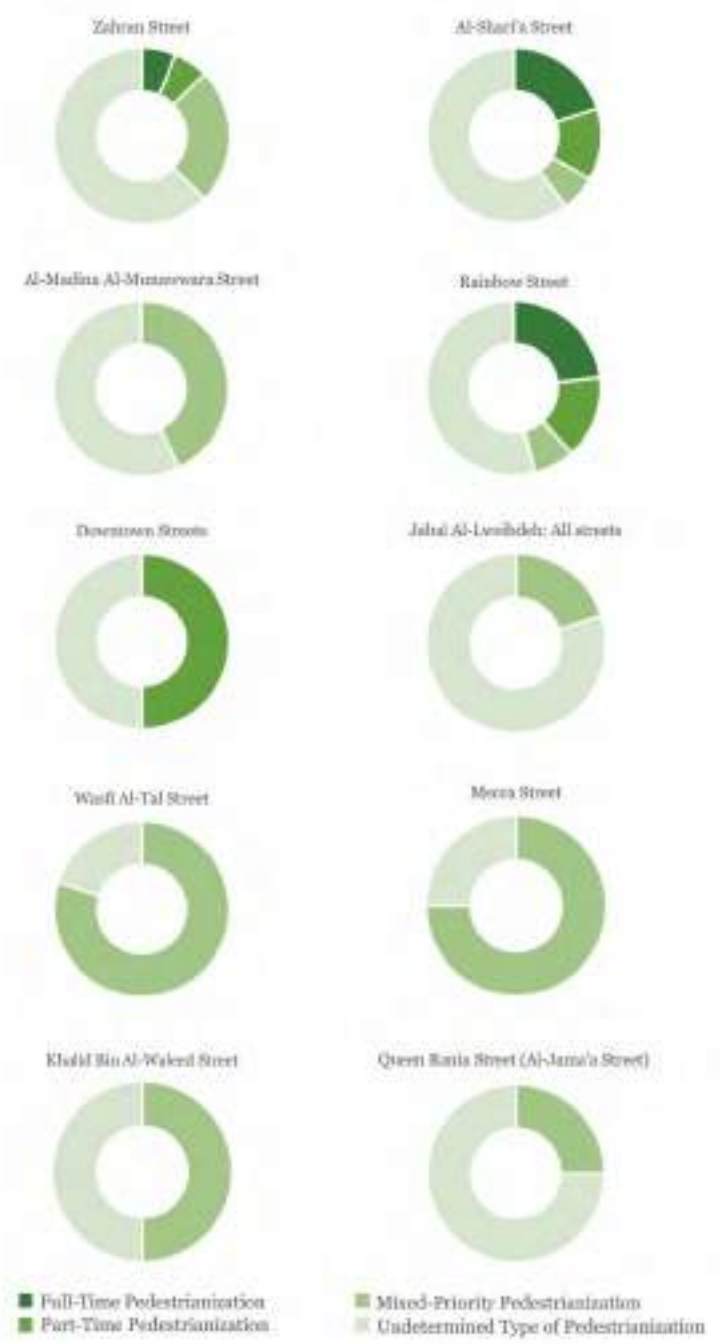


Figure 50: The top 10 streets with best potential for pedestrianization as seen by the locals, and the pedestrianization schemes envisioned for them.

Interestingly, not all streets that were mentioned in the previous section as being most pedestrian-friendly were selected as potential candidates for a pedestrianization scheme. In fact, it was observed that most streets and areas mentioned in figure 48 (those selected as pedestrian-friendly for the purposes of recreation and exploration) were mentioned as optimum potentials for a pedestrianization scheme (like *Rainbow*, *Shari'a*, and *downtown* streets), but those that were mentioned in figure 49 (those selected as pedestrian-friendly for the purposes of personal health and fitness) were not viewed as potentials for a pedestrianization scheme. E.g. Although areas like *Dabouq* and *Hada'eq*

Al-Hussein were selected as top pedestrian-friendly neighborhoods, none of the people who filled the survey imagined any of their streets pedestrianized. This can be an indicator that good walkable areas have physical characteristic which invite pedestrians to practice walking as an activity, without the need to apply major changes like pedestrianization schemes to their street infrastructure, but their lack of other key characteristics (density of commerce, culture, etc.) make them poor candidates for recreational pedestrianization. For that, characteristic contributing to their pedestrian friendliness do not need to be incorporated into the pedestrianizing streets selection criteria lists (e.g. wide sidewalks and streets, elite community).

Below, a map shows the geographical distribution of all mentioned streets (figure 51). Once again here, mentioned streets do not cover a wide area of the city, and are distributed in 5 of Amman's 9 sub-governorates; Qasabat Amman, Wadi Al-Seer, Al-Jama'a, Na'our (1 mention) and Marka (1 mention).

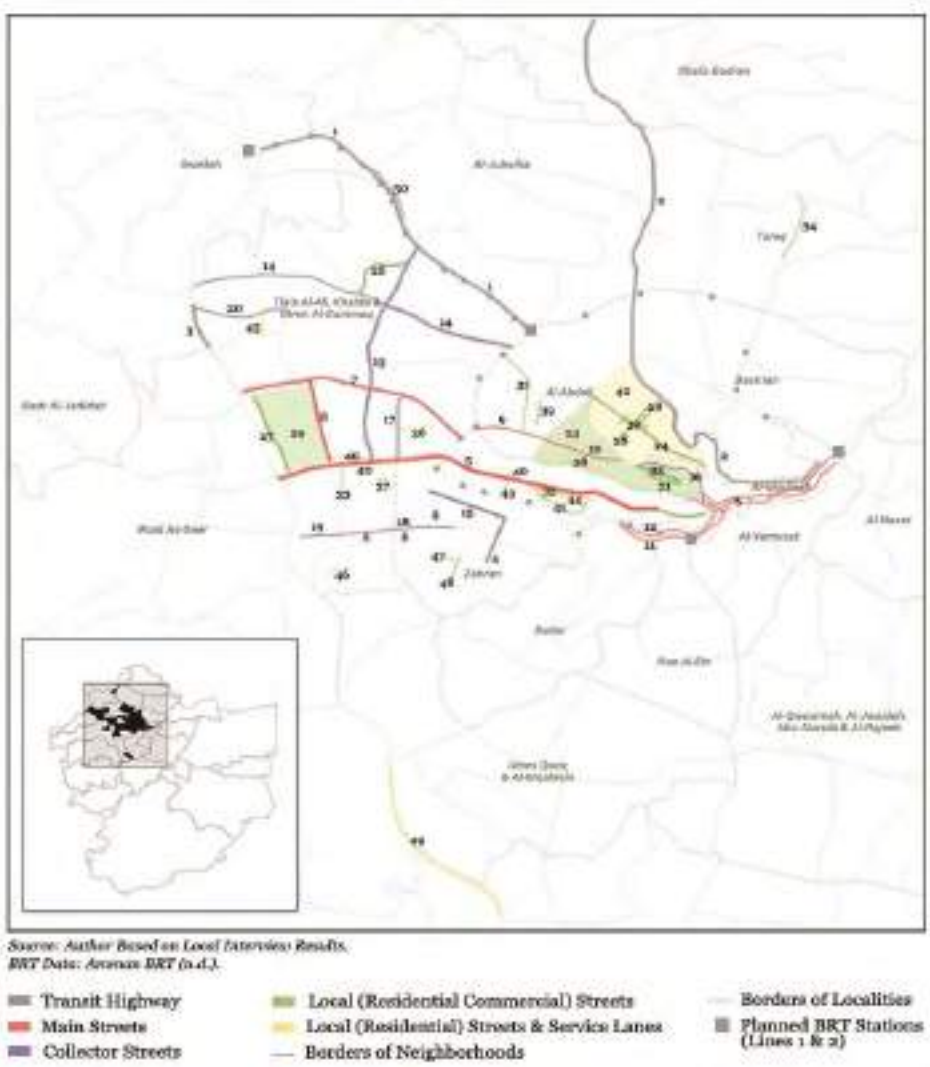


Figure 51: Above: Intuitive Map of Amman's streets with best potential for pedestrianization, Bottom Left: Mentioned neighborhoods in black within the entire scale of the Amman Governorate.

Street Number on Map	Street Name	Neighborhood	Street Type (Original)	Suggested Street Type	Walking Distance from BRT Station Yes (Y)/ No (N)	Number of Mentions
1	Queen Rania Street (Al-Jama'a Street)	Al-Jubeiha	Transit Parkway		Y	4
2	Al-Urdon Street	Al-Jubeiha	Transit Parkway		Y	1
3	King Abdullah II Street	Al-Madina Al-Tabyeh	Transit Parkway		N	1
4	Prince Hashim Street (Abdoun Circle Area)	Abdoun	Transit Parkway		N	1
5	Zahran Street	Zahran	Main Street		Y (Between 4th and 5th Circles)	16
6	Downtown Streets	Al-Abdali	Main/ Collector Streets		Y	8
7	Mecca Street	Al-Rawabi, Al-Sahaba	Main Street		Y	4
8	Abdullah Ghosheh Street	Al-Rawabi	Main Street		N	2
9	Prince Shaker Street	Al-Shmeisani	Main Street		Y	3
10	Suleiman Al-Nabulsi Street	Al-Abdali	Main Street		N	2
11	Ali Bin Abi Taleb Street	Ras Al-Ein	Main Street		Y	1
12	Omar Matar Street	Ras Al-Ein	Main Street		Y	1
13	Al-Madina Al-Munawwara Street	Wadi Umm Uthainah, Al-Rawabi	Collector Street		N	14
14	Wasfi Al-Tal Street	[illegible], Al-Tla'a Al-Sharqi	Collector Street		Y (Eastern End Only)	3
15	Al-Qahira Street (Abdoun Circle Area)	Abdoun	Collector Street		Y	3
16	Downtown's King Hussein Street	Al-Abdali	Collector Street		N	2
17	King Faisal Street	Umm-Uthainah	Collector Street		N	2
18	Queen Zein Al-Sharaf Street: North Area of Deir Ghbar and Abdoun Al-Shamali (Separated by Queen Zain Al-Sharaf Street): There has to be a network connecting areas of importance, for example here there has to be a network connecting the three surrounding parks together	Abdoun	Collector Street		N	2
19	Queen Zein Al-Sharaf Street	Abdoun	Collector Street		N	2
20	Mahjub Al-Tahboub Street (Bucharest Circle)	Khalda	Collector Street		N	1
21	Al-Shari'a Street	Jabal Al-Lweibdeh	Local Street (Residential Commercial)		N	15
22	Rainbow Street	Jabal Amman	Local Street (Residential Commercial)		Y	13
23	Jabal Al-Lweibdeh: All streets	Jabal Al-Lweibdeh	Local Street (Residential Commercial) & Local (Residential)		N	8
24	Khalid Bin Al-Waleed Street	Jabal Al-Hussein	Local Street (Residential Commercial)	Reconsider to: **Collector Street**	N	4
25	Al-Ba'oniah Street	Jabal Al-Lweibdeh	Local Street (Residential Commercial)		N	3
26	Al-Kalha Central Market	Al-Tla'a Al-Shamali	Local Street (Residential Commercial)		Y	3
27	Princess Tharwat Al-Hasan Street	Al-Rawabi	Local Street (Residential Commercial)		N	3
28	Streets surrounding Firas Square	Jabal Al-Hussein	Local Street (Residential Commercial)		N	3
29	Surrounding streets of Dahiet Al-Ameer Rashid (Streets surrounding Royal Automobile Club context)	Al-Rawabi	Local Street (Residential Commercial) & Local (Residential)		N	2
30	Jabal Al-Hussein's Central Streets	Jabal Al-Hussein	Local Street (Residential Commercial)		N	1
31	Abdul Hamid Sharaf Street	Al-Shmeisani	Local Street (Residential Commercial)		Y	1
32	Al-Sweifieh's Central Streets	Al-Sweifieh	Local Streets (Residential Commercial)	Reconsider to: **Collector Street**	N	1
33	Wakalat Street	Al-Sweifieh	Local Street (Residential Commercial)		N	1
34	Tabarbour Street	Tabarbour	Local Street (Residential Commercial)		N	1
35	Al-Mutanabbi Street	Zahran	Local Street (Residential)		Y	2
36	Shari Al-Arab Street (Souk Al-Dahab)	Umm Uthainah	Local Street (Residential)	**Reconsider to:Local Street (Residential Commercial)**	Y	1
37	Al-Hamra Street	Al-Sweifieh	Local Street (Residential)	**Reconsider to: Local Street (Residential Commercial)**	Y	1
38	Ahmad Bin Taimia Street	Jabal Al-Lweibdeh	Local Street (Residential)		N	1
39	Al-Thaqafeh Street	Al-Shmeisani	Local Street (Residential)	**Reconsider to: Local Street (Residential Commercial)**	N	1
40	Any parallel street to Zahran Street	Zahran	Local Street (Residential)		Y	1
41	Ibn Khaldoun Street (Al-Khalidi Street)	Al-Radwan	Local Street (Residential)	**Reconsider to: Local Street (Residential Commercial)**	Y	1
42	Jabal Al-Hussein's Narrow Streets	Jabal Al-Hussein	Local Street (Residential)		N	1
43	Local Street between Bou Madyan and Benghazi Streets	Abdoun Al-Shamali	Local Street (Residential)		Y	1
44	Mithqal Al-Fayez Street	Zahran	Local Street (Residential)		Y	1
45	Mohammed Al-Kateb Street	Khalda	Local Street (Residential)		N	1
46	Najiyah Al-Nabulsi Street	Al-Diyar	Local Street (Residential)		N	1
47	Salman Al-Qudat Street	Abdoun	Local Street (Residential)	**Reconsider to: Local Street (Residential Commercial)**	N	1
48	Sulafah Al-Hasan Street	Abdoun	Local Street (Residential)	**Reconsider to: Local Street (Residential Commercial)**	N	1
49	Airport Road (Service Lane)	Na'our	Service Lane		N	2
50	Queen Rania Street (Al-Jama'a Street) Service Road	Al-Jubeiha	Service Lane		Y	2
51	**Abdoun: All streets**	Abdoun			Y	1
52	**Deir Ghbar: All Streets**	Al-Diyar			N	1

Table 11: Intuitive Results of Amman's streets with best potential for pedestrianization divided according to street type

5.3 Methodology of Validating Criteria Applicability

For the purposes of data synthesis, and as can be observed in the map and table at the end of the previous sub-chapter, the list of best pedestrian-potential streets collected from the survey was classified according to the street type, and then according to the relation with BRT stations (containing, leading to, or at walking distance to BRT stations).

By doing that, the streets resulting from the survey (and their underlying characteristics) can be easily brought into a comparison with the criteria lists resulting from the focus

group discussion (lists of essential characteristics), where each list had already been assigned all the street types that it can be applied onto, as well as the motif it serves (Refer to Chapter 4- Figure 34).

Here is how the data synthesis verifies the applicability of the criteria lists (recap in figures 52 and 53); the top-mentioned street of each street type category will be placed against the criteria list applicable to its type, to verify if the characteristics listed in the criteria list match the characteristics embedded within the selected street (these embedded characteristics will be brought to the surface with the use of some analysis and local knowledge of the street, as will be presented in Section 5.4- *Data Synthesis*). Upon this comparison, one of two scenarios could occur:

a. The Characteristics Match:
If characteristics match, then the criteria list is verified and proven applicable to the context. This match implies that the list which was rationally, academically and professionally developed, embeds within it the locals' intuitive opinion and their interactions with the streets of their city.

b. The Characteristics Contradict:
If a contradiction of characteristics occurs, it can either be that the criteria list is inapplicable to the context, and needs to be revisited by adapting new street characteristics into it (many of which can be extracted from local answers and justifications of the city's most pedestrian-friendly areas mentioned in section 5.2.2-b, or that the selected street was chosen by the locals based on a future vision of what it could be, in that case, recommendations will be given on how to enhance the mentioned street so that it fulfils the motif.

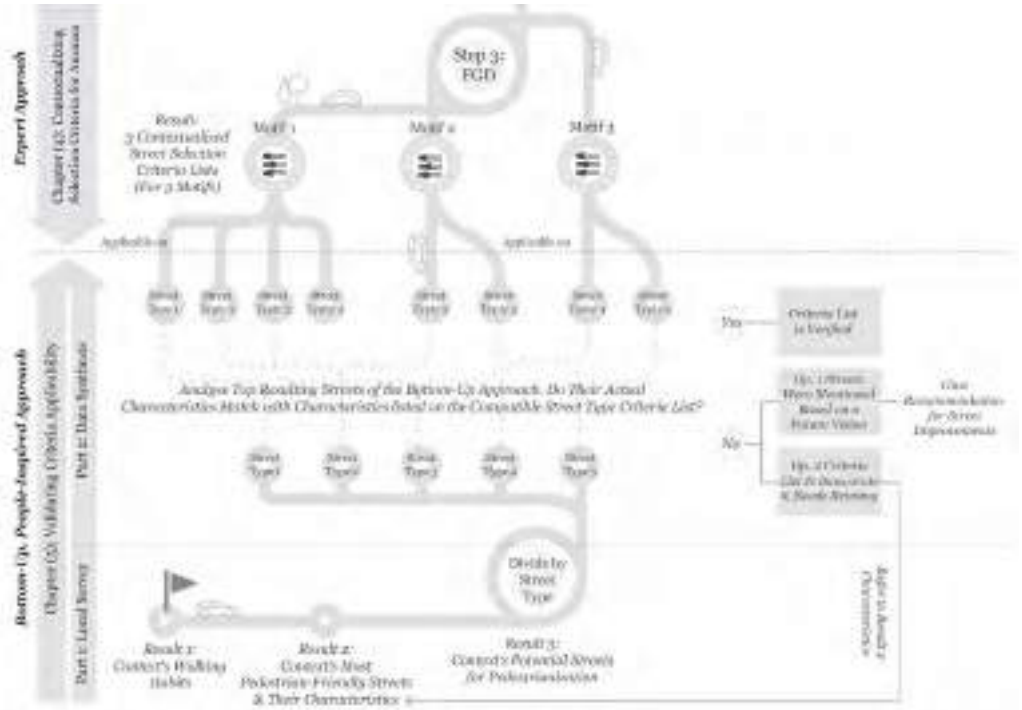


Figure 52: General Methodology of Validating Criteria Applicability. *Source: Author*

Two street types will be excluded from this validation process for being outliers:

1. Transit Parkways: Considering the low number of mentions of Transit Parkways in the survey results in comparison to other street types, this category of streets will be singled out of the data synthesis. Its high speed and major role as a transportation route makes it hard to envision pedestrianized, but rather can accommodate changes in its sidewalk and pedestrian-crossing infrastructure.
2. Local (Residential) Streets: This category of streets will be singled out of the data synthesis. The reason is that most local streets mentioned, although classified on OpenStreetMap as Local (Residential) Streets, have a lot of commercial activity happening in them. So, from a pedestrian/ land-use perspective, a change of classification was suggested for these streets, and were labelled as Local (Residential Commercial) Streets, leaving too little entries under the former category.

As can be observed in Figure 35, none of the top-mentioned streets in the three studied categories fulfils the characteristic of "Containing of Leading to a BRT Stop" (marked in the table as Y), for that, the second top mention of the main streets category was selected instead. According to this, the final streets that will go into the data synthesis of the next step are *Downtown Streets* as pedestrian streets to enhance access to public transport, *Zahran Street* and *Al-Madina Al Munawwara Street* as pedestrian streets to enhance recreation options (central city scale), and finally, *Al-Shari'a Street* as a pedestrian street to enhance recreation options (local neighborhood scale).

