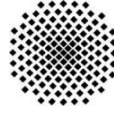




Ain Shams University



University of Stuttgart

# **Analyzing the Public Transportation in Amman: The Case of the Bus Rapid Transit (BRT)**

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

by

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# Disclaimer

This dissertation is submitted to Ain Shams University, Faculty of Engineering and University of Stuttgart, Faculty of Architecture and Urban Planning for the degree of Integrated Urbanism and Sustainable Design.

The work included in this thesis was carried out by the researcher in the Year 2013

The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others.

2013

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Signature

## **Abstract**

**P**ublic transportation is faced with many challenges, especially in developing countries, like in the case of Jordan. This becomes more problematic, especially in an ever-changing urbanized context. The development of (public) transportation system in such a context is under-researched within the Jordanian academia; therefore, this master thesis is an excretion of efforts to study this relation following a case study approach in Amman city. More specifically, the research focuses on analyzing the Bus Rapid Transit (BRT), which has been touted as a flag-ship project to deal with the ill-structured transportation system in Amman city. A mix between quantitative and qualitative research methodologies invokes the course of this research. The envisaged output of this research contributes in filling the knowledge gap of how the BRT could satisfy the needs of the local community in Amman and achieve sustainability in the city at large. This is addressed by a set of policy recommendations, which are derived from the results of analyzing the case of the BRT project in Amman after conducting semi-structured interviews with key informants and evaluating the public perception of the layperson as well, about such a project. It is envisaged that the findings of this research will have a far-reaching impact on the urban policies of Amman city in its efforts to achieve sustainability.

**Keywords:** Bus Rapid Transit, Sustainability, Amman City

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I would also like to dedicate this work to my family and loved ones who supported me throughout the process.

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## **List of Acronyms and Abbreviation**

AFD: Agence Française de Développement

Ai: Amman Institute for Urban Development

BRT : the Bus Rapid Transit

CA: the Cities Alliance

CBO: Community-based Organisation

CDS: City Development Strategy

CSO: Civil Society Organization

GAM: the Greater Amman Municipality

LRT: Ligh-rail Transit

LTRC: The Land and Transport Regulatory Commission

MOPIC: The Ministry of Planning and International Cooperation (MOPIC)

NGO: Non-governmental Organization

OECD: The conceptual framework of the Organization for Economic Co-Operation and Development

OPT: Occupied Palestinian Territories

PM: Prime Minister

PSR: Pressure-State-Response

PTRC: the Public Transport Regulatory Commission

SPSS: Package for Social Sciences

TMMP: Transport and Mobility Master Plan

ToD: Transit Oriented Development



## **Chapter (1): Introduction and Methodology**



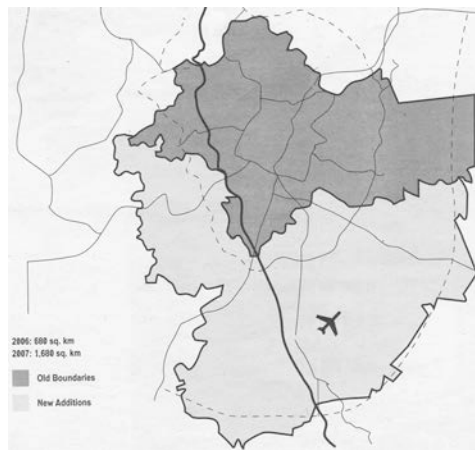


## Chapter (1): Introduction and Methodology

### 1.1 Introduction: Research Theme and Context

Amman, the capital of Jordan, has been transformed dramatically by neo-liberal urban governance policies since the beginning of the 21<sup>st</sup> century. Prior to that, “West Amman” and “East Amman” were two distinguished geographical zones only when the geography of poverty of the city has been considered. This particular division has transformed to become very significant and vivid. The differences and disparities took many forms, but one very important aspect that both contributes to and manifests this division is the transportation infrastructure and in particular the public transportation system.

The mobility between the “poorer East” and the more “affluent West” was so convenient up till the beginning of the 1990s. The status of mobility in the city has changed as Greater Amman Municipality (GAM) enlarged its boundary to include new districts to Amman (Figure 1).



**Figure (1): Previous and New Administrative Boundaries for Greater Amman Municipality.** Source: (Turath 2009)

As Amman grew into “Greater Amman” with new districts being added, the public transportation network and transportation infrastructure did not cope with this expansion and became inefficient. Amman developed into a car-

dependent city while many Ammani citizens cannot financially afford buying a car and are left to face a dysfunctional public transportation system. The inefficient public transportation was even considered to deepen the gulf between the different social strata.

It is important to notice that the economy of modern Amman has become mainly based on a real-estate boom that focused on construction of high-end housing projects, offices, hotels and resorts. These transformations had major role in fragmenting the public transportation system. For example, and in the name of progress, major public transportation hubs in the heart of the city have been displaced to new locations on the outskirts of the city in empty spots divided from all commercial and economic activities. Thousands of users of these hubs were negatively affected by this displacement. In addition to that, and while keeping in mind the Kingdom's needs to strengthen the economy and to provide the infrastructure necessary to attract foreign investment, a very ambitious plan was laid to improve the transportation infrastructure and to overcome this deficiency (Potter *et al.* 2009: 89). For the first time, a clear goal was set to connect the disconnected; East and West Amman. The plan's interventions included new roads, bridges and tunnels. A very controversial example of such interventions was Abdoun bridge (Figure 2). There was lot of debate about its significance to solve traffic congestion. It was considered by many critics not more than a new aesthetic element in the capital.



Figure (2): Cartoon by Emad Hajjaj showing eastern Ammanis sling-shooting themselves over to quiet Abdoun district

## 1.1. Introduction: Research Theme and Context

Nevertheless, city planners introduced the project as part of a bigger plan to reform the social and urban fabric of Amman.

As part of the Amman Metropolitan Growth Plan, today and after five years of constructing the bridge, the bridge stands as a living evidence where *'Infrastructure reflects and reproduces urban inequality'* (McFarlane 2010). Meanwhile, public pressure was accumulating to improve the existing public transportation system. Therefore, in 2009, GAM launched a major project to improve the public transportation system in Amman; the Bus Rapid Transit (BRT).

The BRT was considered as a pioneer project in the field of public transportation in Amman and was anticipated to create a remarkable transformation to the current reality of mobility in the city. It was seen to be a step towards creating a modern, sustainable City (balanced in terms in socio-economic and environmental aspects of development) where all citizens have access to a functional and affordable public transportation. Despite the wide support for the BRT by Ammanis at the very early stages of the project in 2009, the BRT was stopped just at the second year during the first phase of implementation based on allegations of corruption as proclaimed by a designated parliamentary committee.

To this end, this master thesis analyzes and tries to conclude the main driving forces that influenced this planning process, which needless to say has created a considerable furor in Amman (Zureiqat 2012).

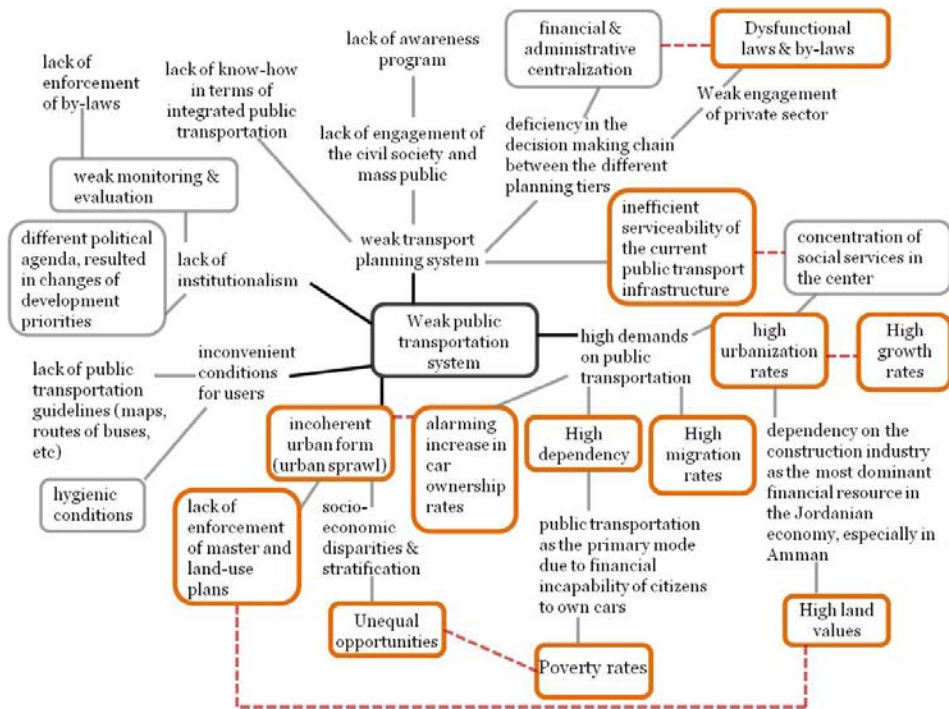
## 1.2 Research Problem

The public transportation system in Amman city is characterized as weak and inefficient. The pedigree of such a problem is complex, multi-faceted and hierarchical as depicted in [Figure \(3\)](#). Analyzing the related public transportation system problems with transportation experts from the policy community of Amman ([section 1.5](#)) reveals that the main causes could be summarized as underlying and immediate causes.

**The underlying causes** include: weak transport planning system; high demand on public transportation; inconvenient conditions for users; lack of institutionalism and as equally important the incoherent urban form (urban sprawl). Digging into details, one could pinpoint more immediate causes. For example, one of the **immediate causes** for the high demands on public transportation is the high urbanization rate (high growth rate) which has resulted more or less in the concentration of social services in the center of the city. It is to the conviction of the researcher that the concentration of social services in the center of Amman is indispensably related to the inefficient serviceability of the current public transport infrastructure which is by its own one of the repercussions of the weak transport planning system.