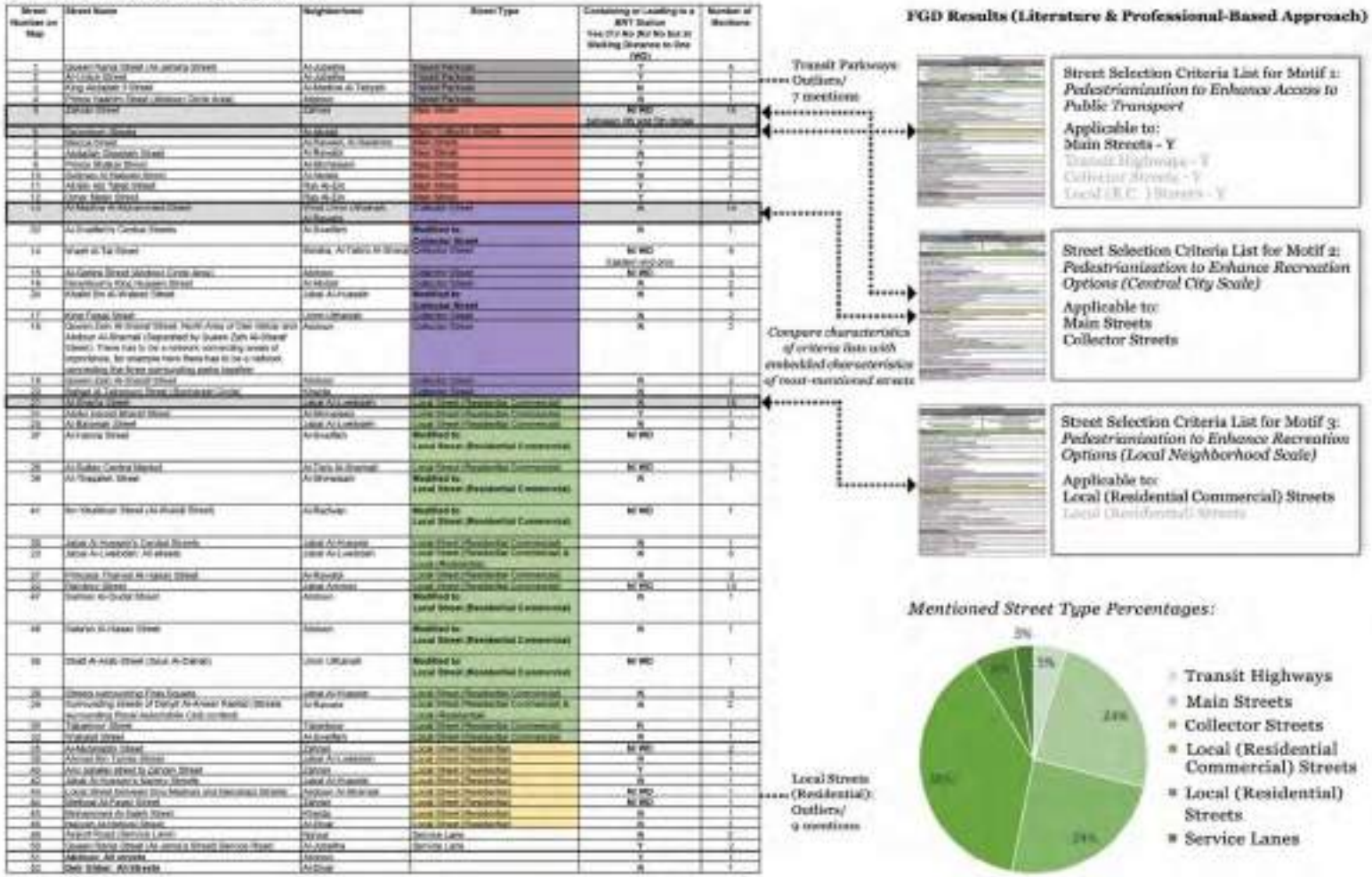


Figure 53: Detailed Methodology of Validating Criteria Applicability. Source: Author

5.4 Data Synthesis

This section of the research will take the 3 criteria lists resulting from the FGD in chapter 4 and analyze them in comparison to the streets shown in the figure below. Each analyzed street will conclude with a final modified criteria list as well as recommendations for street enhancements to be considered by GAM.

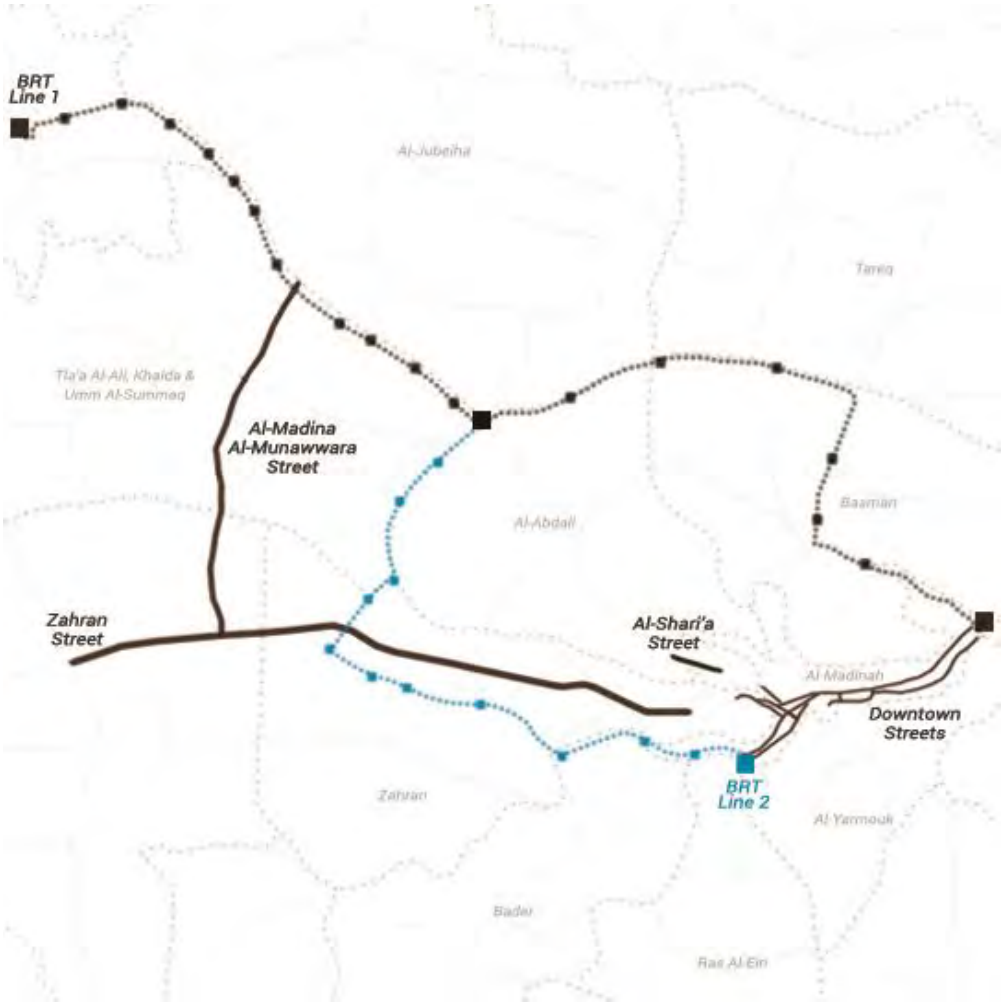


Figure 54: Amman's Elected Streets for Pedestrianization to Undergo Data Synthesis. *Source: Author*

5.4.1 List 1 Validation: Pedestrianization to Enhance Access to Public Transit: *Downtown Streets Analysis*

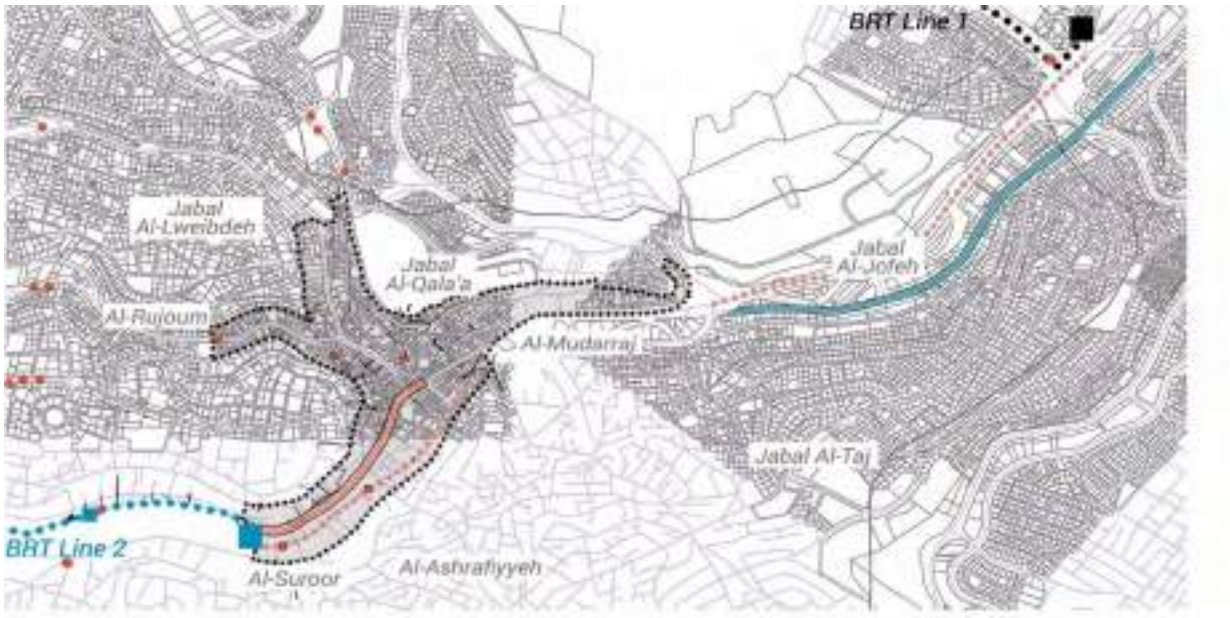
Figure 55: View of Downtown Amman as Captured from Jabal Al-Lweibdeh. *Photo Credit: Antonio Ottomanelli*

Figure 56: Downtown streets within the full scale of Amman. *Source: Author*

Amman's Downtown represents the heart of the city and the starting point of its entire metropolitan growth. At a point in time, it served many of the neighborhoods on the surrounding hills with the many services it provides; having a business in the downtown meant inarguable success. But the role of the downtown as a service, shopping and business district started to slowly decay with the sprawl of the city, many of the businesses which exclusively existed in the downtown opened branches in other destinations where it was less stressful to drive and find a nearby parking spot without getting fined. Noise, traffic and parking issues, as well as the lack of pedestrian-friendly infrastructure slowly had their toll on Downtown's loss of popularity as a central residential and shopping destination, unless for an occasional visit or accompanying a tourist to one of its many themed shops or authentic restaurants and libraries.

The area of analysis as extracted from the survey was vaguely labelled as "downtown streets". This is because Ammani residents see and feel the downtown as a uniform entity. And while it is most probable that who chose Downtown streets as potentials for pedestrianization, chose them primarily with the motif of *enhancing shopping conditions* engraved into their minds, but this validation will mainly tackle them for the motif of enhancing public transport, leaving other motifs as secondary. Since the data synthesis cannot tackle a vast and unspecific area as the whole downtown, the street specifically chosen for the validation process is downtown's *King Talal Street*, for the fact that it directly leads to a BRT station. Other downtown streets also directly lead to BRT stations, like *Quraish Street* and *Al-Jaysh Street*, but they will be disregarded for time constraints.

Figure 57: The focus street: Downtown's King Talal Street. Top: The street's Eastern end. Bottom: The street's Western end (Leading to BRT Terminal). *Source: https://www.instantstreetview.com/@31.946224,35.931659,224.92h,3.99p,0z*



Source: Base Map: GAM Engineering Directorate (2018), BRT Data: Amman BRT (n.d.), Amman Borders: Amman Institude (2011). Existing Bus & Service Stations: Maan Nasel (2018), Stairs: Dukhgan, Qudah, Bata (2013)

- BRT Line 1 Terminal
- BRT Line 2 Terminal
- BRT Line 2 Stations
- Downtown Border
- Existing Bus Stops
- Existing Service Stops
- Connecting Stairs
- GAM's "Ideal Street" Project
- Validation Focus Street: King Talal Street (Direct BRT Access)
- Potential Streets Disregarded from the Validation Process (Al-Jaysh & Quraish Streets)

Source: Base Map & Land Use: GAM Engineering Directorate (2018), Amman Borders: Amman Institude (2011).

- Residential Type A
- Residential Type B
- Residential Type C
- Residential Type D
- Commercial
- Schools
- Parks
- Municipality Owned
- Downtown Border

Figure 58: Downtown Area borders, surrounding neighborhoods, public transport, land use, and focus street. *Adapted by Author*

Downtown Streets				
Surrounding Neighborhoods	**Population / Person** *(DOS, 2018)*	**Population Density/ km2**	**Socially-Diverse (Based on Income) Yes (Y), No (N)** *(Alnawch, 2018)*	**Percentage of Young & Middle-Aged Adults (Ages 15-54)** *(DOS, 2018)*
Jabal Al-Jofeh	5245	11,803	N	59.60%
Al-Mudarraj	2234	10,827	N	74.10%
Jabal Al-Taj	59664	30,625	N	57.70%
Al-Qala'a	4784	10,716	N	61.20%
Al-Suroor	2385	11,336	N	65.80%
Al-Rujoum	2324	13,197	N	65.10%
Al-Ashrafiyyeh	54076	42,149	N	60.20%
Jabal Al-Lweibdeh (Main Neighborhood)	25409	9,582	Y	64.60%

Table 12: Collected Data on different neighborhoods in and around the Downtown.

Verifying Criteria Applicability Based on Street Data:

Verifying Applicability of Criteria List 1 **Main Pedestrianization Motif:** **Pedestrianize to Enhance Access to Public Transport** **Street of Analysis: Downtown's King Talal Street** **Street Type: Collector Street Leading to BRT Stop** *Secondary Pedestrianization Motifs:* *• Enhance Business & Economy (All Scales)* *• Enhance Sustainability & Environmental Quality* *• Enhance Recreation Options (All Scales)*		
Criteria	**Applicable to Street?**	**Notes**
Obligatory Criteria		
1. Containing or Leading to a BRT Station	Yes	King Talal Street (Leading to Terminal 2)
2. Walking Distance to Counter (Small Buses) and Service (Shared Cab) Stations	Yes	Map does not show all available service cabs
3. Topographically Non-challenging	Yes	
4. Walking Distance to High Population Density Neighborhoods 4. Within a Socially-Diverse Residential Neighborhood (Mixed Income)	Yes	
5. High Percentage of Young and Middle-Aged Adults in Surrounding Residential Neighborhoods*	Yes	
6. Diverse Mix of Uses	Yes	
7. Existing/ Anticipated Density of Firms and Businesses	Yes	Anticipating more (Source: *Amman Institute, 2011*)
8. Low Car Ownership in Surrounding Residential Neighborhoods	Yes	Source: *Alnawch, 2018*
9. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	Yes	
10. Presence of Trees and Greenery	!	Only in the Street's Western End (Closer to BRT Stop)
11. Walking Distance to Car Garages*	Yes	
Complimentary Criteria		
1. Existing Density of Pedestrian Activity	Yes	
2. Attractive to Socially-Diverse Visitors	Yes	
3. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	Yes	
4. Diverse Mix of Economic Density: a. Existing/ Anticipated Density of Food and Cafes b. Walking Distance to Common Services c. Existing/ Anticipated Density of Commerce and Retail	No ! Yes Yes	Not proportionate with Retail
5. Non-Arterial Street with Less Traffic Lanes	Yes	Collector Street, but with 2 traffic lanes only
6. One Way Street	Yes	
7. Narrow Street Width (From 6 - 9 Meters in Hot Climates)	Yes	8-9 meters
8. High Intersection Density (Small Blocks, High Interconnectivity)	No	
9. Rich History and Heritage: Rich Presence of Buildings Registered on the List of Cultural Heritage	Yes	
10. Distinct Ammani Character	Yes	
11. Rich Touristic Value	Yes	
12. East-West Street Orientation	Yes	Approximately (NE-SW Orientation)
13. Rich Architectural Value and Small-Scaled Detailing	No	
14. Divertible Traffic*	!	Requires Further Transport Analysis
Disregarded Criteria		
Existing/ Anticipated Density of Hotel Developments	Yes	Anticipating more (Source: *Amman Institute, 2011, p. 48*)
Rich Cultural Experience	Yes	
Brilliant Adaptations and Creativity	!	

Table 13: Data Synthesis: Checking compatibility of characteristics between Downtown's King Talal Street and FGD Criteria List 1: "Pedestrianization to Enhance Access to Public Transport". *Source: Author*

Based on the information presented above about Downtown streets (specifically King Talal Street), the following conclusions and recommendations can be made:

a. Recommendations for Criteria List:

-A monotonous commercial atmosphere in King Talal Street (density of retail and services only, but not enough food and café density) did not stop people from answering it as a good potential street for pedestrianization, this gives less credibility for criteria like "Diverse mix of economic density" and "existing/anticipated density of food and cafes" in terms of enhancing access to public transport, and therefore should be in lower rankings on the list.

-"High intersection density" and "Rich architectural value and small-scaled detailing" are amongst complimentary criteria that already had low rankings in the FGD list, and did not meet the characteristics of King Talal Street as well, therefore should be considered irrelevant.

b. Recommendations for GAM:

- Downtown has had many traffic problems and alterations in its transport routes in the past year in an aim to find the perfect solution. This research does not claim to be able to determine the whether the traffic in King Talal Street is divertible or not, but recommends that the municipality's transport department inspects that aspect. If traffic is found to be divertible, it is highly recommended for the street to be pedestrianized using a full-time pedestrianization scheme, as also mentioned by 50% of the survey answers regarding scheme (Survey- Figure 50). If not, a mixed-priority pedestrianization scheme can be the second alternative.

- Planting the sidewalks of the Eastern side of King Talal Street (figure 57-Top) to replicate the condition of the vegetation on the Western side (figure 57-Bottom) will make the environment for BRT-accessing users more pleasant all along the street.

-A change of land-use regulations or a provision of incentives to allow for additional restaurants and cafes in between the street's retail, service, and business land-uses can create a break in the monotony and invite users for different purposes into the street, turning the street into a potential street for central recreational.

-Interestingly, the municipality is momentarily working on plans to turn downtown's *King Abdullah I* Street into an ideal street (figure 58- street in blue). This will have positive effects on accessibility to BRT Line 1 terminal (Al-Mahatta Terminal), but considerations should also be made for *Al-Jaish Street*, *Quraish Street*, in addition to the studied *King Talal Street* which have a more direct access to the terminals.

5.4.2 List 2 Validation: Pedestrianization to Enhance Recreation Options (Central City Scale): *Zahran Street Analysis*

Figure 59: Zahran Street within the full scale of Amman. *Source: Author*

Zahran street was the top-mentioned street for pedestrianization in the entire survey. It is a main artery that runs approximately 7.5 km, around which all of Amman is distributed. Its arterial character is not in terms of its width or its heavy flow of traffic, but rather in terms of its centrality and continuity. It flows almost in the form of a straight line, which accommodates 8 roundabouts (figure 62) locally referred to as "circles", causing it to diverge into different neighbourhoods of the city. Many parallel streets exist around it, making the strain of traffic in it avoidable. Interestingly, regardless of Zahran's connective identity, no BRT stations are planned for it, but are rather located a few parallel streets away from it in *Princess Basmah Street*.

The numbering of circles in Zahran Street is a representation of the city's historical progression, starting from old Amman at the 1st, 2nd and 3rd circles, towards wider streets and more recent neighbourhoods of Amman in the direction of the 8th circle. In the survey section on pedestrian-friendly streets, Zahran ranked high as well, mentions were specifically for areas between the 1st-5th circles. While areas between 5th-8th circle areas were not mentioned, and therefore will be left out of the validation. For ease of data validation, areas from 1st-3rd circle and 3rd-5th circle will be studied separately.

Figure 60: *Views of Zahran Street Between 1st toward 2nd Circles.* Source: Left: InstantStreetView (2018), Right: Source: Faqih, S. (2009)

Figure 61:
Views of Zahran Street Between 5th towards 4th circles.
Source: Left: https://www.instantstreetview.com/@31.95779,35.887621,103.84h,3.21p,0.97z,
Right: https://www.instantstreetview.com/@31.958705,35.884648,98.3h,2.87p,1z

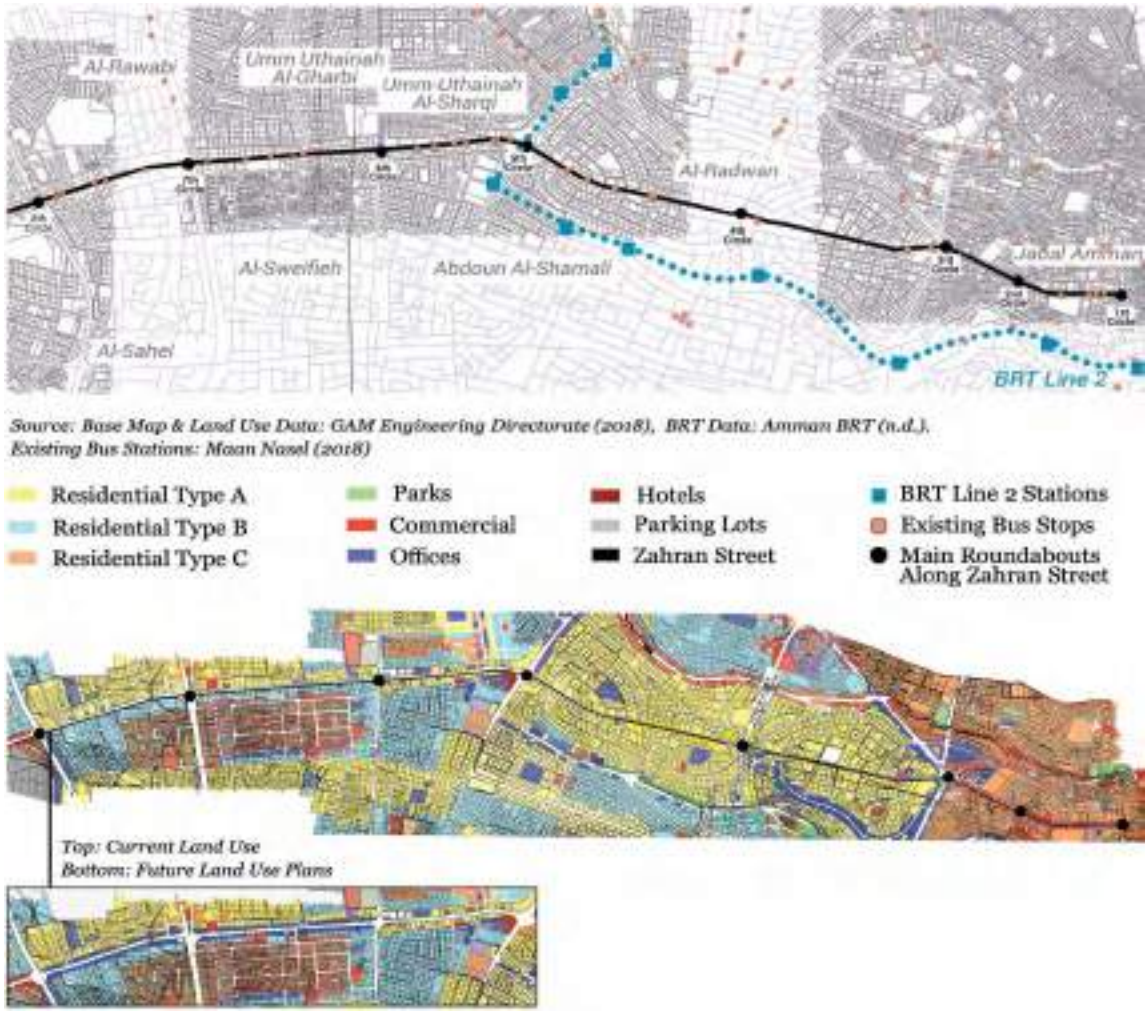


Figure 62: Zahran Street surrounding neighborhoods, public transport, and land use. *Adapted by Author*

The land-use of buildings along the street itself is characterized by a general monotonous residential identity in the section stretching between 3rd-8th circles, mostly dominated by type A residences (upscale residences/ highlighted in yellow), and some type B residences. Between 1st-3rd circles one can observe a better mix of uses with type C residences, commerce, and some offices. Future plans regarding the area include mixing the land uses to break the monotony only between 6th-8th circles (see bottom figure), by allowing owners to transform the use from residential to offices upon their own interest.

Zahran Street				
Surrounding Neighborhoods	**Population / Person** *(DOS, 2018)*	**Population Density/ km2**	**Socially-Diverse (Based on Income) Yes (Y), No (N)** *(Alnsour, 2016)*	**Percentage of Young & Middle-Aged Adults (Ages 15-54)** *(DOS, 2018)*
Al-Rawabi	49292	12,505	N.A.	64.00%
Al-Sahel	25155	7,882	N.A.	67.00%
Umm Uthainah Al-Gharbi	9979	11,232	N	63.90%
Al-Sweifieh	19782	11,458	N	68.00%
Umm Uthainah Al-Sharqi	12418	10,596	N	63.00%
Abdoun Al-Shamali	31642	8,063	N	65.70%
Al-Radwan	16919	5,973	Y	64.30%
Jabal Amman	31306	17,803	Y	65.10%

Table 14: Collected Data on different neighborhoods in and around the Zahran Street.

Verifying Criteria Applicability Based on Street Data:

Verifying Applicability of Criteria List 2 Main Pedestrianization Motif: Pedestrianize to Enhance Recreation Options (Central City Scale) Street of Analysis: Zahran Street (1st-5th Circle Areas) Street Type: Main Street *Secondary Pedestrianization Motifs:* *- Enhance Business & Economy (Central Scale)*				
Criteria	Applicable to 1st-3rd Circle Streets?	Notes	Applicable to 3rd-5th Circle Streets?	Notes
Obligatory Criteria				
1. Existing Density of Pedestrian Activity	U	Existing in parallel streets	U	3rd-4th Circles: Existing in parallel streets 4th-5th Circles: Not existing
2. Diverse Mix of Uses	Yes	Mixed Use (Residences Type C, Commercial)	U	3rd-4th Circles: Somehow Diverse 4th-5th Circles: Mainly Residences Type A
3. Diverse Mix of Economic Density:	Yes		No	3rd-4th: Only Medical Clinics 4th-5th: No economic Density
a. Existing/ Anticipated Density of Food and Cafes	Yes		No	
b. Existing/ Anticipated Density of Commerce and Retail	No		No	
4. Walking Distance to Planned BRT Stations	Yes	Except for area from 2nd- 3rd circles	Yes	
4. Walking Distance to [illegible] and Service [illegible] Stations	Yes		Yes	
4. Walking Distance to Car Garages	Yes	Needs enhancement	No	
5. Central to the City*	Yes		Yes	
6. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	No		No	
7. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	Yes	Can be enhanced	Yes	e.g. parks. But can be enhanced
8. Existing/ Anticipated Density of Financial Businesses	No		Yes	Mostly area parallel to 4th circle (Shmeisani neighborhood)
9. Within a Socially-Diverse Residential Neighborhood	Yes		No	
10. Attractive to Socially-Diverse Visitors	Yes		No	
11. Topographically Non-challenging	Yes		Yes	
Complimentary Criteria				
1. Rich History and Heritage: Rich Presence of Buildings Registered on the List of Cultural Heritage	Yes	Historical Buildings from 1920-1950's	Yes	"Good Architecture" Buildings
1. Rich Architectural Value & Small-Scaled Detailing	Yes		Yes	
2. Rich Cultural Experience	Yes		No	
2. Brilliant Adaptations and Creativity	Yes		No	
3. Distinct Ammani Character	Yes		Yes	
4. Rich Touristic Value	Yes		No	
5. Presence of Trees and Greenery	Yes		Yes	
6. Existing/ Anticipated Density of Hotel Developments	Yes		Yes	
7. High Intersection Density (Small Blocks, High Interconnectivity)	Yes		No	
8. High Percentage of Young and Middle-Aged Adults in Surrounding Residential Neighborhoods*	Yes		Yes	
9. East-West Street Orientation	Yes		Yes	
10. Non-Arterial Street with Less Traffic Lanes	U	Arterial, but less traffic lanes between 1st-3rd Circles	No	
10. One Way Streets	No		No	
11. Walking Distance to [illegible] Services	Yes		No	
12. Walking Distance to High Population Density Neighborhoods	Yes		No	
13. Low Car Ownership in Surrounding Residential Neighborhoods	No		No	
Disregarded Criteria				
Narrow Street Width (From 6 – 9 Meters in Hot Climates)	No		No	
Diversible Traffic and Servicing Feasible	Yes		Yes	

U: Undetermined

Table 15: Data Synthesis: Checking compatibility of characteristics Zahran Street and FGD Criteria List 2: "Pedestrianization to Enhance Recreation Options- Central City Scale". *Source: Author*

The criteria validation presented above shows remarkable incompatibility between the criteria list and Zahran's section between 3rd-5th circles, but relatively good compatibility with the section between 1st-3rd circles. For that, recommendations for street improvements will be given to adjust conditions in the former, while the latter will be used to give recommendations for adjustments on the criteria list. But before proceeding to apply these adjustments to the list, a second validation will be done by comparing the same list to another collector street: *Al-Madina Al-Munawwara Street* (next section 5.4.3), and accordingly determine if the list needs reconsideration, or Zahran street has to fit into a new motif of pedestrianization.

a. Recommendations for Criteria List:

As one can conclude from the land-use plans and the data synthesis, Zahran Street in its totality isn't prominent because of what it has, but because of what it leads and connects to. It connects to recreation, healthcare, residences, offices, and future BRT stations, all distributed at a walking distance into its surrounding neighborhoods. This can also be observed from survey results and results of the FGD imagination exercise, which imagined Zahran as a street with bicycle lanes, bicycle racks, and big trees under which walking, combined with some recreational alternatives, achieves the ultimate pedestrian experience; people see Zahran as an artery for accessibility, and see the potentials it has in accommodating more than just cars as modes of transport. This will be taken into account when modifying the criteria list, by diverting the focus from elements that exist *within* the street, to elements that the street *leads* to.

b. Recommendations for GAM:

A very important aspect to consider is that when Zahran was mentioned as a pedestrian-friendly street in the survey, justifications like "serene atmosphere", "calm" and "safe" continuously came up (Annex xx). Therefore, any recommendations made for the street must take this aspect into account, making sure not to overload it with activities that could destroy its current character. GAM Recommendation will be divided into these two categories:

1. Land-Use Recommendations:

- Diversification of uses is recommended between 4th-5th circles somehow similarly to what is being suggested for areas between 6th-8th circles at the moment (figure 62). This is suggested to accommodate some degree of commerce and offices and break the monotony of the exiting residential land-use.

-GAM is recommended to diversify the type of economic density present between 3rd-4th circles, which at the moment is only restricted to *Offices* (figure 62- highlighted in blue). It is fully overtaken by hospitals and clinics, and is considered as a "Traffic Cancer" (Rabadi, F., 2018). Introducing some degree of commerce, like cafes, restaurants, and bars can add some diversity to the area and keep it activated at night beyond the closing hours of clinics.

- The land use map reflects a shortage of common services in the area between 3rd-5th circles, increasing car dependency. More common services need to be incorporated into this area.

-If Zahran Street were to be pedestrianized, more land needs to be transformed into car garages. If no empty land lots are available for acquisition for the purpose, GAM can arrange with firms, hospitals, or schools in the streets perpendicular or parallel to Zahran to open up their garages for the public after working hours.

2. Recommendations for Future Plans: *Zahran Street- A Central Park?*

It has been proven that the motif of "*Enhancing Recreation Options at a Central City Scale"* applies partially to Zahran Street between 1st-3rd circles, but the end of this analysis brought out a new complimentary motif of *"Enhancing Connectivity and Accessibility in the City"* to the pedestrianization of Zahran Street.

Zahran Street has a good potential of traffic diversion with so many streets parallel to it as has been already mentioned, combining that with the BRT line that will run parallel to it, this presents an exceptional opportunity for one of two pedestrianization options to take place; the first is to apply a *mixed-priority pedestrianization* scheme for the street in the future, after evaluating and proving the high usability of the BRT. Here, one traffic lane can be reduced from each direction of the street to expand sidewalks and place bicycle lanes, making the street a major accessibility route inclusive for both non-motorized and motorized users (which should drop after BRT operation). To succeed, this pedestrianization cannot be done in isolation from the pedestrianization of several perpendicular streets that connect Zahran to BRT stations in *Princess Basma Street*.

The second applicable future pedestrianization scheme after the success of the BRT project is a *part-time pedestrianization* scheme, where the street can be closed to traffic on Friday mornings (the Jordanian weekend), when traffic flow is very limited to begin with. This can turn Zahran temporarily into a recreational destination or a "central park" inclusive to the entire city. A reference example from Paris is shown in the photo below.

Figure 63: (left): Champs-Elysées, France's most famous avenue, on a normal traffic day. Photo Credit: Jorge Luis Macias (2009)

Figure 64: (right): Champs-Elysées closed to traffic on the first Sunday of every month. *Photo Credit: Comité des Champs Elysées.*

5.4.3 List 2 Validation: Pedestrianization to Enhance Recreation Options (Central City Scale): *Al-Madina Al-Munawwara Street Analysis*

Figure 65:
Al-Madina Al-Munawwara Street within the full scale of Amman. *Source: Author*

Al-Madina Al-Munawwara street is classified as a collector street for its intermediate location between multiple neighbourhoods. It is distinctly wider and with more traffic lanes than Zahran Street. A major characteristic about it is that it is a busy commercial and office street that connects directly to the University of Jordan, making it very pressured in terms of vehicle traffic, especially with the current non-efficient public transport of the city. Interestingly, no BRT stations are planned for the street, even with a width that accommodates 3-traffic lanes and a large shop service area in each direction of the street.

Figure 66 (Left): Al-Madina Al-Munawwara Street surrounding neighborhoods and public transport. (Note: A land use map could not be obtained for the street). *Adapted by Author*
Figure 67: (Right Photos): Al-Madina Al-Munawwara Street with its wide streets, wasted spaces, and commercial identity. *Source: https://www.instantstreetview.com/@31.993583,35.870035,17.85h,4.26p,1z*

Al-Madina Al-Munnawara Street				
Surrounding Neighborhoods	**Population / Person** *(OOIR, 2018)*	**Population Density/ km2**	**Socially-Diverse (Based on Income) Yes (Y), No (N)** *(Almrsah, 2018)*	**Percentage of Young & Middle-Aged Adults (Ages 18-34)** *(OOIR, 2018)*
Umm Uthaina Al-Gharbi	9979	11,231	N	63.90%
Al-Rawabi	49292	12,505	N.A.	64.00%
Al-Salam	N.A.	N.A.	N.A.	N.A.
Al-Tla'a Al-Shuqi	N.A.	N.A.	Y	N.A.
Al-Salheen	N.A.	N.A.	N.A.	N.A.
Baraka	N.A.	N.A.	Y	N.A.
Al-Tla'a Al-Shamali	N.A.	N.A.	Y	N.A.

Table 16: Collected Data on different neighborhoods in and around Al-Madina Al-Munawwara Street.

Verifying Criteria Applicability Based on Street Data:

Verifying Applicability of Criteria List 2:		
Main Pedestrianization Motif:		
Pedestrianize to Enhance Recreation Options (Central City Scale)		
Street of Analysis: Al Madina Al Munawwara Street		
Street Type: Collector Street		
Secondary Pedestrianization Motifs:		
+ Enhance Business & Economy (Central Scale)		
Criteria	**Applicable to Street?**	**Notes**
Obligatory Criteria		
1. Existing Density of Pedestrian Activity	Yes	
2. Diverse Mix of Uses	Yes	
3. Diverse Mix of Economic Density	Yes	
3. Existing/ Anticipated Density of Food and Cafes	Yes	Takeaway identity rather than seated
3. Existing/ Anticipated Density of Commerce and Retail	Yes	
4. Walking Distance to Planned BRT Stations	No	
4. Walking Distance to Coaster (Small Buses) and Service (Shared Cab) Stations	Yes	
4. Walking Distance to Car Garages	Yes	More are needed, but can be adapted from many surrounding empty lands
5. Central to the City*	No	
6. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	No	
7. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	Yes	
8. Existing/ Anticipated Density of Firms and Businesses	Yes	
9. Within a Socially-Diverse Residential Neighborhood	Yes	
10. Attractive to Socially-Diverse Visitors	Yes	
11. Topographically Non-challenging	Yes	
Complementary Criteria		
1. Rich History and Heritage. (Edh Presence of Buildings Registered on the List of Cultural Heritage	No	
1. Rich Architectural Value & Small-Scaled Detailing	No	
2. Rich Cultural Experience	U	Slowly emerging (food cultural experiences, turkish baths)
2. Brilliant Adaptations and Creativity	No	
3. Distinct Assumed Character	No	
4. Rich Touristic Value	No	
5. Presence of Trees and Greenery	No	
6. Existing/ Anticipated Density of Hotel Developments	No	
7. High Intersection Density (Small Blocks, High Interconnectivity)	No	
8. High Percentage of Young and Middle-Aged Adults in Surrounding Residential Neighborhoods*	Yes	
9. East-West Street Orientation	No	
10. Non-Arterial Street with Less Traffic Lanes	No	
10. One Way Streets	No	
11. Walking Distance to Common Services	Yes	
12. Walking Distance to High Population Density Neighborhoods	U	Available information insufficient to determine extent
12. Low Car Ownership in Surrounding Residential Neighborhoods	No	
Disregarded Criteria		
Narrow Street Width (From 6 - 9 Meters in Hot Climates)	No	
Diversible Traffic and Servicing Possibility	U	Requires Further Transport Analysis
	U	Undetermined

Table 17: Data Synthesis: Checking compatibility of characteristics Al-Madina Al-Munawwara Street and FGD Criteria List 2: "Pedestrianization to Enhance Recreation Options- Central City Scale". *Source: Author*

Based on the information presented above on Al-Madina Al-Munawwara Street, the following conclusions and recommendations can be made:

a. *Recommendations for Criteria List:*

-The aspect of young population seems to be not of big relevance for a context like Amman's considering that the whole population is young and therefore the age percentage figures do not vary much between one neighbourhood and the other. This criteria will only be relevant if demographics of Amman start to change in the long term.

- The following criteria are recommended to be taken off the list, for the fact that they haven't been mentioned in neither Al-Madina Al-Munawwara nor Zahran Streets: "Non-Arterial Streets", "One Way Streets", amd "Low Car Ownership in Surrounding Residential Neighbourhoods" (considering that all neighbourhood types regardless of their car ownership status have the right for inclusive streets).