As such, one could demonstrate the complexity of such a formidable challenge to the sustainability of Amman city.

## 1.2. Research Problem



**Figure (3): Problem tree of weak public transportation in Amman city**  
Source: Self-constructed, 2013

To put it simple and clear, the **underlying causes** of the problem of weak public transportation system could be compartmentalized into two main aspects namely: environment-related resources scarcity (mainly in land) and socio-economic polarization. The first (environment-related) includes: *rapid urbanization trends; urban sprawl; and high-land values*. These could be categorized under the theme of “pressure on resources”. The later (socio-economic related) likewise includes: *high poverty rate; social service dependency; and centralized state-led interventions* (Figure 3). These could be categorized under the theme of “production/social order”. In the same token, the **immediate causes** of the environment-related aspects include: *high fertility and migration rate; car dependency; incompatible master plans* which all could be categorized under the theme “competition for resources”. As per the socio-economic related aspect the immediate causes include: *unequal*

*opportunities; weak infrastructural lines; and dysfunctional by-laws* which all could be categorized under the theme “exclusion strategies”. To this end, the formulated problems will invoke the research analysis of this master thesis. Nevertheless, the BRT is expected to have positive outcomes on the sustainability of Amman city as it had on other cities worldwide such as Curitiba in Brazil. Likewise, other few negative impacts are also expected and this begs the question of how a project like this could still fail and what could be done to prevent such a project from failing. It is important to mention that the discrepancy of the anticipated impacts might lead to different urban problems related to the public transportation sector at large in Amman such as the mentioned above. The researcher is motivated to research and analyze such urban problems from an academic point of view and as a potential user of the BRT.

### 1.3 Research Questions and Propositions

The main question for this research is *How to plan for a successful BRT project in Amman city?* Answering this question is framed within the many present perennial challenges that face Amman city, especially the weak transport system and the incoherent spatial order of the city in terms of social services distribution across the city and the evident gulf between the western and eastern side of Amman city. Nevertheless, to answer this question, two secondary research questions have been formulated namely: *What are the potentials to the success of the BRT in the context of Amman city against the “Sustainability” goals? ; How satisfactorily the GAM could secure a sense of ownership for the project among stakeholders?*

To ensure a logical flow, the main theme of this master thesis is further compartmentalized based on the interrelated research questions into two sub-themes, as related to the concept of “sustainability” (Table 1). To elaborate more, sustainability stands, nowadays as an envisaged outcome to spatial

### 1.3. Research Questions and Propositions

planning practices (Gunder & Hillier 2009). It stands as the new urban approach and could even act as a synonym for many of the explicit contemporary values and tools of wider spatial planning. The term gained rapid concurrency and was catapulted to the forefront of public discourse across the globe, and now is considered the state-of-the-art discussion within the field of contemporary spatial planning.

The two related secondary questions have been further detailed into a set of operational questions that helped framing the analysis part of this research. Following is the set of used operational questions, as per the two secondary research questions:

#### **Secondary Question I:**

What are the potentials to the success of the BRT in the context of Amman city against the “Sustainability” goals?

- What is the current state of public transportation in terms of sustainability principles, namely: socio-economic and environment?
- What is the linkage between the BRT and Amman Metropolitan Growth Plan?

#### **Secondary Question II:**

How satisfactorily the GAM could secure a sense of ownership for the project among stakeholders?

- How was the BRT project planned for? Said differently, what was the planning process used for the BRT project?
- Was the design of the BRT system responsive to the current evident gulf in terms of socio-economics between the eastern and western parts of the city?

<b>Table (1): Compartmentalization of Research Theme</b>	
<b>Main Research Question</b>	
How to plan for a successful BRT project in Amman city?	
<b>Main Hypothesis</b>	
It is very likely that a successful implementation of the BRT project in Amman could have been secured if principles of sustainability– understood to contain a sense of public ownership through public participation - had been acknowledged and encouraged.	
<b>Secondary Question I</b>	<b>Secondary Question II</b>
What are the potentials to the success of the BRT in the context of Amman city against the “Sustainability” goals?	How satisfactorily the GAM could secure a sense of ownership for the project among stakeholders?
<b>Sub-Hypothesis I</b>	<b>Sub-Hypothesis II</b>
The project was not tailored and contextualized, and therefore did not thoroughly investigate its potentials to sustain the development process.	The project has been used in principle as a political tool and the related socio-economic and environmental results were undervalued.
<b>Sub-Theme I</b>	<b>Sub-Theme II</b>
Assessing the feasibility, effectiveness and efficiency of the project in terms of “Sustainability” principles (translated in transportation related goals)	Principles of good practices in public participation are developed against which the planning process of the BRT system are evaluated
Source: <a href="#">Self-constructed, 2013</a>	

## 1.4 Goals and Objectives

The overarching goal of this research is to contribute to the improvement of the public transportation system in the city of Amman, and thus supporting sustainability and social justice in the city. Accordingly, the specific objectives could be summarized, as follows:

1. To assess the present-day situation of public transportation in the city of Amman.



## 1.5. Research Methodology

2. To identify the factors that led to the stoppage of the BRT project.
3. To propose policy recommendations that would support an effective management of the BRT project.

### 1.5 Research Methodology

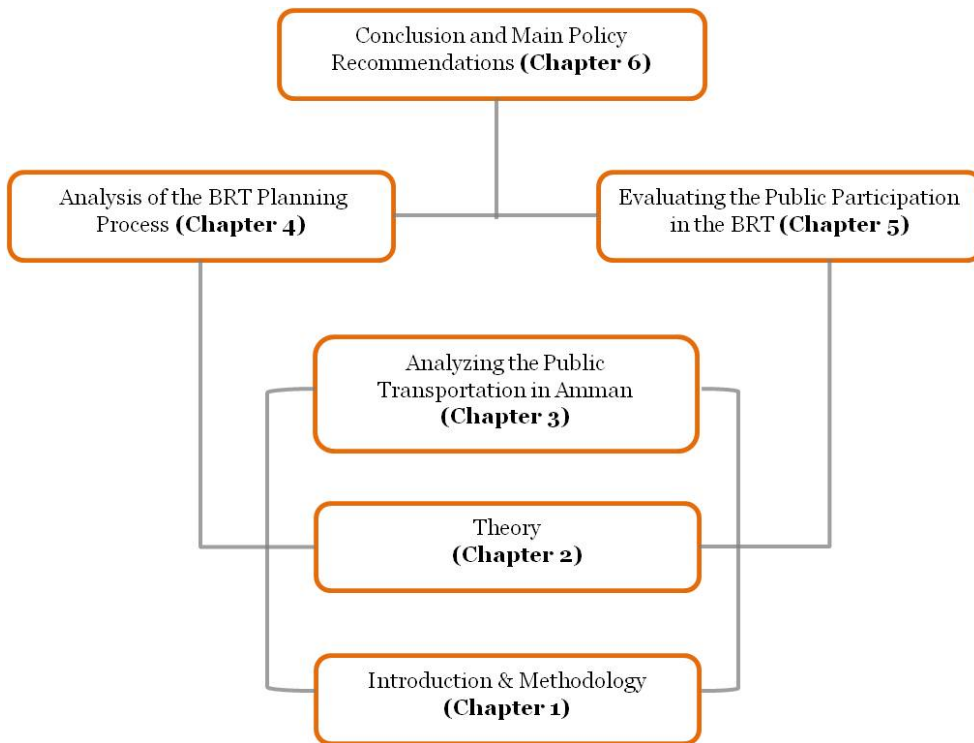
The proposed research methodology adopts a mix between quantitative and qualitative approaches. It is exploratory in nature, as it takes events and tries to make generalizations (merely at the conceptual level). Also, the research course adopts descriptive analysis and causal illustration. The descriptive research involves the gathering of information about existing conditions while the causal research is concerned with determination of which variable might be causing a particular behavior (Babbie, 1998). The research study musters evidences at several levels of analysis, retaining a stronger case than one which rests at a single level of analysis (Gerring, 2002). Therefore, two data sources have been identified, namely: primary and secondary. The primary data is extracted, mainly from semi-structured interviews with experts; field observation; and analysis of a special questionnaire targeting the layperson in Amman city. Concurrently, the secondary data is built through deliberations on the available data sources in the forms of archived research, municipal documents, mapping interpretations using AutoCad.

The semi-structured interviews were done with particularly 3 transportation experts during August- September 2012. The first stage included a representative from the competent authority, private sector, and civil society organizations/academia, and it was very important as a preliminary phase to learn more about the BRT project from key informants who have been engaged in its deliberations from the very beginning (Annex 1 – list of key informants). The *second phase* only focused on more technical details with the representative of the competent authority, i.e. GAM. In the same token, a special **questionnaire** was designed and analyzed based on the answers of 80 respondents (30 females and 50 males). The respondents of the questionnaire

were chosen on two stages. First, quota sampling was used, which is a non-probability sampling method to identify the stratum and its proportion. Major road intersections served by the planned BRT were selected. Second, the respondents have been selected based on a random sampling method, which is a probability sampling method to collect a representative number. The questionnaire was analyzed using the software of Statistical Package for Social Sciences (SPSS). Within the same framework field observation has been also deployed as an invaluable way of collecting primary data since it enriches the research with an insight perception that is not reported in other document (Yin, 2011, 143).

## **1.6 Thesis Organization**

The thesis is divided into 6 main chapters. The chapters are inter-related and inter-connected as depicted in (Figure 4).



**Figure (4): Schematic Description of Thesis Structure**

## 1.6. Thesis Organization

Following is a brief but substantial overview of the main chapters of this thesis.