- Although the FGD established centrality within the city as an obligatory criterion, it should be moved into complimentary criteria. Al-Madina Al-Munawwara Street, although non-central to the city, was a high potential for pedestrianization, considering its status as a collector street (central within many neighbourhoods). If this centrality were to occur within the city, it can act as a plus (e.g. the case of Zahran Street), but it should not be an obligation.

b. *Recommendations for GAM:*

-GAM is recommended to consider installing a BRT line with multiple stations along Al-Madina Al-Munawwara Street (e.g. stations at Kilo Circle, Waha Circle, King Hussein Cancer Centre and Southern Gate of University of Jordan). In a general sense, if a street is pedestrianized for the purpose of central recreation, and has substantial parking spaces surrounding it, it could function properly without a BRT access, but generate more traffic in the direction of the street or within it (when not pedestrianized using the full-time scheme). In Al-Madina Al-Munawwa Street's case, the street is already overloaded with traffic, and will not withstand pedestrianization without public transport enhancement.

-More car garages need to be introduced in perpendicular streets to Al-Madina Al-Munawwara Street or within it (GAM should consider the acquisition of some of the many empty land lots along the street and transform them into parking). At the moment, spaces which should be personalized for the pedestrians to enhance their shopping experiences are being over taken by parked cars (figure 71), which haphazardly park in vertical, horizonal, double and even triple parking forms, impeding the traffic in the street in spite of its 3 lanes.

5.4.4 List 4 Validation: Pedestrianization to Enhance Recreation Options (Local Neighbourhood Scale): *Al-Shari'a Street Analysis*

Figure 68 (Top, Middle): Views of Al-Shari'a Street. *Source: https://www.instantstreetview.com/@31.95606,35.925986,275.4h,-5.6p,1z*
Figure 69 (Bottom): Adaptations in Al-Sharia'a Street, like expanding cafes out on the sidewalks, whether legalized or not, are bottom-up initiatives where residents demand their desire for a more inclusive public space. *Source: Author*

Figure 70: Al-Shari'a Street within the full scale of Amman. *Source: Author*

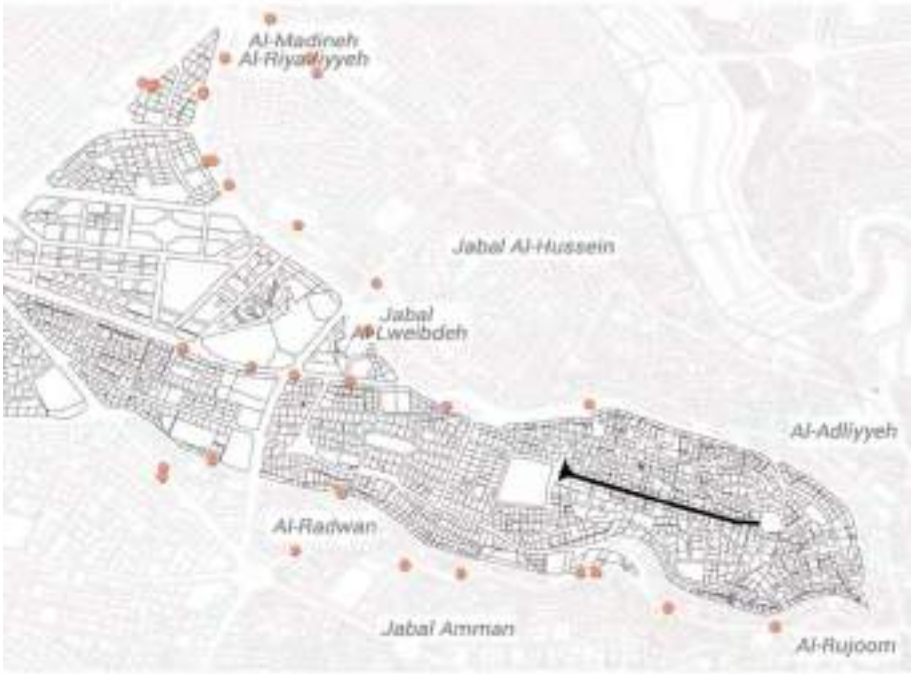
Al-Shari'a Street is located in the neighbourhood of Jabal Al-Lweibdeh, one of Amman's old neighbourhoods on a hill to the north of Downtown. It started to get inhabited in the early years of the 20th century, and was home to residences of some of Amman's oldest families as well as important intellectual figures. It has always been a hub for art and culture, with multiple schools, art galleries, cinemas, language centres, foreign embassies, as well as literature, art and political associations (Jabal-luweibdeh, n.d). It is the second most dense neighbourhood in Amman for cultural heritage buildings, most of which are located in Shari'a Street (Rabadi, F., 2018).

With narrow streets and a good amount of vegetation to keep the streets shaded, local residents of lweibdeh were often seen having coffee or socializing on the sidewalks outside their houses (Assi, R. 2011). Only until a few years ago, GAM set a new regulation allowing for residents of Al-Shari'a Street to rent the ground level of their buildings for retail or commercial purposes. This initially had a positive impact on the street, for new cafes and restaurants started to emerge to cater for local residents' recreation, and extend external visitors' stay in the area a little longer, but as soon as the street started to gain popularity as a recreational destination, residents started to feel pressured or perhaps tempted to rent their properties, to a point where the street started to get dominated by a monarchy of small food and cafe businesses.

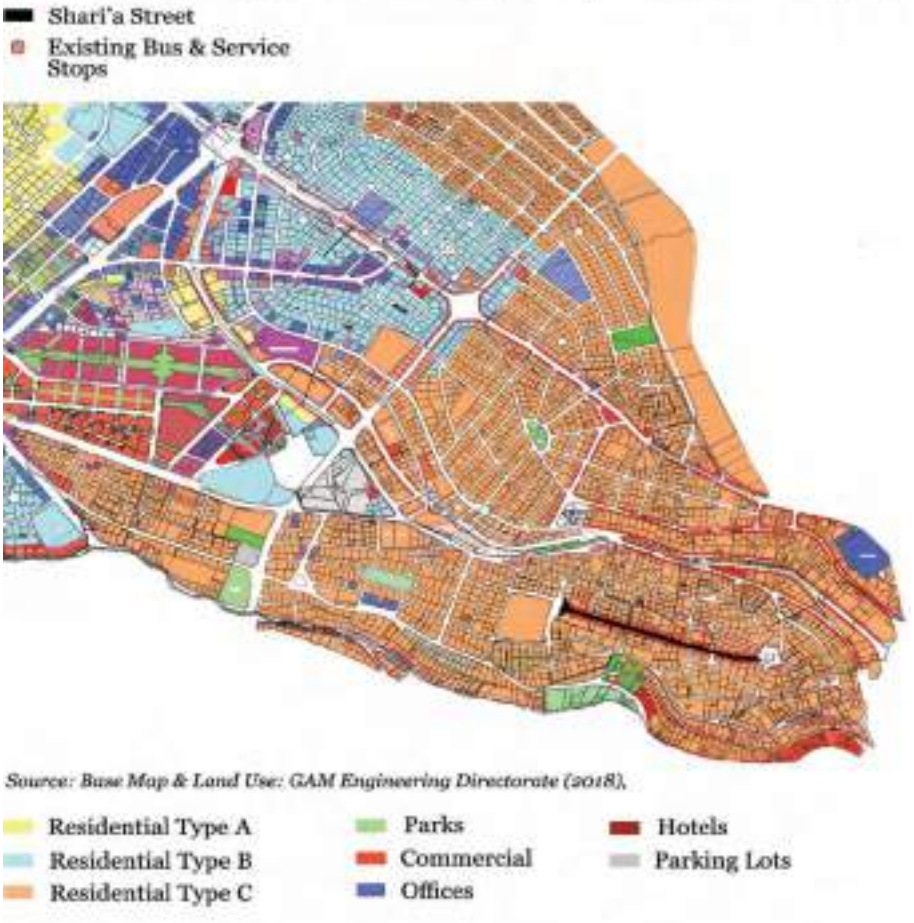
Nowadays, the density of pedestrians in Al-Shari'a street exceeds the width and capacity of the sidewalks, most walk on streets and intervene with car traffic. Car traffic has also increased tremendously, pushing residents or business owners away to escape the noise.

What seems to be as an exciting fact is that the municipality identified the street and another parallel street (Al-Ba'onieh Street) in 2018 as candidates for their *Ideal Streets* project, once again assigning the project design to Rami Al-Daher from *Turath* Architects, the project design has not started yet.

Figure 71: Current conditions of traffic in Al-Sharia'a Street. The street suffers from continuous traffic jams, and noise pollution from passing cars with music turned up to loud volumes. *Source: Author*



Source: Base Map: GAM Engineering Directorate (2018), Existing Bus Stations: Maan Nasel (2018)



Source: Base Map & Land Use: GAM Engineering Directorate (2018),

Figure 72: Al-Shari'a Street surrounding neighborhoods, public transport, and land use. *Adapted by Author*

Al-Shari'a Street				
Surrounding Neighborhoods	**Population / Person** *(DOS, 2018)*	**Population Density/ km2**	**Socially-Diverse (Based on Income) Yes (Y), No (N)** *(Almarsh, 2018)*	**Percentage of Young & Middle-Aged Adults (Ages 15-34)** *(DOS, 2018)*
Jabal Al-Lweibdeh (Main Neighborhood)	21409	9,582	Y	64.60%
Al-Madinah Al-Riyadiyyah	22393	9,539	Y	60.50%
Al-Radwan	16919	5,973	Y	64.30%
Jabal Al-Hussein	84667	30969*	Y	58.50%
Jabal Amman	31306	17,803	Y	65.10%
Al-Adliyyeh	3077	13,081	N	60.50%
Al-Rujoum	2324	13,197	N	65.10%

Table 18: Collected Data on different neighborhoods in and around Al-Shari'a Street.

Verifying Criteria Applicability Based on Street Data:

Verifying Applicability of Criteria List 2		
Main Pedestrianization Motif:		
Pedestrianize to Enhance Recreation Options (Local Neighborhood Scale)		
Street of Analysis: Al-Sharī'a Street		
Street Type: Local (Residential/Commercial) Street/ Central to its Neighborhood		
Secondary Pedestrianization Motifs		
• Enhance Business & Economy (Local Scale)		
• Enhance Personal Health & Fitness		
Criteria	**Applicable to Street?**	**Notes**
Obligatory Criteria		
1. Walking Distance to High Population Density Neighborhoods	Yes	
2. Presence of Trees and Greenery	Yes	Can be enhanced
3. Rich Architectural Value & Small-Scaled Detailing	Yes	
4. High Intersection Density (Small Blocks, High Interconnectivity)	Yes	
5. Topographically Stochallenging	Yes	
6. Non-Arterial Street with Low Traffic Loads	Yes	
8. Narrow Street Width (6 - 9 Meters in Hot Climates)	Yes	
7. Diverse Mix of Uses	Yes	
8. Existing Density of Pedestrian Activity	Yes	The density of pedestrians exceeds the capacity of the sidewalk, causing them to walk on streets and intervene with car traffic
8. Walking Distance to Common Services	Yes	
8. Existing/ Anticipated Density of Food and Cafes	Yes	
9. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	Yes	E.g. Parks, Language Institutes
10. East-West Street Orientation	Yes	Almost
11. Distinct Attractive Character	Yes	
12. Rich History and Heritage: Rich Presence of Buildings Registered on the List of Cultural Heritage	Yes	
Complimentary Criteria		
1. Brilliant Adaptation and Creativity	Yes	
2. Diverse Mix of Economic Density	U	Emerging into a Food and Cafe economy
3. Existing/ Anticipated Density of Commerce and Retail	Yes	
4. Rich Cultural Experience	Yes	
5. Low Car Ownership in Surrounding Residential Neighborhoods	Yes	
6. One Way Streets	Yes	
7. Walking Distance to Planned BRT Stations	No	
8. Walking Distance to Cluster (Small Buses) and Service (Shared Cab) Stations	Yes	
9. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	Yes	
10. Walking Distance to Car Garages	U	Some Exist, but are private and need a permission obtained
Disregarded Criteria		
Within a Socially-Diverse Residential Neighborhood	Yes	
Attractive to Socially-Diverse Visitors	Yes	
Existing/ Anticipated Density of Firms and Businesses	Yes	
Existing/ Anticipated Density of Hotel Developments	Yes	
Rich Touristic Value	Yes	
Diversible Traffic and Servicing Possibility	U	Requires Further Transport Analysis
	U	Undetermined

Table 19: Data Synthesis: Checking compatibility of characteristics Al-Shari'a Street and FGD Criteria List 2: "Pedestrianization to Enhance Recreation Options- Local Neighborhood Scale". *Source: Author*

Based on the information presented above on Al-Shari'a Street, the following conclusions and recommendations can be made:

a. *Recommendations for Criteria List:*

-Walking distance to BRT Stations was a criterion initially placed towards the bottom of the complimentary criteria, but is recommended to be taken out of the list as extracted from the Shari'a Street characteristics.

-When taking into account top reasons for Shari'a Street's pedestrian-friendliness as mentioned in the survey, two important criteria can be extracted: A. Serene Atmosphere (obligatory), B. High Altitude and Vast Views Over Amman (complimentary).

b. *Recommendations for GAM:*

-Not to fall into the same mistake of Rainbow Street's pedestrianization, which lost much of its culturally-valued buildings to be sold to food or shisha bar businesses, GAM is recommended to apply land-use regulations which specify a limit on the percentage of specific types of retail or commerce on the ground floor of the street's buildings. E.g. after the street reaches 50% of its ground floor land use as food and cafes, no more projects will be given a permit.

- Trees and greenery are present in Al-Shari'a Street to a certain extent, especially spilling out from gardens and fences of adjacent properties, but this aspect can still be enhanced within the street itself. At the moment, the sidewalk is too narrow to accommodate vegetation, but should be considered upon the application of any pedestrianization scheme.

5.5 Conclusions: A Validated Contextualized Selection Criteria

Based on this long and elaborate process of data synthesis, the three final criteria lists as influenced by the local survey results are as follows:

Street Selection Criteria for Pedestrianization- List 1	
Main Pedestrianization Motif: Pedestrianize to Enhance Access to Public Tranport	
Secondary Pedestrianization Motifs	*Applicable Street Type*
• *Enhance Business & Economy (All Scales)* • *Enhance Sustainability & Environmental Quality* • *Enhance Recreation Options (All Scales)*	*Any Street Containing or Leading to a BRT Station (Transit Highway, Main Streets, Collector Streets, Local "Residential Commercial" Streets)*
Obligatory Criteria	
1. Containing or Leading to a BRT Station*	
2. Walking Distance to Coaster (Small Buses) and Service (Shared Cab) Stations	
3. Topographically Nonchallenging	
4. Walking Distance to High Population Density Neighborhoods 4. Within a Socially-Diverse Residential Neighborhood (Mixed Income)	
5. High Percentage of Young and Middle-Aged Adults in Surrounding Residential Neighborhoods*	
6. Diverse Mix of Uses	
7. Existing/ Anticipated Density of Firms and Businesses	
8. Low Car Ownership in Surrounding Residential Neighborhoods	
9. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	
10. Presence of Trees and Greenery	
11. Walking Distance to Car Garages*	
Complimentary Criteria	
1. Existing Density of Pedestrian Activity	
2. Attractive to Socially-Diverse Visitors	
3. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	
4. Walking Distance to Common Services	
5. Existing/ Anticipated Density of Commerce and Retail	
6. Non-Arterial Street with Less Traffic Lanes	
7. One Way Street	
8. Narrow Street Width (From 6 - 9 Meters in Hot Climates)	
9. Rich History and Heritage: Rich Presence of Buildings Registered on the List of Cultural Heritage	
10. Distinct Ammani Character	
11. Rich Touristic Value	
12. East-West Street Orientation	
13. Existing/ Anticipated Density of Food and Cafes	
14. Diverse Mix of Economic Density	
15. Existing/ Anticipated Density of Hotel Developments	
16. Rich Cultural Experience	
17. Divertible Traffic*	
Disregarded Criteria	
High Intersection Density (Small Blocks, High Interconnectivity)	
Rich Architectural Value and Small-Scaled Detailing	
Brilliant Adaptations and Creativity	

Table 20: Final Street Selection Criteria (List 1): Enhancing Access to Public Transport. *Source: Author*

Street Selection Criteria for Pedestrianization- List 2	
Main Pedestrianization Motif: Pedestrianize to Enhance Recreation Options (Central City Scale)	
Secondary Pedestrianization Motifs	*Applicable Street Type*
• *Enhance Business & Economy (Central Scale)* • *Enhancing Connectivity and Accessibility in the City*	• *Collector Street* • *Main Street*
Obligatory Criteria	
1. Includes/ Leads to Nodes of High Pedestrian Density	
2. Includes/ Leads to a Diverse Mix of Uses	
3. Includes/ Leads to a Diverse Mix of Economic Density: a. Includes/ Leads to a Density of Food and Cafes b. Includes/ Leads to a Density of Commerce and Retail	
4. Walking Distance to Planned BRT Stations 4. Walking Distance to Coaster (Small Buses) and Service (Shared Cab) Stations 4. Walking Distance to Car Garages	
5. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	
6. Includes/ Leads to Density of Firms and Businesses	
7. Topographically Nonchallenging	
8. Within a Socially-Diverse Residential Neighborhood	
9. Attractive to Socially-Diverse Visitors	
Complimentary Criteria	
1. Walking Distance to Common Services	
2. Central to the City	
3. Rich History and Heritage: Rich Presence of Buildings Registered on the List of Cultural Heritage 3. Rich Architectural Value & Small-Scaled Detailing	
4. Distinct Ammani Character	
5. Presence of Trees and Greenery	
6. Serene Atmosphere	
7. Includes/ Leads to Density of Hotel Developments	
8. Rich Cultural Experience	
9. Walking Distance to High Population Density Neighborhoods	
10. High Intersection Density (Small Blocks, High Interconnectivity)	
11. Brilliant Adaptations and Creativity	
12. Rich Touristic Value	
13. East-West Street Orientation	
14. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	
Disregarded Criteria	
Narrow Street Width (From 6 - 9 Meters in Hot Climates)	
Non-Arterial Street with Less Traffic Lanes	
One Way Streets	
Low Car Ownership in Surrounding Residential Neighborhoods	
Divertible Traffic and Servicing Possibility	

Table 21: Final Street Selection Criteria (List 2): Enhancing Recreation Options (Central City Scale). *Source: Author*

Street Selection Criteria for Pedestrianization- List 3	
Main Pedestrianization Motif: Pedestrianize to Enhance Recreation Options (Local Neighborhood Scale)	
Secondary Pedestrianization Motifs	*Applicable Street Type*
• *Enhance Business & Economy (Local Scale)* • *Enhance Personal Health & Fitness*	• *Local "Residential Commercial" Streets (Central to Their Neighborhoods)* • *Local "Residential" Streets*
Obligatory Criteria	
1. Walking Distance to High Population Density Neighborhoods	
2. Presence of Trees and Greenery	
3. Serene Atmosphere	
4. Rich Architectural Value & Small-Scaled Detailing	
5. High Intersection Density (Small Blocks, High Interconnectivity)	
6. Topographically Nonchallenging	
7. Non-Arterial Street with Less Traffic Lanes 7. Narrow Street Width (6 - 9 Meters in Hot Climates)	
8. Diverse Mix of Uses	
9. Existing Density of Pedestrian Activity 9. Walking Distance to Common Services 9. Existing/ Anticipated Density of Food and Cafes	
10. Walking Distance to Landmarks & Points of Interest (Complements the Existing Pedestrian Flow Network)	
11. East-West Street Orientation	
12. Distinct Ammani Character	
13. Rich History and Heritage: Rich Presence of Buildings Registered on the List of Cultural Heritage	
14. One Way Streets	
Complimentary Criteria	
1. Brilliant Adaptations and Creativity	
2. Diverse Mix of Economic Density	
3. Existing/ Anticipated Density of Commerce and Retail	
4. Rich Cultural Experience	
5. Low Car Ownership in Surrounding Residential Neighborhoods	
6. One Way Streets	
7. Walking Distance to Coaster (Small Buses) and Service (Shared Cab) Stations	
8. Connects to Surrounding Neighborhoods through Walkable Infrastructure (e.g. Stairs)	
9. High Altitude and Vast Views Over Amman	
10. Walking Distance to Planned BRT Stations	
11. Walking Distance to Car Garages	
Disregarded Criteria	
Within a Socially-Diverse Residential Neighborhood	
Attractive to Socially-Diverse Visitors	
Existing/ Anticipated Density of firms and businesses	
Existing/ Anticipated Density of Hotel Developments	
Rich Touristic Value	
Divertible Traffic and Servicing Possibility	

Table 22: Final Street Selection Criteria (List 3): Enhancing Recreation Options (Local Neighborhood Scale). *Source: Author*

Chapter 6:
Recommendations and Conclusions

6.1 Chapter overview

This chapter is a summary of the findings and lessons learnt from this research. The first part tackles the general research outcomes, the transferability of the contextualization criteria methodology to suit other contexts, and some shortcomings and factors affecting the process and credibility of the research results. The second sub-chapter is devoted for recommendations; it offers suggestions for the local municipality regarding the topic of pedestrianization as well as other topics that were brought up in this research, and finally, the thesis is wrapped with recommendations for fellow researchers regarding possibilities of further research.