### **Chapter 1: Research Theme and Methodology**

This chapter provides an introduction to the theme of the research, and the transportation-related challenges addressed in Amman city. More specifically, this chapter defines the research problem and introduces the context of research. The research design and the deployed methodology are reported here, as well. Finally the chapter provides an overview on the organization of the thesis.

### **Chapter 2: Theoretical Background**

This chapter is dedicated to reviewing the state of research and providing theoretical groundings to the theme of research. More specifically, this chapter discusses the concept of “Sustainability”, along the politics of public participation in city planning. This general discussion is concluded by the deduction of a designated conceptual framework to this research. The conceptual framework has provided the theoretical credentials to this research and ushered the factual analysis, as well.

### **Chapter 3: Analyzing the Socio-economic and Environmental Aspects of Public Transportation in Amman**

This chapter provides an analysis to the state of public transportation in Amman city. The chapter is preceded at the outset by a presentation to the current state of transportation in the city of Amman, in terms of factual information about the related infrastructural lines and roads network; the private/public vehicles etc. to help understanding the challenges that face the public transportation sector in Amman. More specifically, this chapter provides quantitative and qualitative overview on the socio-economic and environmental related implications in Amman city due to the status-quo transportation planning and management paradigm. The quantitative data are mainly extracted from secondary data sources (reports, statistics, etc.), whereas the qualitative data are mainly primary data as they are a summarization of the conducted semi-structured interview with key informants from the policy community of Amman, along with the conducted field observation by the researcher .

#### **Chapter 4: Analysis of the BRT Planning Process**

This chapter presents the timeline of the BRT project, along with the main potential implications of the BRT on the sustainability pillars in terms of social, economic, and environmental aspects on Amman city. More peculiar to this analysis is the implications of the BRT on the already divided eastern and western Amman. The findings of the chapter at hand is based on analyzing the BRT layout using AutoCad application by linking the statistical information spatially, and linking the discussion with the attained findings from the conducted semi-structured interviews with key informants from the policy community of Amman.

#### **Chapter 5: Public Perception on the BRT Project**

This penultimate chapter provides an analysis to the public perception in Amman city and beyond. A special questionnaire has been designed to test the awareness of lay persons about the BRT, and the general perception about its phases and specific objectives. As one way of investigating inductive or data-based social research, the SPSS software has been used to synthesize and analyze the collected statistical data. Based on the statistical analysis of the questionnaire, this chapter distills the main findings.

#### **Chapter 6: Conclusion and Main Policy Recommendations**

This closing chapter presents the main conclusions of this research, along with the main concrete policy recommendations that would contribute in retaining the BRT a success story, and thus contribute in taming the negative impacts of the status-quo public transportation system in Amman city.

## **Chapter (2): Theoretical Background**



## Chapter (2): Theoretical Background

### 2.1 Synopsis of Theoretical Analysis

This section provides some theoretical reflections on the sub-themes of this master thesis based on the inter-related secondary questions, mainly addressing the concept of “sustainability” in terms of public transportation in city development, along with the politics of “public participation”, as a tool of legitimacy and transparency for future spatial development activities.

#### 2.1.1 Debunking “Sustainability”

From the 1970’s onwards, notions of sustainability began to emerge noticeably in the spatial planning literature, when the UNs’ affiliated Brundtland Commission, published the 1987 report “Our Common Future” that foresees a balanced spatial development, economically, socially and environmentally. The report brought sustainability into the mainstream, with the often cited definition “*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987). Nevertheless, the concept of sustainable development has a complex background, as many realizations to the concept is in circulation, making the concept of sustainable development “devalued to the point where, to some, it is now a cliché” Holembeg (1992, pp.20). For Deleuze the greatest danger to thinking is clichés (Deleuze and Guattari, 1991).

## Chapter (2): Theoretical Background

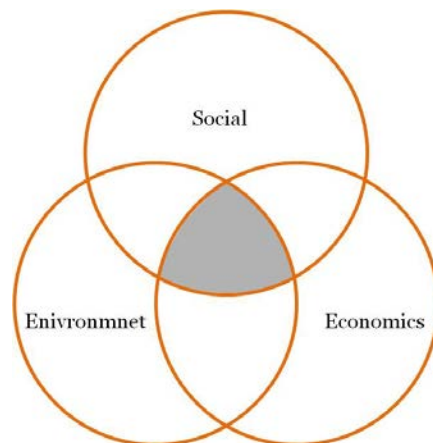
Within the concept of sustainable development three principal aspects are combined (Figure 5), namely:

**Economic aspect:** An economically sustainable system must be able to produce goods and services on a continuing basis;

**Environmental Aspect:** An environmental (natural and built) sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resource systems, and depleting non-renewable maintenance of biodiversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources; and

**Social Aspect:** A socially sustainable system must achieve distributional equity, adequate provision of social services including health and education, gender equity, and political accountability and participation (Holmberg, 1992).

An important accentuation on the **politics of participation** is highly acknowledged to embrace a socially equitable system.



**Figure (5): Aspects of Sustainability**



### 2.1.1. Debunking Sustainability

The eclectic concept of sustainable development drove spatial planners to define new urban approaches for development to address urban challenges in a more concrete manner. Importantly to this research is the weak public transportation system in city planning. This has prompted spatial planners strategically in tackling such urban problems. As such different approaches have been introduced namely Cities Development Strategies Model; Integrated Development Planning Model; Strategic Urban Development Planning Framework Model amongst others. All of which have been introduced as a process devised and owned by local stakeholders to chart a holistic vision towards sustainability for today's cities (WB, 2000).

More concrete to the problem of weak public transportation systems in transportation planning, Grant(2006,pp.57) identifies “**Transit Oriented Development (ToD)**” to be one of the foremost approaches that promotes “mixed use, mixed housing, compact form, pedestrian orientation, quality urban design, and defined centres and edges for urban neighbourhoods”. In more concrete terms, ToD is centred on public transportation hubs linked to regional systems.

For instance, Hickman and Hall (2008) in their investigation of London's current envisaged development growth eastwards through a public ToD concluded that transport investment is used to enable high levels of development; and high levels of development are used to make possible a high-specification public transport system. Nevertheless, such a development needs to be contextually articulated in terms of the following two perspectives. (1) Transport investment and cityscape should be conceived together and act in mutually supporting ways. (2) Effective ToD should be sensitive to the related behavioural and lifestyle to ensure quality of life objectives, i.e. the image of the city that needs lifting in order to attract new residents and new business.

To this end, transportation planning policy in congested metropolitan areas, like in the case of Amman often seeks to attract travelers away from their private cars toward transit use, through the provision of reliable and fast transit service. Considering the growing capital and operation costs associated with rail-based transit systems, BRT has emerged as a plausible economical alternative (Abdelghany, et al., 2007). BRT could be generally defined as a major upgrade of traditional bus transit service through incorporating favorable operational characteristics of rail-based transit systems, mainly separation from street network traffic, prioritization at busy intersections, higher service frequency, and so-called 'smart' fare-collection techniques (Henke, 2001).

In the case of Amman city, the BRT has been touted as a flagship project towards sustainability. It comes within the framework of the GAM masterplan that defines ToD as the anticipated theme of future development. ToD is an urban planning and transportation theory that concentrates growth in the center of a city to curb urban sprawl, advocates compact, walkable, bicycle-friendly land use, including mixed-use development with a range of housing choices (Yongseok, et al., 2004).

In our case, it remains questionable whether the BRT project acknowledged these perspectives when it was first designed. Furthermore, it is questioned if the BRT was initially considerate to the holistic set of designated policies related to the adoption of the principle of ToD. For instance and at the risk of sounding tautological, it is questionable if the BRT has investigated the relevancy in terms of socio-cultural, physical, and administrative constraints of creating programs and policies that would support car sharing; change state insurance policies to implement a pay-as you-drive insurance; create comprehensive bicycling programs; introduce value pricing systems; transform park-and-ride lots into multi use facilities, amongst others.

### **2.1.2 Public Participation as an indispensable process for development planning**

There is a plethora of literature related to practices of public participation in development planning, appearing in the form of citizen participation, civic engagement, collaborative governance, and inclusion and representation in democracy, amongst others. Among all of which, there is an agreement that the methodology of public participation is key (Quick & Feldman, 2011, pp. 272-273). The underlying presumption appears to be that greater public participation in decision-making processes will lead to more socially acceptable and hence sustainable outcomes (Aitken, 2010, pp. 249).

Within the course of this master research, *public participation* is more specifically, understood as defined by Quick & Feldman (2011, pp.274) to increase input oriented primarily to the content of programs and policies, and, thus practices for organizing highly participatory processes encompass inviting many people to participate, making the process broadly accessible to and representative of the public at large, and collecting community input and using it to influence policy decisions. Nevertheless, it is to the conviction of the researcher that the mandate of decision-making and implementation should only be endowed with the government and not the mass public (Wegener, 2010, pp.1-10). Said differently, planning is *in* politics (it is about making choices) and it cannot escape politics (it must make values and ethics transparent), but it is *not* politics (it does not make the ultimate decisions) (Albrechts, 2005, pp.263).

Lefebvre's (1974) conceptualization of *production of space* entails that the production of urban space is much more than just planning the material space of the city; it involves producing and reproducing all aspects of urban life. This led Cornwall and Gaventia (2001) to distinguish between "invited" and "claimed" spaces. The "invited" space represents the arenas in which the state-

led institutions *invite* the stakeholders to present their ideas on decision-making related processes. The “claimed” space stands for the areas, where stakeholders organize themselves into pressure groups to *claim* and express their dissatisfaction about the decision-making processes.