6.2 Research Outcomes and Findings

6.2.1 Outcomes from Local Street Selection

The research achieved its initial aim, which was to develop an elaborate database of context-specific criteria for the selection of optimum streets for pedestrianization in Amman, Jordan. The data base has three criteria lists fuctioning for three motifs of pedestrianization, and was able to give value to the opinions of experts equally to that of the street's local users.

In addition to the three final criteria lists, secondary outcomes were recommendations given to all streets taking part in the data synthesis process (Chapter 5- Data Syntheis).

Recommendations were given to GAM regarding the enhancement of Downtown's *King Talal Street, 1st-5th Circles Section* of Zahran Street*, Al-Madina Al-Munawwara Street,* and *Al-Shari'a Street*. When ordered in terms of their difficulty to realize, from most to least difficult, the street with the most transformative and ambitious vision for pedestrianization is Zahran Street, which can only be realized given the success of the BRT project, next in line in Al-Madina Al-Munawwara Street, which will impede traffic largely in a critical area until the completion of its construction, next is King Talal Street which mostly needs a detailed plan for traffic diversion, and the easiest and most ready for pedestrianization is Al-Shari'a Street, which has all success factors presented on a silver plate and is only awaiting small physical and policy interventions.

6.2.2 Transferability of Contextualization Model

The model below shows how the method used for contextualizing selection criteria in this research was slightly modified and presented for the use of any other city aiming to pedestrianize its streets, and looking for a way to contextualize its own street selection criteria.

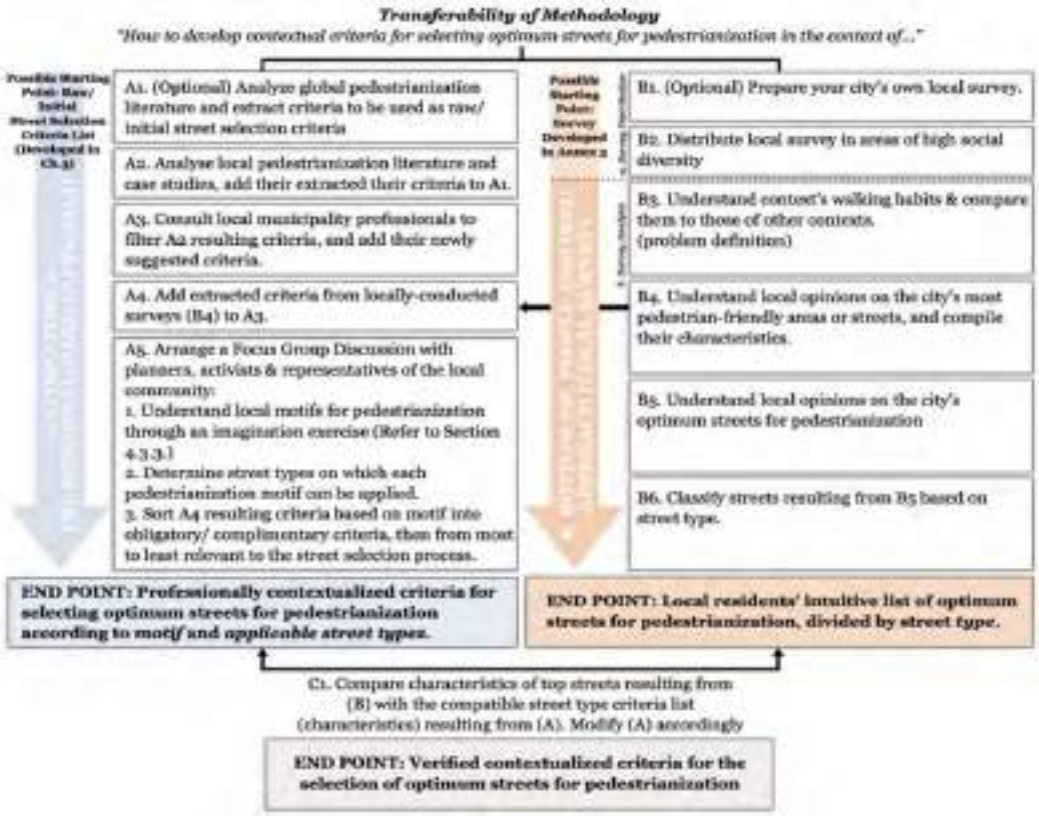


Figure 73: Model of Method Transferability. *Source: Author*

6.2.3 Research Shortcomings and Limitations

6.2.3.1 Time Limitations

One shortcoming of this research was the inability to follow the exact order of steps presented in the transferability section above. In the diagram, one can notice that the local survey (Process B) has to be started, finished, and analysed prior to the initiation of the focus group discussion (Step A5) in order to directly extract criteria from results of "The City's Most Pedestrian-Friendly Areas" (Step B4) and incorporate them into the filtration and classification process of the focus group discussion. What happened in the process of this research though, was that the collected number of surveys prior to the FGD was insufficient to finalize the survey, therefore the B4 results couldn't be incorporated into the focus group discussion. Instead, those criteria were subjectively placed by the author into the final data synthesis resulting lists.

6.2.3.2 Data Collection Limitations

The biggest limitations faced throughout the process of this research were the ones related to local data collection from governmental institutions like the Greater Amman Municipality, the Local Statistics Departments, the Royal Jordanian Geographic Centre, and the Ministry of Environment. Processes were both time and energy-consuming; upon personal visits to those institutions, most of the data was only offered in JPEG formats and for small divisions of the city (a local neighbourhood scale). A Suggested alternative was to use information presented in governmental online servers or GIS systems (e.g. AmmanCityGIS), which is also only extractable as images, and efficient for a smaller scale.

These difficulties in obtaining local data had a role in altering both the data synthesis methodology as well as the quality of the resulting outcomes, this can be explained as follows:

a. *Effects on the Data Synthesis Methodology:*

Without access to tools and sufficient data on the city, it was not possible to apply the FGD resulting criteria directly onto the context to obtain streets suitable for pedestrianization, and directly compare them with parallel potential streets for pedestrianization resulting from the local survey (the bottom-up approach) as envisioned in figure 74. Instead, the data synthesis methodology had to be adapted to suit the available data; characteristics of only the top-resulting streets from the survey were directly compared with characteristics of expert criteria lists, whenever information for that comparison was available (figure 75).

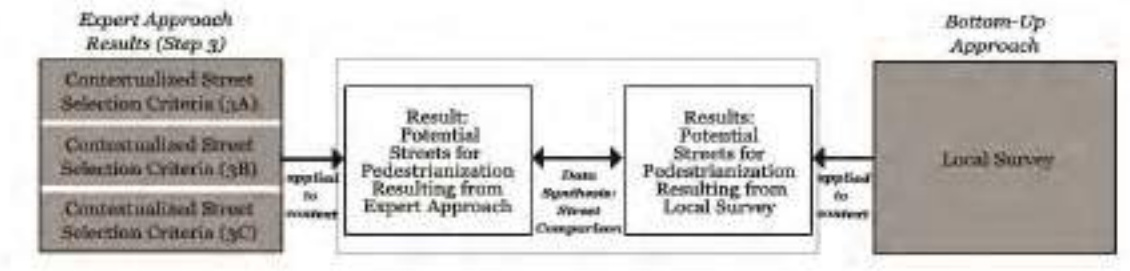


Figure 74: Envisioned methodology for data synthesis in the presence of available city data. *Source: Author.*

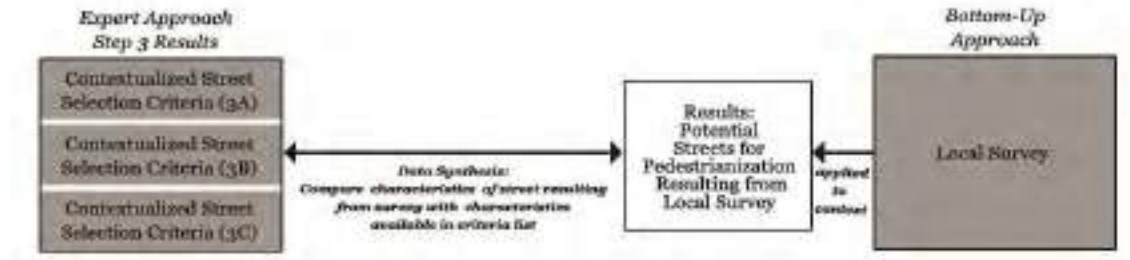


Figure 75: Alternative methodology for data synthesis in the absence of available city data (Actual methodology used in the research). *Source: Author.*

b. Effects on the Quality of Results:

In the absence of information to compare and see if characteristics in the expert criteria lists match with embedded characteristics of streets resulting from surveys, the author's own subjective local knowledge was used to fill in the gaps of unobtained data from the municipality, this of course had its toll on the final outcome of this thesis.

6.2.3.3 Methodology Limitations

a. Credibility of the Focus Group Discussion Results:

Another limitation which can affect the credibility of the outcomes of this research is the fact that the focus group discussion was attended by 22 participants, a number which was later divided into three groups of approximately 7 participants each, who worked together to sort the criteria they were given from most to least relevant. A shortcoming here was that within the members of the same group, clashes repeatedly occurred on the placement of specific criteria, and even though the groups tried to present an outcome that is approved by all group members, the opinions of the most dominant personalities clearly overpowered.

b. Survey Sample Limitations:

A limitation in this research is that the data synthesis methodology used to verify the criteria applicability was somehow slightly limiting, putting a lot of weight on the characteristics of top-mentioned streets in the survey, and comparing against them to accordingly alter the criteria list. The gap here, is that the same list, if compared to another street (e.g. the second or third top-mentioned) can result in a different final criteria list. An example can be made through Downtown's King Talal Street; the street is a collector street leading to a BRT station and therefore was used to verify the list of "Enhancing Access to Public Transport", but collector streets can also be compared as "Enhancing Recreation Options on a Central City Scale". If the street had a few more mentions, it would have been used for the validation of the criteria list of central recreation, giving different data synthesis results (e.g Centrality and Low Car-Ownership would be obligatory criteria). This completely depended on the survey, which if done on a bigger scale could have been able to get less debatable data synthesis results.

6.3 Recommendations

6.3.1 Recommendations for Greater Amman Municipality (GAM):

6.3.1.1 Replication to Enhance Recreation Options

GAM should take note that from past pedestrianization examples like Rainbow Street, or currently Al-Shari'a Street (which only encountered a change in land-use but not any form of physical pedestrianization yet), that these streets, although local and are intended to serve their local neighborhoods, end up being a recreational destination for the whole city. This is due to the extreme lack of recreational public spaces, which forces all city residents to head to one destination, therefore creating a strain on traffic leading to that destination, and disturbances for the area residents. This can be avoided if the city plans more of these pedestrian streets in each locality where the criteria for street selection to enhance recreation options (on a local neighborhood scale) meet, consequently dissipating the large crowds into different destination.

6.3.1.2 Post-Project Construction Recommendations

Learning from the pedestrianization of Rainbow Street, a pedestrianized street with an entity that takes care of it in terms of its maintenance and event management is a crucial aspect for its success. For any new proposal for a pedestrianization project, it is encouraged to seek for or formulate an association of neighborhood residents to keep the place alive with events, concerts, street art, or weekly markets, otherwise homelessness, vandalism and annoyances can dominate the street.

6.3.1.3 Recommendations for Frequent Evaluation

As mentioned early on in the research, 4 aspects have to meet in order to make a pedestrianization project successful. The last of those, frequent evaluation, is an aspect which Amman never succeeded to achieve. Follow-up of project progress is crucial for a successful learning curve and taking decisions regarding replication, modification or abandonment of a scheme, and thus has to be initiated and planned for by the city as part of the project's timeline. GAM has to assign researchers to evaluate their completed projects, whether pedestrianization or the proposed BRT project. If GAM fails to do that, researchers themselves have to work on evaluating initiated city projects in order to support the its continuous and smart growth.

6.3.1.4 Recommendations for "New Amman"

GAM should make use of the 3 final lists presented in the conclusions section of Chapter 5 to aid in the new proposed plans for Jordan to construct a "new capital" from scratch. These criteria lists can be used as guidelines to selected optimum locations of streets for pedestrianization in a yet to be planned area (excluding the criteria related to history, heritage, "Ammani Character", adaptations, and "existing" density of pedestrian activity). The masterplan for the new city should put the livability of the city and the recreation for its residents ahead financial revenue aspects when considering the new design.

6.3.1.5 Recommendations for Hilly Topography

To enhance the city's walkability and reduce car dependency; a recommendation for newer areas in Amman with a hilly topography is to reintroduce the concept of the uphill stairs as a vertical movement alternative. This can strengthen the character of the city, create faster and time-saving connections between different neighborhoods with different altitudes, which otherwise will have to be accessed using a car or passing through traffic.

6.3.2 Recommendations for Further Research

6.4 Conclusions

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[1] The term 'pedestrianization', in the scope of this research, addresses

[2] Amman's estimated population at the end of 2017 was 4,226,700 Inhabitants (DOS, 2017)

[3] The first phase of a project for a Bus Rapid Transport System is at the moment under construction. Details can be found at http://www.ammanbrt.jo/ar/underconstruction.asp

[4] Recommendations for green open space per capita (World Health Organization, 2012): Recommended global minimum: 9 sqm/capita, Recommended global average: 15 sqm/capita, Case of Amman: 6 sqm/ capita (GAM in Aljafari, M., 2016)

[5] *A* famous concept established by French philosopher Henri Lefebvre and extended by geographer David Harvey.

[6] An example of this is Al-Shari'a Street in Jabal Al-Lweibdeh, which combines a balanced mix of art, culture, and entertainment, and offers users an extension of the coffee shops and restaurants onto the sidewalks.

[7] Among these critics are Jane Jacobs (New York), Willian Whyte (New York), Cristopher Alexander (Berkeley), and Jan Gehl (Copenhagen).

[8] Professor of urban planning at McGill University.

[9] Estimated population at the end of 2017: 4,226,700 Inhabitants (DOS, 2017)

[10] Amman estimated area at the end of 2017: 7579 km2 (DOS, 2017)

[11] Common name for an unnamed local street between Benghazi and Bou Madyan Streets, close to the 4th circle.

[12] It is relevant to point out that not all pedestrian-friendly streets are necessarily candidates for a pedestrianization scheme, and therefore characteristics of their pedestrian-friendliness do not need to be incorporated into the pedestrianizing streets selection criteria lists. This will be proven right in the next section of local opinions on the city's optimum potential streets for pedestrianization, which will show that some of the repeatedly-mentioned pedestrian-friendly areas are not mentioned at all as potentials for pedestrianization (e.g. Dabouq), either because they lack certain characteristics, or because their condition does not need further improvement.

استبيان حول تحويل الشوارع إلى شوارع للمشاة في عمان/ الأردن

القسم الأول: خلفية شخصية

1. العمر:
2. الجنس:
3. منطقة الإقامة (مع اسم الشارع إن أمكن):
4. ملكية السيارة:

أ. أمتلك سيارة شخصية

ب. أتشارك استخدام السيارة مع فرد آخر من الأسرة

ج. لا أمتلك سيارة (لكنها طموح مستقبلي)

د. لا أطمح لامتلاك سيارة. الرجاء التبرير:

5. مجال العمل/ الدراسة:
6. منطقة العمل/ الدراسة (مع اسم الشارع إن أمكن):
7. وسائل المواصلات المستخدمة على الصعيد اليومي أو شبه اليومي:

للذهاب للعمل/ الدراسة: ذهاباً: إياباً:

للقيام بنشاطات يومية/ شبه يومية أخرى:

القسم الثاني: المشي على الصعيد اليومي

8. أمشي داخل حدود عمّان بشكل يومي أو شبه يومي:

أ. نعم، وبمدة تقارب ( ) دقيقة في اليوم.

ب. لا، بالكاد أمشي دقائق معدودة في اليوم.

9. عندما أمشي داخل حدود عمّان، غالباً يكون للهدف الآتي وفي المناطق الآتية (يمكن اختيار أكثر من إجابة واحدة):

الهدف	المناطق التي أمارس فيها هذا الهدف (مع اسم الشارع إن أمكن)
أ. وسيلة تنقل	
ب. شراء الحاجات	
ج. ممارسة الرياضة	
د. الاستجمام واستكشاف مساحات جديدة	
هـ. أخرى:	

القسم الثالث: الخدمات في المحيط المعيشي

10. الخدمات المتوفرة داخل محيط 1 كم من مكان إقامتي، أي تبعد أقل من 10 دقائق مشياً على الأقدام (اختر جميع ما ينطبق):

موقف باص - موقف سرفيس - سوبرماركت - خضرجي - مؤسسة استهلاكية - قرطاسية - مكتبة عامة - حديقة - صالون شعر - حلاق - دراي كلين - نادي رياضي - جامعة - مدرسة - حضانة - مسجد - كنيسة - مستشفى - صيدلية - مركز صحي - مول - مطعم - كافيه - بنك - لوازم كهربائية ومنزلية.