The nexus between the “invited” and “claimed” spaces has resulted into what [Baud and Nainan \(2008\)](#) call the “negotiated” space that foresee the *renegotiation* of construction of spaces takes place regularly between government and certain groups of citizens, where the extent of stakeholder participation is the crucial issue. As an indispensable social aspect of sustainability, public participation in the BRT is quite important, and it is arguably stated here that the project was not able to construct a “negotiated” space to mitigate the conflict raised about the project underway.

Said differently, the public participation has a power connotation as best elucidated by [Arnstein \(1969\)](#) ladder of participation where she identifies eight consecutive rungs; starting from “manipulation” of the public and ending with ideal case of “citizen control”. This is thoroughly analyzed and contextualized in the case of the BRT in [\(section 4.3\)](#), that shows that the BRT failed to achieve an appropriate level of public participation against Arnstein’s ladder.

### 2.2 Cause-Effect Relational (Conceptual) Framework

The conceptual framework of the Organization for Economic Co-Operation and Development (OECD) Pressure-State-Response (PSR) has been used to usher the deduction of the designated conceptual framework for this research. The PSR is based on the concept of causality; what affect is beget from a given cause. Said differently, the PSR is based on the fact that humans exert pressures on the ecosystem and the society, which alter their state and call for certain responses. Its primary focus is on ecological aspects although socio-economic aspects are also of interest.

The conceptual framework at hand considers the man-made activities or pressures and the implications for such artifacts on the state of the sustainability pillars, namely: socio-economic and environmental aspects. The change of the current state is analyzed on two stages, namely: underlying causes and immediate causes, in order to realize the cycle of change thoroughly. Finally, the proposed response for the current change in terms of conceptual and pragmatic notions is presented. Conceptually, the concept of “Sustainable (Public) Transportation System” will invoke the course of this research, and will be translated pragmatically in terms of public transportation notions into “ToD”, as an umbrella to discuss the BRT project and the rubric of “Public Participation” (Figure 6).

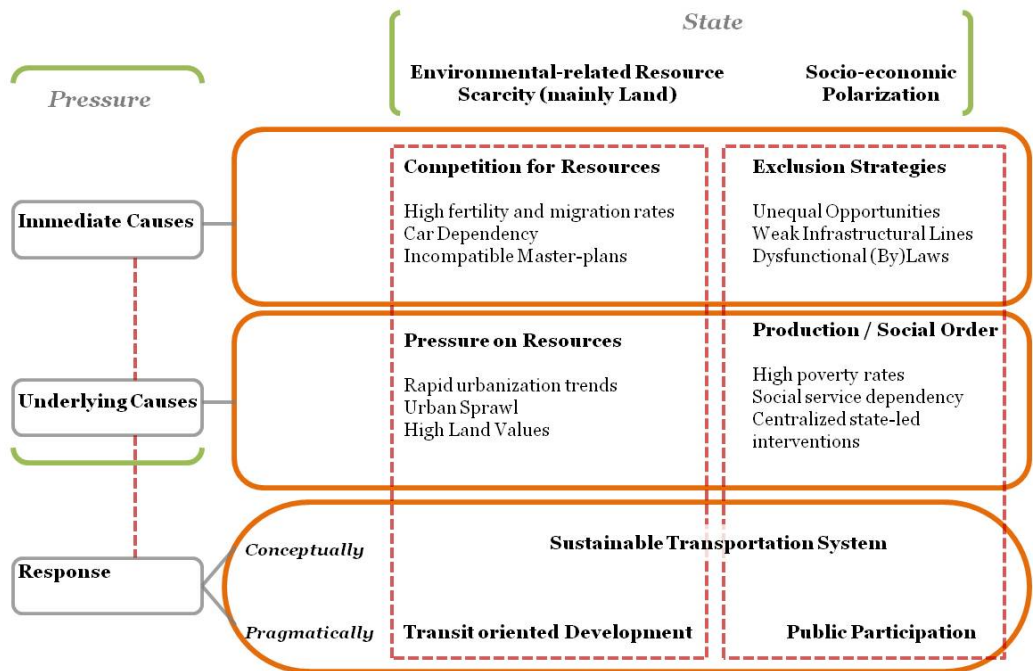
The underlying causes of pressures have been deducted from the detailed problem tree of the weak public transportation system in the city of Amman (Section 1.2). For the environmental-related resource scarcity (mainly land), the “pressure on resources”, in terms of rapid urbanization trends, urban sprawl, and high land values stand as the grand cause. As per the socio-economic polarization the “production / social order” truism in terms of high poverty

rates, social service dependency, and centralized state-led interventions as the grand cause.

The immediate causes of pressures, as resulted from the underlying causes of pressures are also derived from the problem tree, but with some more detailing (Section 1.2) and are divided into two main compartments. For the environmental-related resource scarcity (mainly land), the “competition for resources” in terms of high fertility and migration rates, car dependency, and incompatible master-plans stand as the immediate cause. The “exclusive strategies” in terms of unequal opportunities and weak infrastructural lines stand as the grand cause for the socio-economic polarization aspect.

The rationalized conceptual framework at hand is best understood as defined by Jabareen (2009: 57) “... as a network, or “plane,” of linked concepts that together provide a comprehensive understanding of a phenomenon. .... a conceptual framework [is] constructs in which each concept plays an integral role.” It is to the conviction of the researcher that this conceptual framework is only suitable to address the phenomenon of weak public transportation system in present-day Amman, and the associated attributes and compartments of this conceptual framework are likely to change in the future, as new underlying and immediate causes of pressures are evolved. Likewise, the conceptual response to the overarching goal of “sustainable transportation system” as presented by the ToD, or more specifically the BRT might not work as the most efficient solution in the future of Amman if the current socio-economic and environmental conditions are radically changed. As such, the “public participation” might not remain also as an issue of concern.

## 2.2. Cause-Effect Relational (Conceptual) Framework



**Figure (6): Conceptual Framework**





**Chapter (3): Analyzing the Socio-economic and  
Environmental Aspects of Public Transportation in  
Amman**



## **Chapter (3): Analyzing the Socio-economic and Environmental Aspects of Public Transportation in Amman**

### **3.1 Introduction**

This chapter provides quantitative and qualitative overview on the socio-economic and environmental related implications in Amman city due to the status-quo transportation planning and management paradigm. The hereinafter quantitative data are mainly extracted from secondary data sources (reports, statistics, etc.), whereas the qualitative data are mainly primary data as they are a summarization of the conducted semi-structured interviews with key informants from the policy community of Amman city. The analysis in this chapter is divided into headings and sub-headings opposed to the underlying and immediate causes as elaborated in the concluded conceptual framework (Chapter 2). Amman city is perceived as a multiplex city that is invoked by an ever changing and perennially in movement system in terms of socio-economic, environmental, and physical aspects. This analysis tends to highlight the associated repercussions that contributed to meager results in sustaining the natural and built environment, as resulted from the inefficient public transportation system. More specifically, this chapter addresses the operational question “What is the current state of public transportation in terms of sustainability principles, namely: socio-economic and environment?” Ultimately this will help in answering the secondary question of “What are the potentials to the success of the BRT in the context of Amman city against the “Sustainability” goals?”

### 3.2 Environmental-related Resources Scarcity

This section discusses the **pressure on resources** in terms of *rapid urbanization trends (including urban sprawl)* and *high land values* as the **underlying causes**, and the **competition for resources** in terms of *high fertility and migration rates, car dependency, and incompatible master-plans* all as **immediate causes**.

#### 3.2.1 Pressure on Resources:

##### 3.2.1.1 Rapid Urbanization Trends (including urban sprawl)

Amman is the capital of Jordan and was inhabited by 2.4 Million in 2004 (predominantly urbanites reaching 96%) out of the 6.5 Million Jordanians (CIA, 2013). The urban population growth rate stands at 3.07% in Jordan, indicating relatively high growth rate when compared with the neighboring countries, or Mashreq cities (2.2%), and in the Arab world (2.5%). This high rate of population growth is compounded with an ever increasing population density of 68 capita/ km<sup>2</sup> for the year 2010 when compared to the year 1994 that calculated 47 capita/ km<sup>2</sup>. In the capital Amman the population density is much higher with 1429 capita/Km<sup>2</sup> (UN-Habitat, 2012, pp.25) and population growth projections show that the number of Amman's inhabitants will reach 6.5 million by 2025 (GAM, 2008, pp.18) (Figure 7).

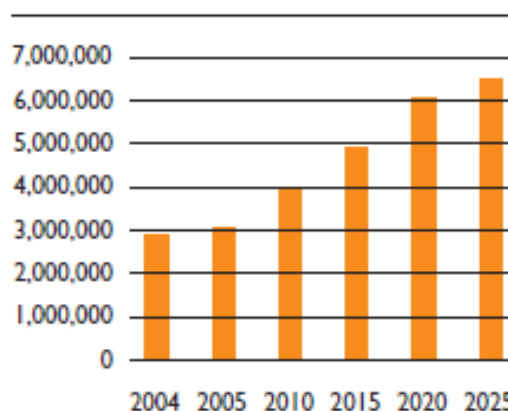


Figure 7: Amman Growth Projections (2004-2025)

Source: GAM, 2008, pp.18

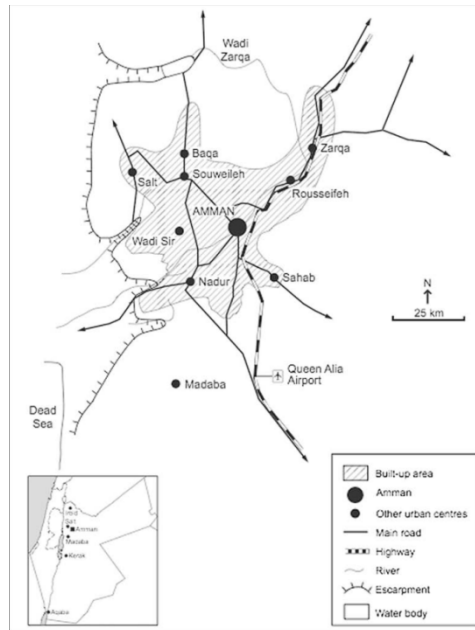
### 3.2. Environmental-related Resource Scarcity

Jordan is one of the more urbanized countries in the world with 78 per cent of the population living in urban areas and 71.5 per cent of the total population concentrated in only three urban areas: Amman, Irbid, and Zarqa. Much of this urbanization can be attributed to the relocation of refugees from the Occupied Palestinian Territory, Iraq, and Syria, as well as to migration from rural areas generated by a period of rapid industrialization in the late 1970's and early 1980's. Most of the urban expansion of the major cities has been occurring as sub-urbanization, with the fastest growth occurring in the immediate urban periphery. The rapid urbanization trend in Amman has resulted in chronic urban challenges, mainly sprawl and traffic congestions, along with weak infrastructural lines to support the unprecedented growth in spatial development (UNHABITAT, 2012, pp.33).

Generally speaking, zoning is the main tool to regulate urban development in Jordan. In 2006, Ministry of Municipal Affairs (MOMA) developed the country's first national land use master plan and proceeded to develop comprehensive master plans for eight major municipalities, including Amman. This was a much-needed step to arrive at a more balanced urban structure since development had historically been concentrated in the Amman region (UNHABITAT, 2012, pp.68). Within this framework, the question regarding the physique of Amman city and its urban morphology remains of prominent importance here.

The general location of Amman reveals that it is placed on the undulating plateau that makes up the north-west of Jordan (Figure 8). The city occupies seven hills or 'jabals' at an altitude of between 725- 800 m around the Wadi 'Ras el Ain' which flows North-East from the plateau toward the River Zarqa basin (Potter, *et al.*, 2009, pp.82). This entails that Amman has a complex geography which constraints future- development in transportation.

### Chapter (3): Analyzing the Socio-economic and Environmental Aspects of Public Transportation in Amman



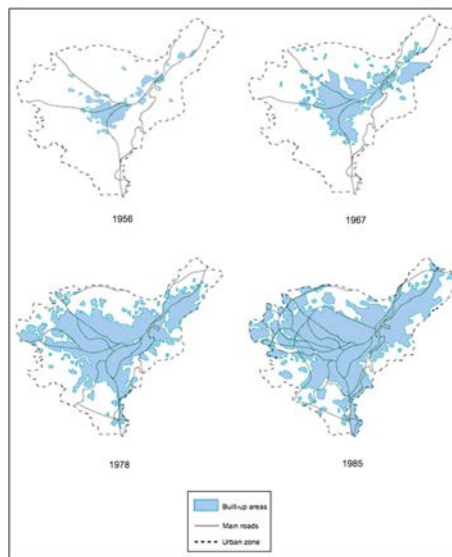
**Figure (8): General Location of Amman**

Source: (Potter, *et al.*, 2009, pp.82)

The upsurge in urban development over the last 6 decades has seen extensive spatial development on the frequently steeper mid-slope locations. **Figure (9)** depicts the burgeoning spatial expansion of the city and its rapid growth in all directions. More specifically, the GAM boundary serves as the metropolitan planning area for Amman Plan for up to the year 2025. This area consists of about 1,660 km<sup>2</sup>, and it includes the recent 2007 amalgamation of the areas situated south of Amman and close to Queen Alia's International airport that stands alone at about 250 km<sup>2</sup> (GAM, 2008, pp. 20-21). This sudden and spur spatial expansion (urban sprawl) resulted in many challenges to the public transportation network due to the increased pressure on transportation infrastructure, as the demand exceeded the supply with the increasing number of new users within the expanded GAM boundary. Al-Asad (2004), ironically compare the usage rates for public transportation in Jordan that stands at 13%

### 3.2.1 Pressure on Resources

to the workers of New York city that stands at 55%, in lieu with the fact that Americans are a predominantly users of cars. “*Obviously, this is not a healthy situation*”, Al-Asad (2004) concludes! An important link to this spatial expansion to the socio-economic conditions in the city is made by Al-Asad (2005), who says that “*with 80% of the economic activity and 70% of the population, it is clear that much needs to be achieved in decentralizing away from Greater Amman.*” (Potter, et al., 2009, pp.91)

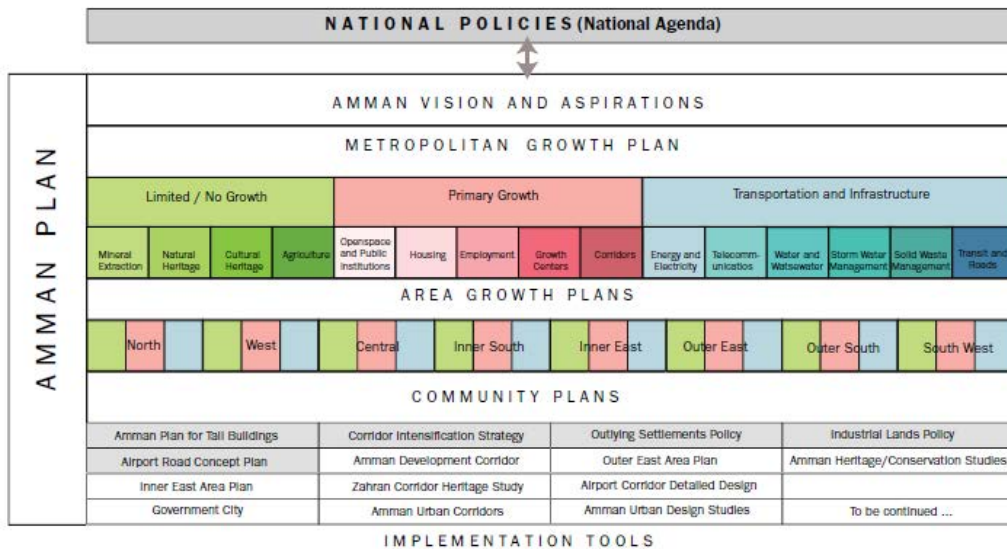


**Figure 9: Spatial Expansion of Amman City (1956-1985)**

Source: Potter, et. al., 2009: 85

In its efforts to curb the inevitable rapid urban growth of Amman, GAM has defined three main categories for urban extension in its publication “Amman Plan: Metropolitan Growth”. The planning areas of the city (North, West, Central, Inner South, Inner East, outer east, outer South and South west) were categorized into limited or no growth zones, primary growth zones and transportation and infrastructure dedicated zones (Figure 10).

**Chapter (3): Analyzing the Socio-economic and Environmental Aspects of Public Transportation in Amman**



**Figure 10: Amman Plan - Metropolitan Growth**

Source: (GAM, 2008, pp.27)

An indispensable component in the related transportation and infrastructure dedicated zones is the BRT. The Director of Transport and Mobility department in GAM, Dr. Ayman Smadi has accentuated on the importance of the BRT to the future spatial development of Amman city during an interview with him within the ambit of this master research. Smadi believes that the BRT project will assist the concept of ToD, where mobility attracts development (Smadi, 2012). In recap, the public transportation sector in Amman city faces many challenges due to the high urbanization rates and urban sprawl. The BRT project, which is linked to Amman Metropolitan Growth Plan, has been introduced as a tool to ameliorate the traffic congestion in the city.

**3.2.1.2 High land values**

As Amman entered the neoliberal era, land values have skyrocketed and are continuing to rise. Land values have risen 25% in one year time lag in 2012 (Khraisat, 2012). GAM’s approach of urbanizing Amman resulted in the increase of land values. There is a noticeable scarcity in serviced and planned



### 3.2.1 Pressure on Resources

land parcels in the city even though there is high pressure on the demand in the real estate market (for instance, 1,184 land sales transaction occurred in January 2013) (Land and Survey Department, 2012). GAM has also in many occasions suddenly announced the addition of new land parcels to become part of Greater Amman (Khraisat, 2012). Such announcements or additions result in speculations that ultimately cause an increase on land values of parcels that are unplanned and not served with the needed infrastructure.

From another perspective, GAM has also adopted policies that encourage investments in the city. Such investments also stand as the reason behind the unprecedented increase in land value. “*Jordan is [...] reshaping larger urban centres into structured city-regions, changing the spatial distribution of land values as they increase in and around newly developed sites*” (UNHABITAT, 2012, pp.48).

Real estate activities in Northern and Western Amman ranked first and third respectively when considering the cash income of the department of land and Survey within the city of Amman (Land and Survey Department, 2012). To this end the underlying causes for the land scarcity phenomenon in Amman City is translated in terms on pressure on resources as rapid urbanization trends, urban sprawl and high land values. The next section addresses the immediate causes as translated in the competition for the resources mainly in terms of high-fertility and migration rates, car dependency and incompatible master plans for Amman city.

### 3.2.2 Competition for resources

The carrying capacity in terms of land allocated for future development affects the sustainability of cities. In the case of Amman, the available area is considered adequately sufficient but the available resources are restricted. Since the current demographics of Amman spur high urbanization trends, this led to competition over these limited resources. This section addresses this aspect.

### 3.2.2.1 High fertility & migration rates

The total fertility rate in Jordan is 3.36 children/woman (CIA, 2013), which is higher than most of the neighboring countries (Figure 11). This has caused high urbanization in Jordan at large.