أخرى:

11. طريقة التنقل التي استخدمها غالباً للوصول إلى إحدى هذه الخدمات:

سيارة	باص نقل عام	تاكسي	سرفيس	أوبر/ كريم..	دراجة نارية	دراجة هوائية	مشياً على الأقدام
☐	☐	☐	☐	☐	☐	☐	☐

12. إن لم يكن جوابك "على الأرجل". الرجاء تحديد درجة تأثير كل من الظروف الآتية على قرارك:

الظرف	عامل مؤثر بشدة	عامل مؤثر نسبياً	عامل غير مؤثر
الطوبوغرافية صعبة			
الرصيف غير مهيء للمشاة			
الشارع سريع/ رئيسي وغير مهيأ للعبور			
عدم الأمان والخوف من التحرش			
الثلوث الضوضائي والبيئي			
الحاجة لتوفير الوقت			
الشعور بالكسل			
عدم الاعتياد على ثقافة المشي			
أخرى:			

13. في الحالة الافتراضية أنك حالياً تريد الانتقال إلى منزل جديد في حي كافة ظروف المشي فيه مثالية، قيّم كل من الخدمات الآتية من حيث أهمية تواجدها على مسافة مشي من منزلك (أقل من 10 دقائق مشياً على الأقدام) بوضع علامة من (1 - 4)، حيث:
1 = في غاية الأهمية 2 = مهم نسبياً 3 = متوسط الأهمية 4 = غير مهم

الخدمة	التقييم	الخدمة	التقييم	الخدمة	التقييم	الخدمة	التقييم	الخدمة	التقييم
موقف باص		قرطاسية		دراي كلين		مسجد		مول	
موقف سرفيس		مكتبة عامة		نادي رياضي		كنيسة		مطعم	
سوبرماركت		حديقة		جامعة		مستشفى		كافيه	
خضرجي		صالون شعر		مدرسة		صيدلية		بنك	
مؤسسة استهلاكية		حلاق		حضانة		مركز صحي		لوازم منزلية	
شركات تجارية		أخرى:		أخرى:					

القسم الرابع: استعدادية عمان للمشاة

14. باعتقادي، أكثر الأحياء/ الشوارع جذباً للمشاة في عمان هي (الرجاء التبرير):

15. تمعن في الجدول الآتي والذي يتناول طرق يمكن فيها تحويل الشوارع إلى شوارع صديقة للمشاة، ثم أجب عن السؤال الذي يليه:

الطريقة	التعريف
تحويل كلي للمشاة	منع السيارات باستثناء سيارات الطوارئ من دخول الشارع نهائياً.
تحويل جزئي للمشاة	منع السيارات من دخول الشارع في ساعات معينة من اليوم، أو في عطلة نهاية الأسبوع أو العطل الرسمية.
تحويل إلى شارع متعدد الأولويات	الأولوية في الشارع موزعة بين المشاة والسيارات، عن طريق تبطيء سير المركبات بإجراءات مثل تعريض الأرصفة، تقليل عدد مسارب المركبات، تغيير بلاط الشارع، أو تحديد سرعة الشارع

من وجهة نظري، أنسب الشوارع التي أعتقد أنه من الممكن تحويلها من قبل أمانة عمان الكبرى إلى شوارع صديقة للمشاة -بأي من الطرق الظاهرة أعلاه- هي(الرجاء التبرير):

إن كنت ترغب بمتابعة التفكير في بعض الأجوبة وإضافة معلومات، أو الإجابة عن أسئلة إضافية، أو المشاركة في جلسات مستقبلية، الرجاء ترك الاسم والبريد الالكتروني ليتم بناء على ذلك التواصل معك:

الاسم: البريد الالكتروني:

Annex 2: English Survey

Survey on Pedestrianizing Streets in Amman/ Jordan

Section 1: Personal Background

1. Age: _____
2. Gender: _____
3. Area of Residence (Specify street, if possible): _____
4. Car Ownership (Select one of the following):
   a. I own my private car
   b. I share using the car with another family member
   c. I do not own a private car (but it is a future plan)
   d. I do not have future plans of obtaining my own car

   If you selected option (d), please justify: _____
   _____
5. Field of work/ study: _____
6. Area of work/ study (Specify street, if possible): _____
7. Means of transport used daily/ almost daily (Check all that apply):

	Private Car	Institute's Bus	Public Bus	Taxi	Uber/ Careem	White Cab	Motor Bike	Bicycle	On Foot
1. To get to work/ study	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. To return from work/ study	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. To Commute to other daily/ almost daily activities	☐	☐	☐	☐	☐	☐	☐	☐	☐

Section 2: Walking on a Daily Basis

1. I walk within Amman's boarders daily/ almost daily (Select one of the following):
   a. Yes, I walk daily/ almost daily
   b. No, I barely walk a few minutes every daily

   If you selected option (a), please specify the duration of your daily/ almost daily walking:

   ☐ Less than half an hour ☐ Between 0.5 - 1 hour ☐ Between 1 - 1.5 hours
   ☐ Between 1.5 - 2 hours ☐ More than 2 hours

2. When I walk within Amman's boarders, it is mostly for the following purposes and in the following areas (Select all that apply):

Purpose	Areas where I practice this purpose (Specify street, if possible)
a. Mode of transport	
b. Grocery shopping/ Running errands	
c. Exercise	
d. Recreation and exploration of new areas	
e. Other: _____	

Section 3: Services in the Local Neighborhood

1. Services that exist within a 1 km radius (10 minute walk) from my place of residence (Select all that apply):

Bus Stop – White Cab Stop – Supermarket – Fruit and Vegetable Market – Hypermarket – Stationary – Public Library – Park – Hair Dresser – Barber - Dry Clean – Gym – University – School – Kindergarten – Mosque – Church – Hospital – Pharmacy – Medical Center – Mall – Restaurant – Café – Bank – House and Electrical Appliances.
Other:

2. The mode of transport I often use to get to one of the above-mentioned services (Select all that apply):

Private Car	Public Bus	Taxi	Uber/ Careem	White Cab	Motor Bike	Bicycle	On foot
☐	☐	☐	☐	☐	☐	☐	☐

3. If your answer was not "On foot", please rate the degree of influence of each of the following circumstances on your decision:

Circumstance	Strongly influences my decision	Relatively influences my decision	Doesn't influence my decision
Rough topography			
Sidewalks are not pedestrian-friendly			
Street is primary/ fast and unequipped for crossing			
Lack of safety and fear of harassment			
Environmental and noise pollution			
The need to save time			
Laziness			
Not used to the walking culture			
Other: _____			

4. In the theoretical case that you currently were to move to a new residence in a neighborhood with perfect walking conditions, please rate the following services *on the scale of 1-4* in terms of the importance of having them within a 10-minute walking distance from your residence, where:

1= Very Important 2= Important 3= Somewhat Important 4= Not Important

Service	Rating	Service	Rating	Service	Rating	Service	Rating	Service	Rating
Bus Stop		Stationary		Dry Clean		Mosque		Mall	
White Cab Stop		Public Library		Gym		Church		Restaurant	
Supermarket		Park		University		Hospital		Cafe	
Vegetable Market		Hair Dresser		School		Pharmacy		Bank	
Hypermarket		Barber		Kindergarten		Medical Center		House Appliances	
Commercial Companies		Other:		Other:					

Section 4: Amman's Potential for Pedestrianization

1. In my opinion, Amman's most pedestrian-friendly neighborhoods/ streets are (Please justify):

Neighborhood (Specify street, if possible)	**Reason**

2. Contemplate the following table which displays several schemes of street pedestrianization, then answer the question that follows:

Scheme	**Definition**
Full-time pedestrianization	Preventing vehicles (except for emergency vehicles) from accessing the street permanently.
Part-time Pedestrianization	Preventing vehicles from accessing the street temporarily (during certain hours of the day, on weekends, or on public holidays).
Transformation to Mixed-Priority Street (Shared Street)	The priority in the street is divided between pedestrians and vehicles by reducing number of car lanes, widening sidewalks, changing the street's surface material, or lowering vehicle speed limits.

From your personal point of view, name the most suitable streets to be transformed by the Greater Amman Municipality to pedestrian streets using any of the above-mentioned schemes:

_____

_____

_____

If you would like to take more time to think of some answers, give additional responses, or participate in related future workshops, please leave your name and e-mail below.

Name: ***Email:***

Main Pedestrianization Motif: Enhance Access to Public Transit		
Secondary Pedestrianization Motifs: *Enhance Business & Economy (Central City Scale, Local Neighborhood Scale)* *Enhance Sustainability & Environmental Quality* *Enhance Recreation Options (Central City Scale, Local Neighborhood Scale)*		
Activity	**Location(s)**	**Street Type**
Getting off the bus and walking along commercial shops towards my home.	N.A.	N.A.
I imagined Amman with perfect streets for walking; less polluted, cleaner, and with less broken or interrupted sidewalks (no barriers). I imagined myself doing an afternoon walk near a BRT station.	• Souk Al-Sultan Street	• Local Street (Residential-Commercial)
Riding a bicycle everywhere in bicycle-friendly streets.	N.A.	N.A.
Relaxing, meeting some friends, and shopping as part of a commuting trip.	• Prince Shaker Street (Al-Shmeisani) • Sulaiman Al-Nabulsi Street	• Main Street • Collector Street

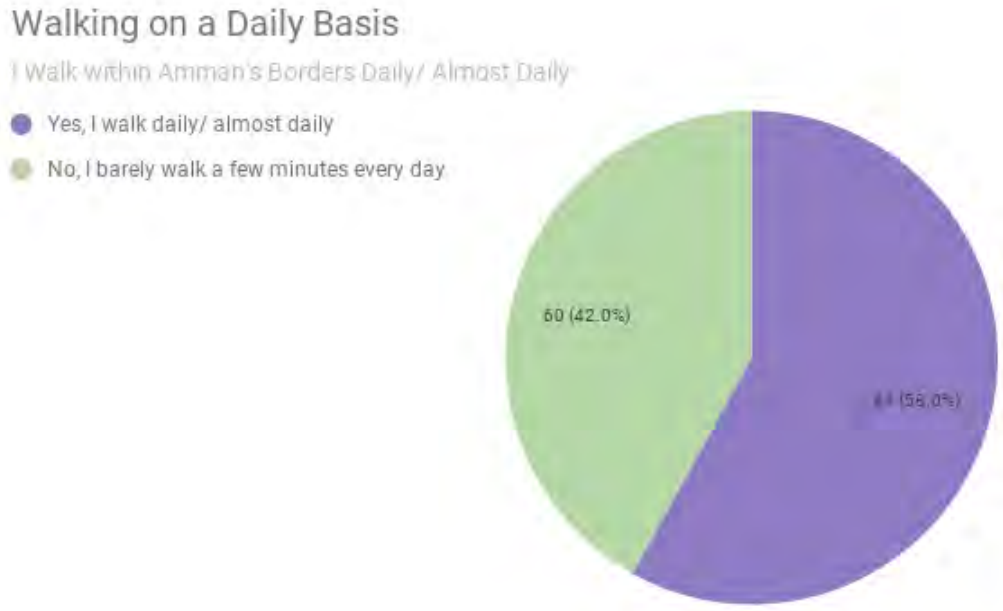
Main Pedestrianization Motif: Enhance Recreation Options (Local Neighborhood Scale)		
Secondary Pedestrianization Motifs: *-Enhance Business & Economy (Local Neighborhood Scale)* *-Enhance Personal Health & Fitness*		
Activity	**Location(s)**	**Street Type**
Walking with my headphones on, the breeze is nice, the street has only parked cars (no passing cars), with both green and residential parts.	• Similar to Jabal Al-Lweibdeh Atmosphere	• Local Street (Residential-Commercial) • Local Street (Residential)
Walking and practicing street photography.	• Al-Shari'a Street (Jabal Al-Lweibdeh) • Paris Circle • Jabal Amman	• Local Street (Residential-Commercial) • Local Street (Residential-Commercial) • Local Street (Residential-Commercial)
Reading a book while eating a to-go sandwich and listening to distant street music.	• Al-Shari'a Street (Jabal Al-Lweibdeh)	• Local Street (Residential-Commercial)
Walking with my dog in a calm neighborhood trying to pick one of the places to sit outdoors and get some food.	• Leaigh's Street (Unnamed Local street Between Ben Madyan and Benghazi Streets, Close to 4th circle)	• Local Street (Residential-Commercial)
It is 6:30 am and I am jogging before going to work.	• Sulaiman Al-Nabulsi Street	• Collector Street
Jogging.	• Airport Service Road behind my House	• Service Lane
Walking in a street with less buildings.	• Jabal Al-Lweibdeh, or a high area with a view	• Local Street (Residential)

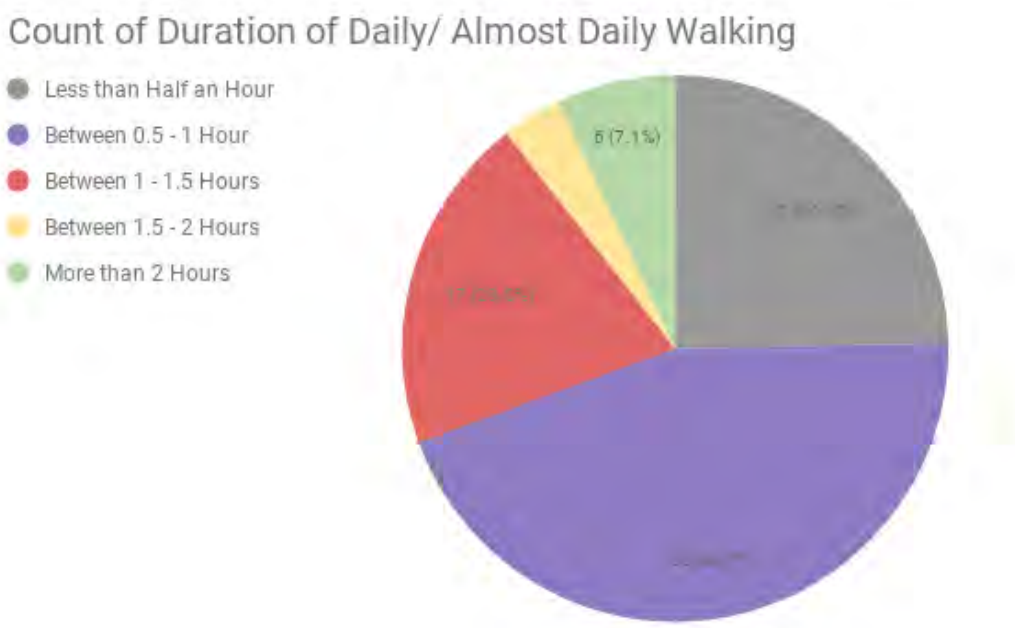
Main Pedestrianization Motif: Pedestrianization to Enhance Recreation Options (Central City Scale)		
Secondary Pedestrianization Motifs: *-Enhance Business & Economy (Central City Scale)*		
Eating and drinking and watching some musicians and performers in a street of restaurants and sidewalk seating and some artwork (performances and kiosks)	N.A.	N.A.
Walking with my bicycle.	• Al-Madina Al-Munawwara Street	• Collector Street
Walking between trees with a light breeze, bicycle tracks on the sides.	• Zahran Street	• Main Street
Outdoor movie theatre, live performances, open spaces with people walking around, and many stages.	• Zahran Street	• Main Street
Walking, enjoying the sun, drinking orange juice.	• Zahran Street	• Main Street

Annex XX: Activities and streets resulting from the imagination exercise, and the main and secondary motifs extracted from them. This list was used to divide the focus group discussion participants into three working groups.

Amman's Most Pedestrian-Friendly Neighborhoods and Streets	
Neighborhood/ Street Name	**Justification**
Jabal Ammam General	-Streets are lined with trees that give a good shade -Old neighborhoods, culturally active -Narrow streets making it harder for cars to speed up, filled with services for recreation and shopping -Safe, lots of trees, good street width for pedestrians -Attractive villars of the neighborhood, sidewalks are equipped and well-shaded with trees, serene and far from car traffic -Spacious, flat streets -Green area, streets suitable for walking, nice architecture, variety of uses -The streets are not the reason, but rather the stairs that connect neighborhoods, otherwise the area is loud and bustling
Rainbow Street	-Pedestrian-friendly with many attractions -Known for the widespread of walking. Accommodates many foreigns which makes the walking culture more normal -Attractive services and activities -Part of the old city, accommodates many foreigners. Streets are good for walking. Area can be reached easily by parking in side streets and walking towards the area -Cafes -Packed with commerce, relatively good sidewalks -For the atmosphere and scenes (not street condition and infrastructure)
3rd-4th Circles	-I feel safe and area looks nice -Relatively good sidewalk, trees, greenery and good shading -Relatively serene, pedestrian-friendly sidewalk, trees cover the area -Serene with nice architecture
1st-2nd Circles	-I feel safe and area looks nice
Jabal Al-Lweibdeh General	-All services needed are within reach without the need to use a car, easy topography, central within Amman -Beautiful girls, many cultures -Beautiful neighborhoods, architecturally attractive, presence of cafes and bars, presence of public park, panoramic views of Amman from between the buildings, narrow streets which gives reassurance and -safety for the pedestrians, one-neighborhood-to-the-less stairs between Al-Lweibdeh and its surrounding neighborhoods (e.g. Jabal Al-Hussein, Downtown Area) which makes traveling on foot faster than taking the car -Central, diverse for all social classes, walking there is fun, all commercial needs are available, friendly residents -Cultural environment and demographics -Diverse, attractive -Everything is available and accessible on foot -Known for the widespread of walking. Accommodates many foreigns which makes the walking culture more normal -Narrow streets making it harder for cars to speed up, filled with services for recreation and shopping -Open-minded atmosphere -Packed with commerce, relatively good sidewalks -"People don't stare at you when you walk; -Nice calm area that makes me feel like I am in Europe " -Serene with pedestrian-friendly sidewalks -Serene, no annoying people -Shops, restaurants, cafes, old architecture, short buildings, relatively calm -Street atmosphere, services, culture -The streets are not the reason, but rather the stairs that connect neighborhoods, otherwise the area is loud and bustling -Trees and low car traffic -Narrow streets making it harder for cars to speed up, filled with services for recreation and shopping
Al-Sharif's Street	-Part of the old city, accommodates many foreigners. Streets are good for walking. Area can be reached easily by parking in side streets and walking towards the area -Flat, all amenities available, nice architecture, interesting and exotic destinations -Flat, mostly equipped with sidewalks -For the atmosphere and scenes (not street condition and infrastructure)
All Jabal Al-Lweibdeh Streets	
Al-Ba'onah Street	-Flat, mostly equipped with sidewalks
Dabouq	-Clean and wide streets -Clean street, not crowded -Elite residential neighborhood, equipped streets, trees -Relatively serene neighborhood, equipped sidewalks, safe and well-lit streets -Relatively serene neighborhood, wide and clean sidewalks, safe -Safe and serene with wide sidewalks -Serene -Serene and new streets -Serene, equipped sidewalks, green areas -Serene, wide sidewalks -Serene, wide streets, well-maintained, nice green cover available, chances of harassment are low -Street size is comfortable, number of passing cars is relatively low, number of people exercising is high -Suitable for exercise walking (Wide sidewalks, wide streets, diverse topography) -Users of the street respect it -Very walkable -Well planned -Wide Sidewalks -Wide sidewalks, green areas, trees on wide sidewalks giving a good shade -Wide street, unwrecked sidewalks -Wide streets and quadrabular nature -Wide streets, not crowded, walking culture is present
None	-Amman's neighborhoods, streets, and sidewalks in general are not equipped for pedestrians, and are not planned for a heavy pedestrian or car flow (as in commercial areas). Sidewalks are not well-maintained, not continuous, and constantly interrupted by barriers like trees, illegally parked cars, or illegal extensions of commercial shops. -Generally sidewalks are in a bad condition, not well-maintained, not well-designed in the first place (these act as walking obstacles) -No sidewalks, rough topography, noise and air pollution -Noise and Air pollution prevents me from walking on streets -Streets are narrow and unclean -Due to car movement even into the narrow streets
Hadeiq Al-Hussein	
Al-Hussein Public Parks	-Well-Equipped -Wonderfully suitable for walking
Al-Sharif Street	-Behind Al-Hussein Public Parks: Sidewalk is comfortable for walking, flat topography, no harassment or gangsters, and presence of watchguards -Behind Al-Hussein Public Parks: Wide sidewalks, no harassment of pedestrians
Mohammed An-Saeed Al-Batayneh Street	-Behind Al-Hussein Public Parks: Sidewalk is comfortable for walking, topography is almost flat, no harassment and presence of watchguards -Behind Al-Hussein Public Parks: Wide sidewalks, no harassment of pedestrians
Downtown Area (Al-Balad/ Al-Madena)	-Diverse, attractive -Not Abdoun or Al-Swaifieh areas -Old neighborhoods, culturally active -Presence of local markets -Presence of Sidewalks
Abdoun General	-Presence of Sidewalks -Spacious for walking -Wide streets
Al-Qahira Street	-Wide sidewalks, no harassment of pedestrians
Omayad Street	-Trees and low car traffic
In the North of Abdoun Al-Shamali and Deir Ghbar (separated by Queen Zein Al-Sharaf Street)	-Presence of 3 public parks almost in the same area, as well as presence of services, cafes and restaurants
Al-Rabieh	
4th-5th Circles	-Serene with nice architecture
Al-Abdali PSC	-Clean and beautiful place -Safe pedestrian only street
Al-Swaifieh General	-Best place to walk dogs
Wakalat Street	-Normally in Amman's commercial areas; where you are supposed to walk you find trees blocking the sidewalk, which forces you to walk on the street instead, but Al-Wakalat street is the only exception. -Wide pedestrian lanes, one way car lanes, shade from high buildings, trees and landscaping elements, quality of users, good lighting at night

Deir Ghbar (Al-Ghyar)	-Presence of 3 public parks almost in the same area, as well as presence of services, cafes and restaurants -Clean and flat -Relatively serene neighborhood, wide and clean sidewalks, safe -Serene with flat topography
Khalda	-Spacious, flat streets
Al-Manara Street	-Extremely serene area, sidewalk very suitable for walking, perfect walking environment in general
Bahjat Al-Talhouni Street	-Wide sidewalks, wide green areas, low car traffic
Al-Shmeisani	-Low car traffic -Serene with less cars at night
Jabal Al-Hussein	-Wide sidewalks -Presence of local markets
Sport City	-Safe
Ibn Ozi	-Clean streets and no traffic
Al-Rabieh (Al-Salam)	-Topography varies which makes it more interesting -Suitable for exercise walking (Wide sidewalks, wide streets, diverse topography)
Al-Madinah Al-Tabyah	-Organized Planning
Al-Rawabi	
Al-Rawnaq	
Garaha, Al-Tala'a Al-Sharqi	
Wasfi Al-Tal Street	-Flat, all amenities available, nice architecture, interesting and exotic destinations
Dahyet Al-Rashid	
Al-Bnayyat Al-Shamali	
Ali Of Amman	
Shisa Areas	-People like people watching -Streets in uncrowded places with wide sidewalks planted with trees -Public parks -Any calm and clean street is suitable for walking, which means some streets in West Amman better than those East Amman




Count of Duration of Daily/ Almost Daily Walking
Less than Half an Hour
Between 0.5 - 1 Hour
Between 1 - 1.5 Hours
Between 1.5 - 2 Hours
More than 2 Hours
5 (7.1%)

Circumstance	Strongly influences my decision			Relatively influences my decision			Doesn't influence my decision		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Rough topography	22	13	35	27	13	40	21	9	30
Sidewalks are not pedestrian-friendly	38	25	63	18	10	28	12	2	14
Street is primary/ fast and unequipped for crossing	33	18	51	24	11	35	11	9	20
Lack of safety and fear of harassment	14	11	25	26	9	35	29	16	45
Environmental and noise pollution	16	9	25	32	16	48	19	11	30
The need to save time	33	20	53	22	12	34	14	5	19
Laziness	14	14	28	30	13	43	24	11	35
Not used to the walking culture	11	15	26	24	5	29	34	16	50

Amman's Most Pedestrian-Friendly Neighborhoods and Streets		
Number of Mentions	**Neighborhood/ Street Name**	**Justification**
41	**Jabal Amman/ General**	-Streets are lined with trees that give a good shade -Old neighborhoods, culturally active -Narrow streets making it harder for cars to speed up, filled with services for recreation and shopping -Safe, lots of trees, good street-width for pedestrians -Attractive vibes of the neighborhood, sidewalks are equipped and well-shaded with trees, serene and far from car traffic -Spacious, flat streets -Green area, streets suitable for walking, nice architecture, variety of uses -The streets are not the reason, but rather the stairs that connect neighborhoods, otherwise the area is loud and bustling
16	Rainbow Street	-Pedestrian-friendly with many attractions -Known for the widespread of walking. Accommodates many foreigns which makes the walking culture more normal -Attractive services and activities -Part of the old city, accommodates many foreigners. Streets are good for walking. Area can be reached easily by parking in side streets and walking towards the area -Cafes -Packed with commerce, relatively good sidewalks -For the atmosphere and scenes (not street condition and infrastructure)
3	3rd-4th Circles	-I feel safe and area looks nice -Relatively good sidewalk, trees, greenery and good shading -Relatively serene, pedestrian-friendly sidewalk, trees cover the area -Serene with nice architecture
2	1st-2nd Circles	-I feel safe and area looks nice
36	**Jabal Al-Lweibdeh General**	-All services needed are within reach without the need to use a car, easy topography, central within Amman -Beautiful girls, many cultures -Beautiful neighborhoods, architecturally attractive, presence of cafes and bars, presence of public park, panoramic views of Amman from between the buildings, narrow streets which gives reassurance and safety for the pedestrians, older neighborhood (into the stairs between Al-Lweibdeh and its surrounding neighborhoods e.g. Jabal Al-Hussein, Downtown Area) which makes traveling on foot faster than taking the car -Central, diverse for all social classes, walking there is fun, all commercial needs are available, friendly residents -Cultural environment and demographics -Diverse, attractive -Everything is available and accessible on foot -Known for the widespread of walking. Accommodates many foreigns which makes the walking culture more normal -Narrow streets making it harder for cars to speed up, filled with services for recreation and shopping -Open-minded atmosphere -Packed with commerce, relatively good sidewalks -"People don't stare at you when you walk... Nice calm area that makes me feel like I am in Europe." -Serene with pedestrian-friendly sidewalks -Serene, no annoying people -Shops, restaurants, cafes, old architecture, short buildings, relatively calm -Street atmosphere, services, culture -The streets are not the reason, but rather the stairs that connect neighborhoods, otherwise the area is loud and bustling -Trees and low car traffic -Narrow streets making it harder for cars to speed up, filled with services for recreation and shopping
5	Al-Sharfa Street	-Part of the old city, accommodates many foreigners. Streets are good for walking. Area can be reached easily by parking in side streets and walking towards the area -Flat, all amenities available, nice architecture, interesting and exotic destinations -Flat, mostly equipped with sidewalks -For the atmosphere and scenes (not street condition and infrastructure)
2	Al-Ba'ooniyah Street	-Flat, mostly equipped with sidewalks
1	All Jabal Al-Lweibdeh Streets	
29	**Dabouq**	-Clean and wide streets -Clean street, not crowded -Elite residential neighborhood, equipped streets, trees -Relatively serene neighborhood, equipped sidewalks, safe and well-lit streets -Relatively serene neighborhood, wide and clean sidewalks, safe -Safe and serene with wide sidewalks -Serene -Serene and new streets -Serene, equipped sidewalks, green areas -Serene, wide sidewalks -Serene, wide streets, well-maintained, nice green open spaces, chances of harassment are low -Street size is comfortable, number of passing cars is relatively low, number of people exercising is high -Suitable for exercise walking (Wide sidewalks, wide streets, diverse topography) -Users of the street respect it -Very walkable -Well-planned -Wide Sidewalks -Wide sidewalks, green areas, trees on wide sidewalks giving a good shade -Wide street, unobstructed sidewalks -Wide streets and spectacular [illegible] -Wide streets, not crowded, walking culture is present
17	**None**	-Amman's neighborhoods, streets, and sidewalks in general are not equipped for pedestrians, and are not planned for a heavy pedestrian or car flow (as in commercial areas). Sidewalks are not well-maintained, not continuous, and constantly interrupted by barriers like trees, illegally parked cars, or illegal extensions of commercial shops -Generally sidewalks are in a bad condition, not well-maintained, not well-designed in the first place (trees act as walking obstacles) -No sidewalks, rough topography, noise and air pollution -Noise and Air pollution prevents me from walking on streets -Streets are narrow and unclean -Due to car movement even into the narrow streets
16	**Hada'eq Al-Hussein**	
7	Al-Hussein Public Parks	-Well-Equipped -Wonderfully suitable for walking
5	Al-Shafa Street	-Behind Al-Hussein Public Parks: Sidewalk is comfortable for walking, flat topography, no harassment or gangsters, and presence of watchguards -Behind Al-Hussein Public Parks: Wide sidewalks, no harassment of pedestrians
4	Mohammad As-Saeed Al-Ratayimah Street	-Behind Al-Hussein Public Parks: Sidewalk is comfortable for walking, topography is almost flat, no harassment and presence of watchguards -Behind Al-Hussein Public Parks: Wide sidewalks, no harassment of pedestrians
13	**Downtown Area (Al-Bala'a/ Al-Madeena)**	-Diverse, attractive -Not Abdoun or Al-Sweifieh areas -Old neighborhoods, culturally active -Presence of local markets -Presence of Sidewalks
11	**Abdoun/ General**	-Presence of Sidewalks -Spacious for walking -Wide streets
1	Al-Qahira Street	Wide sidewalks, no harassment of pedestrians
1	Dimashq Street	Trees and low car traffic
	In the North of Abdoun Al-Shamali and Deir Ghbar (separated by Queen Zein Al-Sharaf Street)	-Presence of 3 public parks almost in the same area, as well as presence of services, cafes and restaurants
8	**Al-Rabiyeh**	
2	4th-5th Circles	Serene with nice architecture
8	**Al-Abdali PDC**	-Clean and beautiful place -Safe pedestrian-only street
8	**Al-Sweifieh/ General**	Best place to walk [illegible]
3	Wakalat Street	-Normally in Amman's commercial areas, where you are supposed to walk you find trees blocking the sidewalk, which forces you to walk on the street instead, but Al-Wakalat street is the only exception -Wide pedestrian lanes, one way car lanes, shade from high buildings, trees and landscaping elements, quality of users, good lighting at night
6	**Deir Ghbar (Al-Diyar)**	-Presence of 3 public parks almost in the same area, as well as presence of services, cafes and restaurants -Clean and flat -Relatively serene neighborhood, wide and clean sidewalks, safe -Serene with flat topography
5	**Khalda**	-Spacious, flat streets
1	Al-Mizzeh Street	-Extremely serene area, sidewalk very suitable for walking, perfect walking environment in general
1	[illegible] Al-Tahloun Street	-Wide sidewalks, wide green areas, low car traffic

4	Al-Shmeisani	-Less car traffic -Serene with less cars at night
4	Jabal Al-Hussein	-Wide sidewalks -Presence of local markets
3	Sport City	-Safe
2	Ibn Oof	-Clean streets and no traffic
2	Al-Rabieh (Al-Rabiem)	-Topography varies which makes it more interesting -Suitable for exercise walking (Wide sidewalks, wide streets, diverse topography)
1	Al-Madinah Al-Tabiyah	-Organized Planning
1	Al-Ameerat	
1	Al-Rawabi	
1	Barakeh, Al-Tala'a Al-Sharqi	
1	Wasfi Al-Tal Street	Flat, all amenities available, nice architecture, interesting and leads destinations
1	Dahyit Al-Rasheed	
1	Al-Mrayyeh Al-Shamali	
1	All Of Amman	
	Shop Areas	-People like people watching -Streets in uncrowded places with wide sidewalks planted with trees -Public parks -Any calm and clean street is suitable for walking, which means some streets in West Amman better than those East Amman

Street Number on Map	Street Name	Neighborhood	Number of Mentions	Full-Time Pedestrianization	Part-Time Pedestrianization	Mixed-Priority Pedestrianization	Undetermined Type of Pedestrianization
6	Zahran Street	Zahran	16	1	1	4	10
21	Al-Sharia Street	Jabal Al-Lweibdeh	15	3	2	1	9
13	Al-Madina Al-Munawwara Street	West Umm Uthainah, Al-Rawabi	14	0	0	6	8
22	Rainbow Street	Jabal Amman	13	3	2	1	7
8	Downtown Streets	Al-Abdali	8	0	4	0	4
23	Jabal Al-Lweibdeh: All streets	Jabal Al-Lweibdeh	5	0	0	1	4
14	Wasfi Al-Tal Street	Barakeh, Al-Tala'a Al-Sharqi	5	0	0	4	1
24	Khalid Bin Al-Waleed Street	Jabal Al-Hussein	4	0	0	2	2
7	Mecca Street	Al-Rawabi, Al-Salehien	4	0	0	3	1
1	Queen Rania Street (Al-Jamaa Street)	Al-Jubeiha	4	0	0	1	3
25	Al-Baromah Street	Jabal Al-Lweibdeh	3	1	1	0	1
15	Al-Qahira Street (Abdoun Circle Area)	Abdoun	3	0	0	1	2
26	Al-Sultan Central Market	Al-Tala'a Al-Shamali	3	0	0	0	2
27	Princess Tharwat Al-Hassan Street	Al-Rawabi	3	0	0	3	0
28	Streets surrounding Fires Square	Jabal Al-Hussein	3	1	1	0	1
9	Abdallah Ghosheh Street	Al-Rawabi	2	0	0	2	0
48	Airport Road (Service Lane)	Na'our	2	0	0	1	1
35	Al-Mutanabbi Street	Zahran	2	0	0	0	2
16	Downtown's King Hussein Street	Al-Abdali	2	0	1	1	0
17	King Faisal Street	Umm-Uthainah	2	0	2	0	0
3	Prince Shaker Street	Al-Shmeisani	2	0	0	0	2
50	Queen Rania Street (Al-Jama'a Street) Service Road	Al-Jubeiha	2	0	0	2	0
18	Queen Zein Al-Sharaf Street	Abdoun	2	0	0	1	0
18	Queen Zein Al-Sharaf Street, North Area of Deir Ghbar and Abdoun Al-Shamali (Separated by Queen Zain Al-Sharaf Street). There has to be a network connecting areas of importance, for example here there has to be a network connecting the three surrounding parks together	Abdoun	2	0	0	0	1
19	Suleiman Al-Nabulsi Street	Al-Abdali	2	0	0	0	2
29	Surrounding streets of Dahyit Al-Ameer Rashed (Streets surrounding Royal Automobile Club context)	Al-Rawabi	2	0	0	1	1
2	Al-Urdon Street	Al-Jubeiha	1	0	0	0	1
51	Abdoun: All streets	Abdoun	1	0	0	0	1
31	Abdul Hamid Sharaf Street	Al-Shmeisani	1	0	0	0	1
38	Ahmad Bin Tamia Street	Jabal Al-Lweibdeh	1	0	0	0	1
37	Al-Hamra Street	Al-Sweifieh	1	1	0	0	0
11	Ali Bin Abi Taleb Street	Ras Al-Ein	1	0	0	0	0
32	Al-Sweifieh's Central Streets	Al-Sweifieh	1	0	0	1	0
39	Al-Thaqafeh Street	Al-Shmeisani	1	0	1	0	0
40	Any parallel street to Zahran Street	Zahran	1	0	0	0	1
29	Dallyat Al-Tahooun Street (Duchamel Circle)	Khalda	1	0	0	0	1
52	Deir Ghbar: All Streets	Al-Dyar	1	0	0	0	1
41	Ibn Khaldoun Street (Al-Khalidi Street)	Al-Radwan	1	0	0	0	1
38	Jabal Al-Hussein's Central Streets	Jabal Al-Hussein	1	0	0	1	0
42	Jabal Al-Hussein's Narrow Streets	Jabal Al-Hussein	1	1	0	0	0
3	King Abdallah II Street	Al-Madina Al-Tabiyah	1	0	0	1	0
43	Local Street between Bou Madyan and Benghazi Streets	Abdoun Al-Shamali	1	1	0	0	0
33	Methqal Al-Fayez Street	Zahran	1	0	0	0	1
45	Mohammed Al-Saleh Street	Khalda	1	0	0	1	0
46	Najiyah Al-Nabulsi Street	Al-Dyar	1	0	0	0	1
12	Omar Matar Street	Ras Al-Ein	1	0	0	1	0
4	Prince Hashim Street (Abdoun Circle Area)	Abdoun	1	0	0	1	0
47	Salman Al-Qudah Street	Abdoun	1	0	0	1	0
48	Saleem Al-Hasan Street	Abdoun	1	0	0	1	0
36	Shari Al-Arab Street (Souk Al-Dahab)	Umm Uthainah	1	0	0	0	1
34	Tabarbour Street	Tabarbour	1	0	0	1	0
33	Wakalat Street	Al-Sweifieh	1	0	0	0	1

Annex 4: Administrative Subdivisions in Amman, Jordan

Neighbourhood* (Arabic: Hay)	Region (Arabic: Mintaqa)	Locality** (Arabic: Tajamme' Sukani)	District (Arabic: Qada')	Sub-Governorate (Arabic)
Jabal Al-Lathin	-	Al-Madinah	Amman	Qasabat Amman
Al-Madarraj	-	Al-Madinah	Amman	Qasabat Amman
Al-Qala'a	-	Al-Madinah	Amman	Qasabat Amman
Wadi Al-Sensar	-	Al-Madinah	Amman	Qasabat Amman
Al-Muhajreen	-	Al-Madinah	Amman	Qasabat Amman
Wadi Al-Hadadah	-	Al-Madinah	Amman	Qasabat Amman
Al-Ashrafiyah	-	Al-Madinah	Amman	Qasabat Amman
Al-Rujeem	-	Al-Madinah	Amman	Qasabat Amman
Jabal Ammon	-	Tahran	Amman	Qasabat Amman
Al-Rahyan	-	Tahran	Amman	Qasabat Amman
Abdoun Al-Shamali	-	Tahran	Amman	Qasabat Amman
Abdoun Al-Janoubi	-	Tahran	Amman	Qasabat Amman
Umm Uthnain Al-Sharqi	-	Tahran	Amman	Qasabat Amman
Jabal Al-Lweibdeh	-	Al-Abdali	Amman	Qasabat Amman
Jabal Al-Hussein	-	Al-Abdali	Amman	Qasabat Amman
Al-Shmeisani	-	Al-Abdali	Amman	Qasabat Amman
Al-Madareh Al-Riyadiyyeh	-	Al-Abdali	Amman	Qasabat Amman
Jabal Al-Taj	-	Al-Yarmouk	Amman	Qasabat Amman
Al-Ashrafieh	-	Al-Yarmouk	Amman	Qasabat Amman
Al-Weibdeh	-	Al-Yarmouk	Amman	Qasabat Amman
Al-Nakheel	-	Ras Al-Ein	Amman	Qasabat Amman
Al-Fallouja	-	Ras Al-Ein	Amman	Qasabat Amman
Al-Rawdah	-	Ras Al-Ein	Amman	Qasabat Amman
Al-Ashbar	-	Badar	Amman	Qasabat Amman
Al-Thra'a	-	Badar	Amman	Qasabat Amman
Al-Hilal	-	Badar	Amman	Qasabat Amman
Al-Hamadaniyyah	-	Badar	Amman	Qasabat Amman
Al-Yasmeen	-	Badar	Amman	Qasabat Amman
Umm Uthnain Al-Gharbi	-	Wadi As-Seer	-	Wadi As-Seer
Al-Jadidah	-	Wadi As-Seer	-	Wadi As-Seer
Al-Madareh Al-Tabiyeh	-	Wadi As-Seer	-	Wadi As-Seer
Al-Thra'a	-	Wadi As-Seer	-	Wadi As-Seer
Al-Sahel	-	Wadi As-Seer	-	Wadi As-Seer
Al-Diyar	-	Wadi As-Seer	-	Wadi As-Seer
Al-Thaheer	-	Wadi As-Seer	-	Wadi As-Seer
Ad-Dameesh	-	Wadi As-Seer	-	Wadi As-Seer
Wadi As-Seer	-	Wadi As-Seer	-	Wadi As-Seer
Al-Rawabi	-	Wadi As-Seer	-	Wadi As-Seer
Al-Swaifieh	-	Wadi As-Seer	-	Wadi As-Seer
Al-Jandaweel	-	Wadi As-Seer	-	Wadi As-Seer
Al-Rawnaq	-	Wadi As-Seer	-	Wadi As-Seer
Al-Kursi	-	Wadi As-Seer	-	Wadi As-Seer
Al-Rabiehyyeh	-	Badr Al-Jadidah	-	Wadi As-Seer
Umm Al-Uzood	-	Badr Al-Jadidah	-	Wadi As-Seer
Bilal	-	Badr Al-Jadidah	-	Wadi As-Seer
Al-Fursan	-	Badr Al-Jadidah	-	Wadi As-Seer
Al-Swaimeh	-	Badr Al-Jadidah	-	Wadi As-Seer
Jbaiha	-	Badr Al-Jadidah	-	Wadi As-Seer
Al-Nasr	-	Marj Al-Hamam	-	Wadi As-Seer
Al-Thuri	-	Marj Al-Hamam	-	Wadi As-Seer
Al-Thakeh	-	Marj Al-Hamam	-	Wadi As-Seer
Al-Rabi'a	-	Marj Al-Hamam	-	Wadi As-Seer
Al-Khairiyeh	-	Marj Al-Hamam	-	Wadi As-Seer
Al-Sahlia	-	Marj Al-Hamam	-	Wadi As-Seer
Al-Sabee'a	-	Marj Al-Hamam	-	Wadi As-Seer
Al-Thamira	-	Marj Al-Hamam	-	Wadi As-Seer
Al-Bassah	-	Al-Bassah	-	Wadi As-Seer
Iraq Al-Amir	-	Iraq Al-Amir	-	Wadi As-Seer
Al-Tabaqah	-	Al-Tabaqah	-	Wadi As-Seer
Al-Sukkah	-	Al-Sukkah	-	Wadi As-Seer
Umm Rijaa	-	Umm Rijaa	-	Wadi As-Seer
Al-Kahf	-	Al-Kahf	-	Wadi As-Seer
Al-Na'ur	-	Al-Na'ur	-	Wadi As-Seer
Al-Bair	-	Al-Bair	-	Wadi As-Seer
Abu Al-Sous	-	Abu Al-Sous	-	Wadi As-Seer
Al-Bukeih	-	Al-Bukeih	-	Wadi As-Seer
Al-Almandiyeh & Qarabet		Al-Almandiyeh & Qarabet	-	Wadi As-Seer
Al-Rajeha	-	Al-Rajeha	-	Wadi As-Seer
Al-Thaghreh	-	Al-Thaghreh	-	Wadi As-Seer
Al-Hamdiyya	-	Al-Hamdiyya	-	Wadi As-Seer