Figure 11: Comparison of Fertility Rates for Jordan and the Neighboring Countries

Source: (Wikimedia Commons, 2012)

Concurrently, Jordan has been influenced by the volatile geopolitical context of the region. Therefore, it hosts refugees from the OPT and Iraq: an estimated 25 per cent of Amman's residents are refugees (UNHABITAT, 2012, pp.17). As the Syrian conflict continues, Syrian refugees in Jordan sum up to 400 thousand; 25% of them reside in al-Za'tari refugee camp which lies North-Eastern to Amman. Their number in Amman is not exactly known; it is most likely that their number will increase as the Syrian conflict continues.

From another perspective, a research study has revealed that 1% of the Jordanian population has migrated internally from countryside to cities which make up 2.4% of the city's population (mainly in Amman) (Ejbed, 2010). Overall, this continuous demographic change has immediate negative causes on Amman city in term of public transportation.

### 3.2.2.2 Car dependency

Currently in Amman, there are 178 cars per 1000 people, which is moderate when compared to developed nations in Europe or the USA. This relatively low rate is attributable to the relatively lower income levels in Amman, but also to

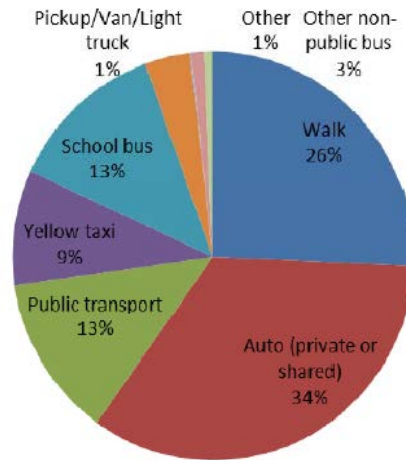
### 3.2.2 Competition for Resources

the large family size and to the dependency on a single income within the household (GAM, 2010, pp.7) (Table 2). 68 per cent of Ammani households have at least one car with an average of 1.4 passenger per car on the streets of the city. From 2003 to 2007, the number of vehicles per kilometer of road rose to 101 from 72 in Jordan where 77.5 per cent of all vehicles are registered in Amman (UNHABITAT, 2012, pp.59).

<b>Table (2): Average Car Ownership in Jordan (2008)</b>				
<b>Household income per month (JD)</b>	<b>Number of vehicles owned by household</b>			
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3+</b>
100-200	68%	29%	3%	0%
200-300	51%	43%	6%	1%
300-400	38%	55%	5%	1%
400-600	24%	63%	12%	2%
600-800	14%	62%	20%	5%
800-1100	8%	51%	32%	10%
1100+	5%	37%	35%	23%

Source: The World Bank, 2008, pp. VII-4

In Amman, 16 per cent of passengers use 500 public buses, 20 per cent use the 12,000 taxis and white cabs and 64 per cent use private cars. As these figures demonstrate, ridership preferences have shifted away from buses and minivans towards passenger cars and public transit fails to capture a significant share of riders in the city (UNHABITAT, 2012, pp.60). 65 per cent of the public transportation users, do not own a vehicle (The World Bank, 2008, pp. VII-8).



**Figure (12) : Means of Mobility**

Source: (GAM, 2012, pp.3)

Thus clearly the dominant mode of transportation in Amman city is the private car. This has increased the traffic congestion in the city to alarming rates, [Potter, et. al. \(2009, pp. 89\)](#) claim that if there is a single word that characterizes the urban transport system of Amman it is “congestion”. And since the public transportation in Amman is relatively weak, the future intervention of the competent authority concentrated on strengthening the public transportation in the city by introducing the BRT to become a favorable mode of transportation for the users which would ultimately decrease the negative impacts on the built and natural environment.

To elaborate more, the transportation sector in Jordan is estimated to contribute in 50 to 90 per cent of all air pollutant emissions in the country ([UNHABITAT, 2012, pp.59](#)). In Amman, congestion costs sum up to \$1 billion annually in addition to the fuel cost in the city which sums up also to \$1 billion annually. In its turn, the government subsidizes the fuel prices, where transportation accounts for 40 per cent of the fuel consumption ([GAM, 2012, pp.5](#)).

### 3.2.2. Competition for Resources

Smadi (2009) notes that traditional road expansion is not alone capable of accommodating mobility needs, especially in lieu with the alarming annual increase in registered vehicles that stood at 20%. In the same token, the public transport mode share is only 13% (currently there are 3 buses per 10,000 citizens). Smadi (2010) also points out that there is 600 kg of CO<sub>2</sub> per capita in the city of Amman, which is very high. To this end, Amman continues to be a car dependent city that has many negative immediate causes in term of air pollution and traffic congestion amongst others.

#### 3.2.2.3 Transportation administrative framework amid incompatible master plans

The GAM is the competent authority mandated with public transportation in Amman, but its role falls beyond that; GAM's role is not only to organize traffic but it's responsible to conduct household surveys to ensure that the plans meet the public transportation demand standard. *"The issue of accountability to the plans is a mounting pressure"* (Smadi, 2012). The Land and Transport Regulatory Commission (LTRC) is responsible to regulate public transportation outside the borders of the city of Amman. *"It is responsible of connecting the BRT transit lines to the intercity lines"* (Zureikat, 2012). To ensure the commendable coordination to assign these intersection zones and many other coordination issues, the Amman city manager is a member of the LTRC board, and on the other hand a representative of LTRC attends all GAM's transportation related meeting. It is arguable that the problem that faced the BRT project was not in the hierarchy of decision making channels, but in the implementation of the plan. Smadi explains that the project's plans have passed through all the approval stages; from the approval of the committee in the municipal council till the prime minister's approval. Accordingly, the project fund was granted to GAM (Smadi, 2012).

From another perspective, in 2004, the World Bank received a \$200,000 grant from the Cities Alliance (CA) to support the GAM in implementing its City Development Strategy (CDS). The specific focus of GAM's CDS is on strengthening municipal management and governance, while upgrading its urban planning capacities, including adoption of a city-wide upgrading strategy for squatter settlements and refugee camps. Ultimately, city officials see GAM's future success and competitiveness hinging on the city's effectiveness, inclusiveness and responsiveness in planning and delivering services to all city residents, including the urban poor.

Development of the city of Amman follows a guiding framework that was prepared as a Development Plan for the period 2002-2005 with specific objectives and programs targeting a wide range of sectors, among which are institutional development, including improvement of the system of local revenue collection and management, and urban planning. After three years of implementation, Amman's Development Plan revealed an urgent need to refine and further detail two programs within the existing strategy, namely ***the municipal management and governance program and the urban planning and development program***.

In addition to advising on the approach to update its master plan, a CA-funded "Urban Planner" is providing GAM with guidance regarding how it will implement a participatory planning process, paying particular attention to urgent urban upgrading needs. Strengthening land use planning, zoning and building regulations are intended to increase efficiency by reducing low density areas and minimizing urban sprawl, thus enabling the city to better accommodate and service the recent influx of new city residents ([Arab Urban development Institute, 2013](#)).

The conflicting mandates, data and priorities is also a result of the creation of new governmental bodies that intervene in the governance and planning of

### 3.2.2. Competition for Resources

Amman. In some cases, the newly created bodies are established by GAM itself, such as “**Amman Institute for Urban Development**” (Ai). The Institute operates not only to serve GAM, but also to advance the work related to urban governance at the local and national levels, tackling issues of land management, physical planning, public policy, and city leadership, among others (CMI, 2010). Almost a year after its establishment, GAM has decided to shut down the (Ai) after accusations of inappropriate financial and administrative conduct within the institute. (Al-Ghad newspaper, 2011)

Knocking effects on the transportation related planning activities, according to Smadi (2012), during the development of transportation plan of Amman in the year 2000, the needs of Amman residents were identified through household surveys and transportation diary and therefore their highest priorities were selected. In addition to that, market research was conducted. As for the preparation of the Urban Master Plan, the public was exposed to it through forums, round tables which included different age groups.

Concerning the accuracy of the household survey, it is claimed that the transport/demand model was of good accuracy. Smadi (2012) says that for the calibration, a different set of data was used than what was used to develop the model. Traffic flow was verified over many years, but he also points out that the bias is when the income factor is considered which was replaced with car ownership factor for cross-classification. Another factor in the model was the participant housing type (owned or rented). The major improvement on the traffic survey was instead of the usually used car counts a smarter approach was to study trip making behavior. Nevertheless, Smadi (Smadi, 2012) recommends improving the quality of the transportation plan by updating it regularly (every 5 years) by using a smaller sample zone of Amman (for example 10000 km<sup>2</sup>) for tracking the behavior of trip making and setting benchmarks (Smadi, 2012).

Initial surveys stated that the percentage of public transportation users in Amman is 30 per cent. While later the more accurate survey revealed it is only 13 per cent. This fact expresses the importance of the accuracy of the model that will inevitably affect the planning decisions (Zureikat, 2012). Zureikat (2012) adds that *“The model is a tool that may be technically correct but the social assumptions remain questionable. Models are always wrong but sometimes useful”*.

Al-Sijjel Periodical (Al-Sijjel Periodical, 2010) stated that there are still evidences that prove that the plan is not comprehensive and needs to be upgraded to meet the standards of the citizens needs according to Lina Shbabe who is a professor of urban planning in a Jordanian university and a member of road safety commission. She mentions the example of the renovation of “Raghadan station” which is a major hub in central Amman. After the renovation of the old station has been completed, major design and technical mistakes were discovered as the station was launched for usage by GAM. The spatial capacity of the station was limited and therefore plans were altered and the station was turned into a “shared taxis/*servees*-only” station. All mini buses and buses that used the old station as a terminal where relocated to another bus station that exists on the periphery of Amman. This relocation has been received negatively by many of the public transportation users as it added to their time and cost load. To this end, the transportation administrative framework is characterized with high degrees of centralization and bureaucracy, and no concrete results have been realized so far when considering the interaction with the transportation system and the urban planning of the city at large. As such, the BRT project was a victim of the weak interaction between the urban planning of the city as translated in the incompatible master-plans and the centralized transportation administrative framework.



### 3.3. Socio-economic Polarization

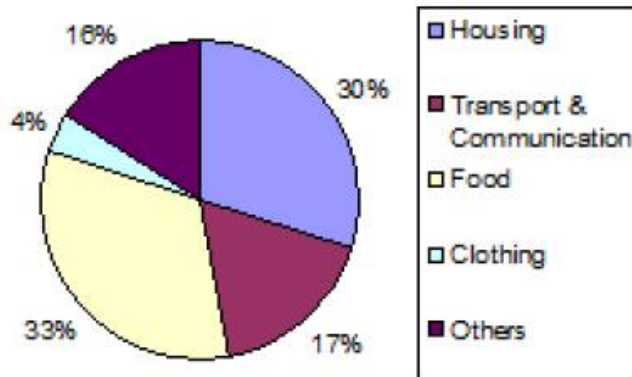
This section addresses the **production/social order** in terms of *poverty rates*, social service dependency, and *state-led interventions* as the underlying causes, and the **exclusion strategies** in terms of *unequal opportunities* and *weak infrastructural lines* all as immediate causes.

#### 3.3.1. Production/social order

##### 3.3.1.1. Poverty rates

This sub-section discusses the production and reproduction of the social order of Amman city in terms of rampant poverty rates, social service dependency, and state-led interventions that have all of all contributed as underlying causes to the evident results of exclusion strategies, focusing on the transportation sector in Amman. Although Amman has the lowest poverty rate of all Jordan's governorates at 9.43%, it is home to the largest number of poor individuals due to the concentration of population in the city (MOPIC and WB, 2009, pp.17). In Jordan, 57 per cent of citizens living below the national poverty line reside in Amman, Irbid and Zarqa, and the number of poverty pockets – defined as areas where over 25 per cent of residents live below the national poverty line – increased to 32 in 2008 compared to 22 in 2006 (UNHABITAT, 2012, pp.44).

Out of the 5,200 JD annual average income of the Jordanian household, the average annual transportation expenses makes up 16% (Figure 13) (The World Bank, 2008).



**Figure (13) : Distribution of Expenses on Sectors**

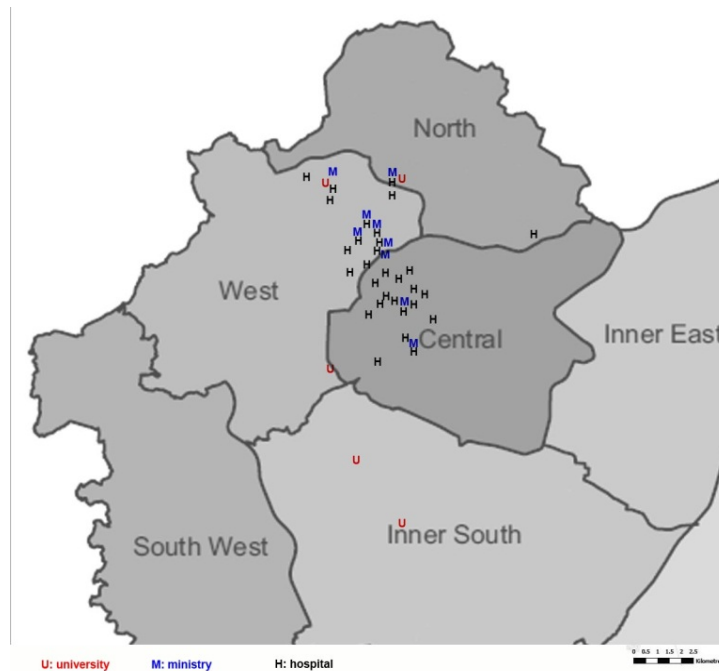
Source: (The World Bank, 2008, pp. VII-2)

Without any elaborated exposition about this aspect, it is quite evident that transport is considered an important sector to the spatial future development of Amman city. This is an important aspect when regarded with the high poverty rates that ultimately contribute in the production and reproduction of the social order in the city.

### **3.3.1.2. Social service dependency**

The social services in Amman city do not follow a clear hierarchy, and are highly concentrated in the center of the city, which creates a pressure in terms of the daily practices resulted by the users, especially on hospitals, universities, and ministries (Figure 14).

### 3.3.1. Production/social order



**Figure (14): Distribution of Social Services in Amman City**

Source: [Researcher, 2013](#)

Furthermore, there is no equitable distribution for the social services when compared with the population distribution, as most of these services are concentrated in the center and a bit closer to the western part, bearing in mind that the poorer-eastern part is densely populated when compared to the more affluent-western part of the city of Amman.

#### **3.3.1.3. Centralized state-led interventions**

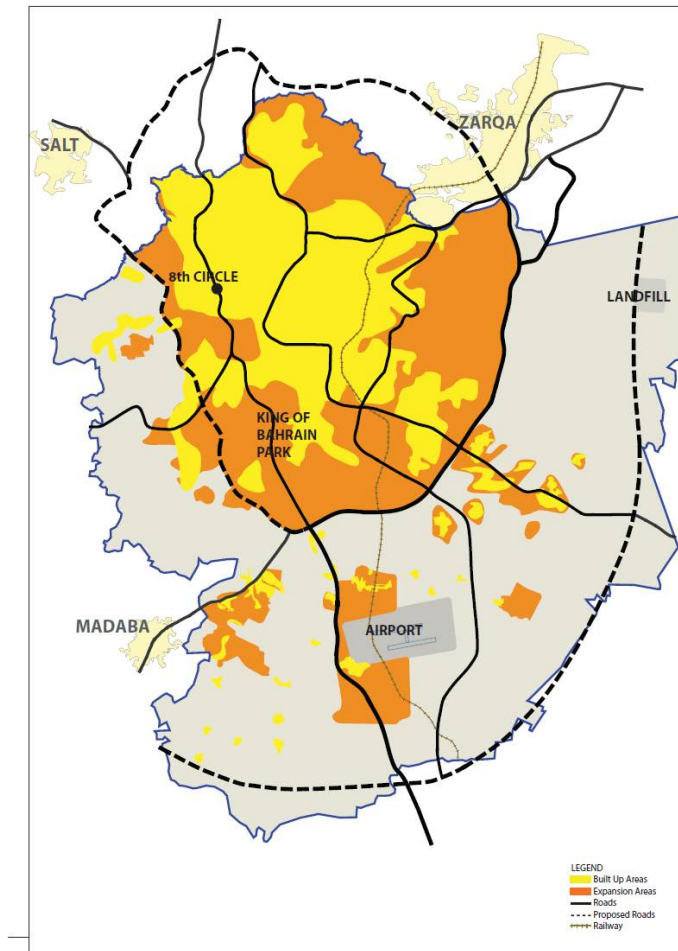
In 2007, in accordance to a temporary law No. 51, the responsibilities of transport planning were transferred from the Public Transport Regulatory Commission (PTRC) and were assigned to GAM and Public Transport Department was established ([Legislation and Opinion Bureau, 2007](#)). The public transport sector, which the PTRC passed on to GAM, was characterized

as a degraded sector that based its actions on self initiatives rather than planned comprehensive studies that defined transit lines according to demand. The PTRC itself as an independent institutional body fell under criticism for the ever-worsening state of public transportation in Amman, and was accused of not regulating the work of the private operators in the public transportation sector.

This change in the institutional organization had many positive effects on the transportation planning of the city of Amman. For the first time, public transportation was integrated into Amman's urban growth plans and transport oriented development was also introduced. Within this framework in 2008, GAM prepared and published "The Amman Plan: Metropolitan Growth" which served as a blueprint to guide growth and change in the Greater Amman area till 2025. The plan contained the spatial polices and development proposal for the city according to which the "Transport and Mobility Master Plan" (TMMP) was later designed and published in March 2010. In its turn, the "Transport and Mobility Master Plan" provided a set of transport objectives, principles and policies (GAM, 2012).

The Amman plan described the urban growth projections and has set strategies to accommodate it by either intensification in defined limited or no growth areas or expansion in primary growth areas. Therefore, Corridor intensification strategy, a downtown revitalization strategy, the outlying settlements policy and the industrial lands policy were set (Figure 15).

### 3.3.1. Production/social order

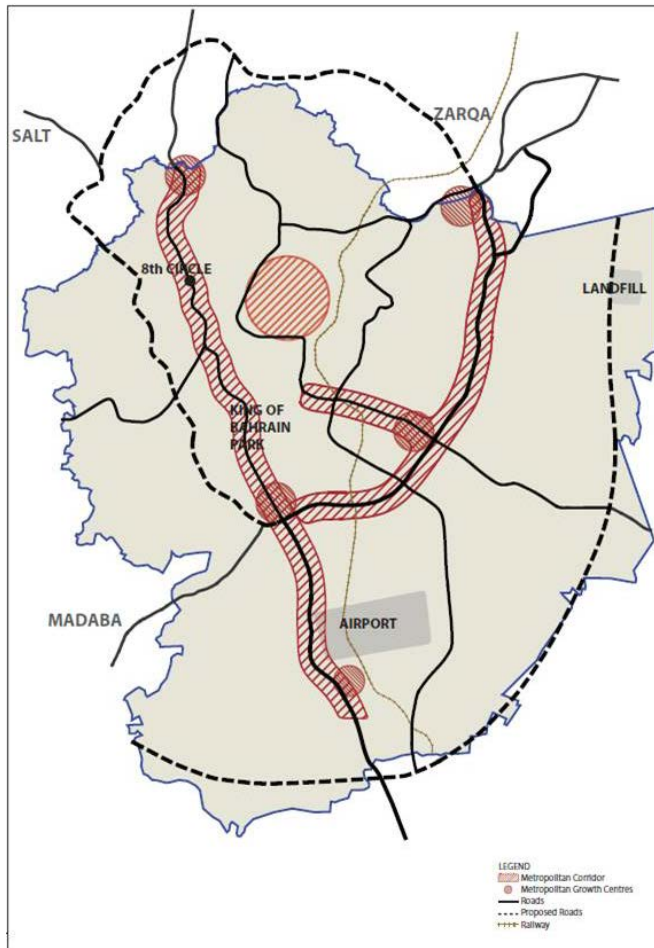


**Figure 15: Metropolitan Amman Growth Plan: Settlement Areas**

Source: (GAM, 2008, pp.51)

On the other hand, a major objective of decentralizing from the capital Amman was also to be met. Accordingly, Amman Development Corridor Master Plan was set as a proposal for urban growth. This proposal was backed up with the addition of road infrastructure that includes ring roads to bypass currently congested roads and facilitate new peripheral development (Figure 16) (UNHABITAT, 2012, pp.59).