Key:
Qasabat Amman
Wadi As-Seer
Al-Jami'a
Marka
Al-Qweismeh
Al-Jeezah
Al-Muwaqqar
Na'our
Sahab

Wadi Al-Sir		**Wadi Al-Sir**	-	Wadi As-Seer
Ta'Ardha	-	**Shafa Badran**	-	Al-Jama'a
Abu Al-Qasem	-	**Shafa Badran**	-	Al-Jama'a
Al-Mansaj	-	**Shafa Badran**	-	Al-Jama'a
Tajmal	-	**Shafa Badran**	-	Al-Jama'a
Marj Al-Faras	-	**Shafa Badran**	-	Al-Jama'a
Umm Burqah	-	**Shafa Badran**	-	Al-Jama'a
Tab Kra'a	-	**Shafa Badran**	-	Al-Jama'a
Al-Musaq Mutreen	-	**Shafa Badran**	-	Al-Jama'a
Al-Qasabat	-	**Shafa Badran**	-	Al-Jama'a
Umm Al-Urouq	-	**Shafa Badran**	-	Al-Jama'a
Umm Hijar	-	**Shafa Badran**	-	Al-Jama'a
Al-Kom Al-Gharbi	-	**Shafa Badran**	-	Al-Jama'a
Al-Kom Al-Sharqi	-	**Shafa Badran**	-	Al-Jama'a
Al-Amir Hamzeh	-	**Shafa Badran**	-	Al-Jama'a
Umm Mteirat	-	**Shafa Badran**	-	Al-Jama'a
Umsomad	-	**Shafa Badran**	-	Al-Jama'a
Oyoun Al-Theeb	-	**Shafa Badran**	-	Al-Jama'a
Al-Sa'adah	-	**Abu Nseir**	-	Al-Jama'a
Al-Basalah	-	**Abu Nseir**	-	Al-Jama'a
Al-Amanah	-	**Abu Nseir**	-	Al-Jama'a
Al-Mahabbah	-	**Abu Nseir**	-	Al-Jama'a
Al-Farooq	-	**Abu Nseir**	-	Al-Jama'a
Al-Diya'a	-	**Abu Nseir**	-	Al-Jama'a
Ibn Ouf	-	**Al-Jubeiha**	-	Al-Jama'a
Al-Baladiyyeh	-	**Al-Jubeiha**	-	Al-Jama'a
Qutaibah	-	**Al-Jubeiha**	-	Al-Jama'a
Al-Rasheed	-	**Al-Jubeiha**	-	Al-Jama'a
Al-Sadeeq	-	**Al-Jubeiha**	-	Al-Jama'a
Al-Zaytounah	-	**Al-Jubeiha**	-	Al-Jama'a
Al-Rayyan	-	**Al-Jubeiha**	-	Al-Jama'a
Al-Jami'a	-	**Al-Jubeiha**	-	Al-Jama'a
Al-Kulliyyah Al-Islamiyyah	-	**Al-Jubeiha**	-	Al-Jama'a
Al-Mansoor	-	**Al-Jubeiha**	-	Al-Jama'a
Al-Rahmaniyyeh	-	**Sweileh**	-	Al-Jama'a
Al-Ray Al-Sharqi	-	**Sweileh**	-	Al-Jama'a
Al-Bayha'er	-	**Sweileh**	-	Al-Jama'a
Al-Kamaliyyeh	-	**Sweileh**	-	Al-Jama'a
Al-Fadileh	-	**Sweileh**	-	Al-Jama'a
Maysaloun	-	**Sweileh**	-	Al-Jama'a
Al-Hammar	-	**Sweileh**	-	Al-Jama'a
Al-Farousiyyeh	-	**Sweileh**	-	Al-Jama'a
Hada'eq Al-Hussein	-	**Sweileh**	-	Al-Jama'a
Dabouq	-	**Sweileh**	-	Al-Jama'a
Al-Sahwein	-	**Tla'a Al-Ali, Khalda & Umm Al-Summaq**	-	Al-Jama'a
Al-Tla'a Al-Sharqi	-	**Tla'a Al-Ali, Khalda & Umm Al-Summaq**	-	Al-Jama'a
Al-Tla'a Al-Shamali	-	**Tla'a Al-Ali, Khalda & Umm Al-Summaq**	-	Al-Jama'a
Baraka	-	**Tla'a Al-Ali, Khalda & Umm Al-Summaq**	-	Al-Jama'a
Khalda	-	**Tla'a Al-Ali, Khalda & Umm Al-Summaq**	-	Al-Jama'a
Al-Salam	-	**Tla'a Al-Ali, Khalda & Umm Al-Summaq**	-	Al-Jama'a
Umm Al-Summaq	-	**Tla'a Al-Ali, Khalda & Umm Al-Summaq**	-	Al-Jama'a
Al-Khaldeen	-	**Tla'a Al-Ali, Khalda & Umm Al-Summaq**	-	Al-Jama'a
Ein Ghazal	-	**Tareq**	-	Marka
Al-Shaheed Al-Janoubi	-	**Tareq**	-	Marka
Al-Ghabah	-	**Tareq**	-	Marka
Tabarbour	-	**Tareq**	-	Marka
Al-Khazneh	-	**Tareq**	-	Marka
Al-Shaheed Al-Shamali	-	**Tareq**	-	Marka
Abu Alia	-	**Tareq**	-	Marka
Al-Faisal	-	**Tareq**	-	Marka
Ein Rabat	-	**Tareq**	-	Marka
Al-Amir Hasan Bin Abdullah	-	**Tareq**	-	Marka
Al-Matar	-	**Marka**	-	Marka
Hamzah	-	**Marka**	-	Marka
Al-Zahra'a	-	**Marka**	-	Marka
Al-Mshairfeh	-	**Marka**	-	Marka
Jaleel	-	**Marka**	-	Marka

Al-Salhiyyeh	–	Al-Naser	–	Marka
Al-Mgharat	–	Al-Naser	–	Marka
Jabal Al-Naser	–	Al-Naser	–	Marka
Misah Al-Qatar	–	Al-Naser	–	Marka
Al-Manarah	–	Al-Naser	–	Marka
Al-Nabeeh	–	Al-Naser	–	Marka
Al-Amira Alia	–	Al-Naser	–	Marka
Al-Amir Hasan	–	Al-Naser	–	Marka
Jabal Al-Nuzha	–	Basman	–	Marka
Al-Hashmi Al-Shamali	–	Basman	–	Marka
Al-Jum	–	Basman	–	Marka
Al-Rawaq	–	Basman	–	Marka
Raghadan	–	Basman	–	Marka
Al-Hashmi Al-Janoobi	–	Basman	–	Marka
Al-Qesaim	–	Basman	–	Marka
Jadeed	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Hitteen	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Al-Rajeeb	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Abu Suwwaneh	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Al-Maghlah Al-Gharbi	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Umm Nuwwara	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Umm Al-Hiran	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Al-Qweismeh	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Abu Alanda	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Al-Nahariyyeh	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Al-Mu'ath	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Al-Jwaideh	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Al-Maghlah Al-Sharqi	–	Al-Qweismeh, Al-Jwaideh, Abu Alanda & Al-Rajeeb	–	Al-Qweismeh
Al-Taibeh & Khraibet Al-Souq	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Iman	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Kharnaba	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Abrar	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Furqan	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Andalus	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Taqwa	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Yadoodeh	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Liwa Al-Janoobi	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Wafa'a	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Bila'a	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Safa'a	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Majd	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Hidayeh	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Naba'a	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Ezzeh	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Liwa Al-Shamali	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Amal	–	Khraibet Al-Souq, Jawa, Al-Yadoodeh	–	Al-Qweismeh
Al-Karamah	–	Umm Qsair & Al-Moqableen	–	Al-Qweismeh
Al-Hariyyeh	–	Umm Qsair & Al-Moqableen	–	Al-Qweismeh
Al-Sanabeh	–	Umm Qsair & Al-Moqableen	–	Al-Qweismeh

Um Qusir	-	Umm Qusir & Al-Maqablein	-	Al-Qweismeh
Al-Maqablein	-	Umm Qusir & Al-Maqablein	-	Al-Qweismeh
Al-Hasaniyyeh	-	Umm Qusir & Al-Maqablein	-	Al-Qweismeh
Al-Briyyat Al-Gharbi	-	Umm Qusir & Al-Maqablein	-	Al-Qweismeh
Al-Briyyat Al-Sharqi	-	Umm Qusir & Al-Maqablein	-	Al-Qweismeh

Al-Tuneib	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Al-Manareh	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Al-Khadra'	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Al-Qunaytirah	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
An-Nasiriyyeh	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Al-Mshatta	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Al-Dhabiyyeh	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Umm Qusir	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Zainab	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Dulla Al-Na'imat	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Umm Rummaneh	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Al-Jeezah	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Umm Al-Amad	-	Al-Jeezah	Al-Jeezah	Al-Jeezah
Dab'a	-	Dab'a	Al-Jeezah	Al-Jeezah
Az-Zumaileh	-	Az-Zumaileh	Al-Jeezah	Al-Jeezah
Al-Khalidiyyeh	-	Al-Khalidiyyeh	Al-Jeezah	Al-Jeezah
Al-Khrayyem	-	Al-Khrayyem	Al-Jeezah	Al-Jeezah
Khan Az-Zabeeb	-	Khan Az-Zabeeb	Al-Jeezah	Al-Jeezah
Al-Tharah	-	Al-Tharah	Al-Jeezah	Al-Jeezah
Hammam El-Tallaq	-	Hammam El-Tallaq	Al-Jeezah	Al-Jeezah
Hammam El-Shmoot	-	Hammam El-Shmoot	Al-Jeezah	Al-Jeezah
Tor Al-Shashesh	-	Tor Al-Shashesh	Umm Al-Rasas	Al-Jeezah
Al-Rahbah	-	Al-Rahbah	Umm Al-Rasas	Al-Jeezah
Al-Buhairat (Manshiyyet El-Nuwaimah)	-	Al-Buhairat (Manshiyyet El-Nuwaimah)	Umm Al-Rasas	Al-Jeezah
Ar-Ramah	-	Ar-Ramah	Umm Al-Rasas	Al-Jeezah
Ar-Rameel	-	Ar-Rameel	Umm Al-Rasas	Al-Jeezah
Salieh	-	Salieh	Umm Al-Rasas	Al-Jeezah
Swaqa	-	Swaqa	Umm Al-Rasas	Al-Jeezah
Ad-Dumkhi	-	Ad-Dumkhi	Umm Al-Rasas	Al-Jeezah
Kimyan	-	Kimyan	Umm Al-Rasas	Al-Jeezah
Rajem Esab	-	Rajem Esab	Umm Al-Rasas	Al-Jeezah
Jameel	-	Jameel	Umm Al-Rasas	Al-Jeezah
Al-Thrayyah	-	Al-Thrayyah	Umm Al-Rasas	Al-Jeezah
Al-Mshairfeh	-	Al-Mshairfeh	Umm Al-Rasas	Al-Jeezah
Rajem Fhaid	-	Rajem Fhaid	Umm Al-Rasas	Al-Jeezah
Abu Hlaifeh	-	Abu Hlaifeh	Umm Al-Rasas	Al-Jeezah
Al-Msaitbah	-	Al-Msaitbah	Umm Al-Rasas	Al-Jeezah
Umm Al-Rasas	-	Umm Al-Rasas	Umm Al-Rasas	Al-Jeezah

Rajm Ash-Shami Al-Gharbi	-	Rajm Ash-Shami Al-Gharbi	Rajm Ash-Shami	Al-Muwaqqar
Salem	-	Salem	Rajm Ash-Shami	Al-Muwaqqar
Al-Hashimiyyeh	-	Al-Hashimiyyeh	Rajm Ash-Shami	Al-Muwaqqar
Dhuheibeh Al-Gharbiyyeh	-	Dhuheibeh Al-Gharbiyyeh	Rajm Ash-Shami	Al-Muwaqqar
Al-Laseen	-	Al-Laseen	Rajm Ash-Shami	Al-Muwaqqar
Al-Majidiyyeh (Zubaira)	-	Al-Majidiyyeh (Zubaira)	Rajm Ash-Shami	Al-Muwaqqar
Al-Batifeh	-	Al-Batifeh	Rajm Ash-Shami	Al-Muwaqqar
Rajm Ash-Shami Al-Sharqi	-	Rajm Ash-Shami Al-Sharqi	Rajm Ash-Shami	Al-Muwaqqar
Maghayer Mhanna	-	Maghayer Mhanna	Al-Muwaqqar	Al-Muwaqqar
Al-Mataleh (Al-Mastabeh)	-	Al-Mataleh (Al-Mastabeh)	Al-Muwaqqar	Al-Muwaqqar
Umm Butma	-	Umm Butma	Al-Muwaqqar	Al-Muwaqqar
Al-Hatimiyyeh	-	Al-Hatimiyyeh	Al-Muwaqqar	Al-Muwaqqar
Ghassleh	-	Ghassleh	Al-Muwaqqar	Al-Muwaqqar
Rawdat Al-Hussein An-Namouthajiyyeh	-	Rawdat Al-Hussein An-Namouthajiyyeh	Al-Muwaqqar	Al-Muwaqqar
Al-Hmaidiyyeh	-	Al-Hmaidiyyeh	Al-Muwaqqar	Al-Muwaqqar
Al-Faisaliyyeh	-	Al-Faisaliyyeh	Al-Muwaqqar	Al-Muwaqqar
Dhuheibeh Al-Sharqiyyeh	-	Dhuheibeh Al-Sharqiyyeh	Al-Muwaqqar	Al-Muwaqqar
Al-Manshiyyeh	-	Al-Manshiyyeh	Al-Muwaqqar	Al-Muwaqqar
Al-Falaj (Al-Rabieh)	-	Al-Falaj (Al-Rabieh)	Al-Muwaqqar	Al-Muwaqqar
Az-Zmeilat	-	Az-Zmeilat	Al-Muwaqqar	Al-Muwaqqar
Al-Inab	-	Al-Inab	Al-Muwaqqar	Al-Muwaqqar
Al-Muwaqqar	-	Al-Muwaqqar	Al-Muwaqqar	Al-Muwaqqar
Al-Nageira	-	Al-Nageira	Al-Muwaqqar	Al-Muwaqqar

Umm Al-Basateen	-	Umm Al-Basateen	Umm Al-Basateen	Na'ur
As-Sameek	-	As-Sameek	Umm Al-Basateen	Na'ur
Umm Al-Asaker	-	Umm Al-Asaker	Umm Al-Basateen	Na'ur
Umm Al-Kundum	-	Umm Al-Kundum	Umm Al-Basateen	Na'ur
Umm El-Birak	-	Umm El-Birak	Umm Al-Basateen	Na'ur

Masaah	–	**Masaah**	Umm Al-Basateen	Na'our
Ar-Rawda	–	**Ar-Rawda**	Hisban	Na'our
Al-Mohaqqar	–	**Al-Mohaqqar**	Hisban	Na'our
Al-'Al	–	**Al-'Al**	Hisban	Na'our
Manshiyyet Hisban	–	**Manshiyyet Hisban**	Hisban	Na'our
Karmat Hisban	–	**Karmat Hisban**	Hisban	Na'our
Hisban	–	**Hisban**	Hisban	Na'our
Al-Adasiyyeh	–	**Al-Adasiyyeh**	Na'our	Na'our
Al-Manshiyyeh & Umm Al-Quttein	–	**Al-Manshiyyeh & Umm Al-Quttein**	Na'our	Na'our
Al-Amiriyyeh	–	**Al-Amiriyyeh**	Na'our	Na'our
Baf'sa	–	**Baf'sa**	Na'our	Na'our
Zbood	–	**Zbood**	Na'our	Na'our
Abu Naqleh	–	**Abu Naqleh**	Na'our	Na'our
Al-Kajrah	–	**Al-Kajrah**	Na'our	Na'our
Al-Dualiyyeh	–	**Al-Dualiyyeh**	Na'our	Na'our
Tarki	–	**Tarki**	Na'our	Na'our
Adbeyan	–	**Adbeyan**	Na'our	Na'our
Al-Mansourah	–	**Al-Mansourah**	Na'our	Na'our
Umm As-Summaq	–	**Umm As-Summaq**	Na'our	Na'our
Seil Hisban	–	**Seil Hisban**	Na'our	Na'our
Na'our	–	**Na'our**	Na'our	Na'our
Bassat Na'our	–	**Bassat Na'our**	Na'our	Na'our
Al-Awwal	Sahab	–	–	Sahab
Al-Thani	Sahab	–	–	Sahab
Al-Thaleth	Sahab	–	–	Sahab
Al-Manakher	Uhod	–	–	Sahab
Ruraiheel	Uhod	–	–	Sahab
Jamila Al-Ulyah	Uhod	–	–	Sahab
Al-Khashafiyyeh Al-Shamaliyyeh	Uhod	–	–	Sahab
Al-Khashafiyyeh Al-Janoubiyyeh	Uhod	–	–	Sahab
Al-Bayda	Uhod	–	–	Sahab
Hinaydan	Uhod	–	–	Sahab
Al-Madouneh	Uhod	–	–	Sahab
Al-Mudallyyeh	Uhod	–	–	Sahab

(DOS GIS, 2010)

*Referred to in some of the collected GIS-compatible files as "Zoning"

**Referred to in some of the collected GIS-compatible files as "District"