### Chapter (3): Analyzing the Socio-economic and Environmental Aspects of Public Transportation in Amman



**Figure (16): Metropolitan Corridors and Metropolitan Growth Centres**

Source: (GAM, 2008, pp.53)

Even though the urban transportation plan of Amman has been coordinated on paper with Amman master plan, still a major challenge remains in organizing the existing public transportation system on ground. While GAM has the role of defining the public transit lines, existing private operators of these lines are legally protected by sound contracts that gives them exclusive rights of “possession” of the transit lines. Therefore, GAM is incapable of relocating any operator to different transit lines.

### 3.3.2. Exclusion strategies

On the other hand, operators claim lack of governmental subsidies in the face of the increase in the oil prices. As a response, GAM has decreased some of the buses' annual licensing expenses by 50% (The World Bank, 2008).

The TMMP which was, funded with aid from AFD (Smadi, 2010), took 18 months to prepare and provided data about the current traffic and mobility modes and proposed the development corridors in accordance with Amman Master plan to accommodate the population increase forecasts. The plan includes basic public transportation system; BRT and light rail project.

In 2008, the core network was developed (Smadi, 2012).

Environmental challenges in Amman were not addressed in depth in the TMMP. The plan estimates emissions using a multimodal transport demand model only under the scenarios developed in the plan itself (Dababseh, et al., 2010). Even though a new department dedicated for public transportation was established in GAM, environmental aspects still need to become part of this new organizational restructuring. Until then, the multiplicity of agencies hinders the development of a comprehensive environmental approach (Dababseh, et al., 2010).

Overall, the BRT as a future public transportation project has been introduced as a state-led intervention that did not comprehensively cope with the spatial development of Amman.

### 3.3.2. Exclusion strategies

As immediate causes this section will address the exclusion strategies as resulted from the underlying causes of the production and reproduction of the social order in Amman city. The exclusion strategies are presented in terms of the unequal opportunities and weak infrastructural lines.

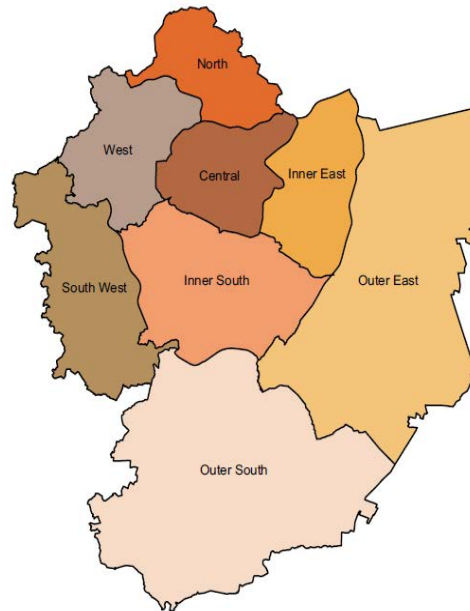
### **3.3.2.1. Unequal opportunities**

The BRT is the first project to serve the public transportation users in Amman (13% out of the daily 600,000 passengers), after a series of transportation projects that mainly focused on developing the road network that serves the car users. For the first time, the concept of person movement rather than car movement is prevailing, since it is designed to move 6,300 passengers per hour in buses while GAM's statistics show that currently 2500 per hour are moving in cars (1.3 passengers per car) on the streets of Amman. The roads which consist of lanes and sidewalks are treated as public spaces (Smadi, 2012). The project as any other project that focuses on developing the public transportation sector will help decrease the social gap in the city, but is still not a magic solution to the social gap (Zureikat, 2012). If implemented as planned, the BRT will provide good service for an affordable cost (0.25 JD- 0.33 JD flatrate), thus it is an alternative route for the low-income passengers coming mainly from East-South Amman to the main hub of "Mahata" to commute to the employment center in west Amman (Smadi, 2012). On the other hand, Al-Asad (2012) believes the suffering of the intercity commuters who commute daily to Amman from other Jordanian cities should also be addressed. Overall, the project with the good quality services that it offers, gives the passengers the option of either to use public transportation or the more expensive mode of transportation, such as the private cars (Zureikat, 2012). This should be linked with the Amman metropolitan growth plan at large.



### 3.3.2. Exclusion strategies

The planning areas of Amman Metropolitan growth plan could be classified into three distinct types, as follows (Figure 17):

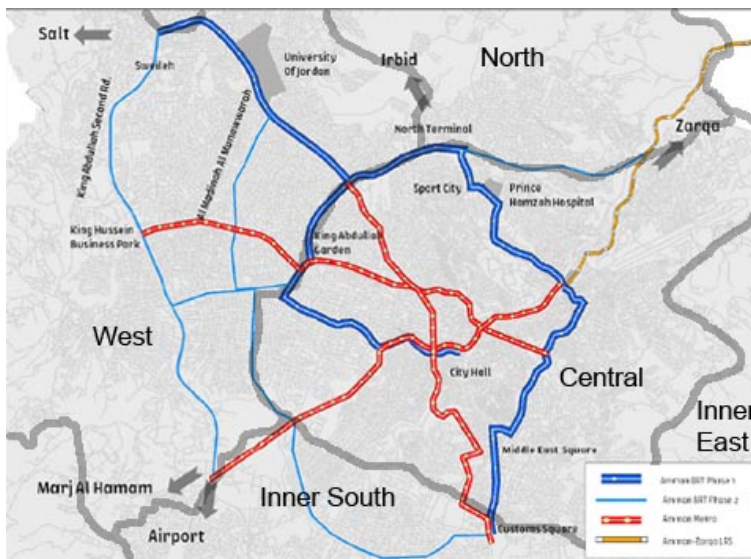


**Figure (17): Metropolitan Growth Plan- Planning Areas**

**Source: (GAM, 2008,pp.37)**

- Central, South and East of Amman is characterized with high population density where low-income citizens reside, whose share of public transport usage is high.
- Western Amman - residential areas is characterized with a low population density where high- income groups reside. The proportion of car ownership is high therefore it is evident that there is a reduced share of public transportation usage.
- Western Amman - business areas is the commercial hub where major businesses attract residents in the east and south of Amman for employment and shopping. (The World Bank, 2008)

Laying out the planned public transportation backbone on Amman planning areas (Figure 17) shows that the BRT transit lines (shown in light and dark blue) (Figure 18) run on the major roads that are separating the North, West and Central Amman. BRT transit line also cut through Central Amman with two major transit lines, and multiple other lines are planned to be implemented in a second phase of the project in Western Amman. On the other hand, the planned metro lines (shown in red) are more frequent in Central Amman than any other area of the city.



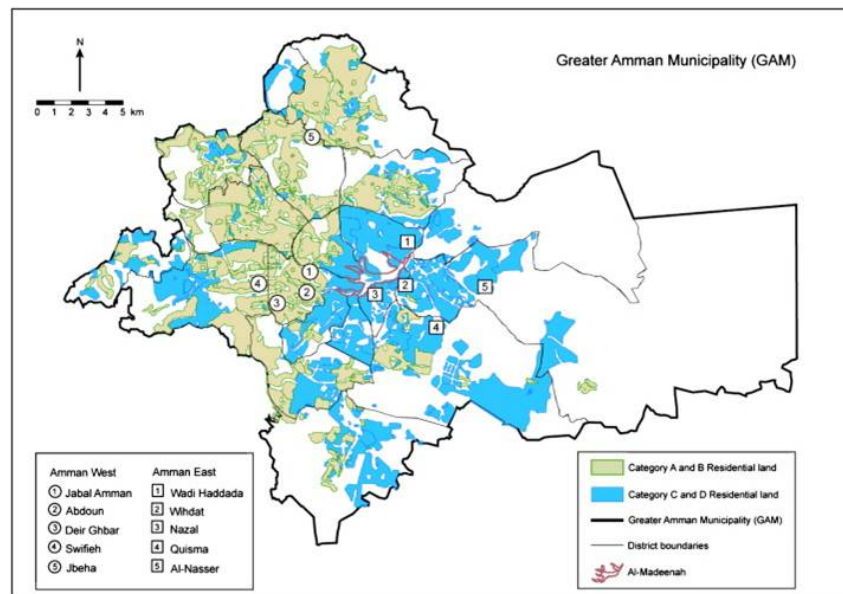
**Figure (18): Planned public transport backbone according to TMMP layout on the Planning areas of Amman**

Source: (Smadi, 2012a) adapted by researcher

Analysis of the land category distribution and parceling in Amman reveals that the contemporary social zoning of the city of Amman shows what may be referred to as a strongly ‘modern’ pattern, attesting to its dynamic development during the era of the automobile. The city is principally characterized by a north-western sector of relatively high social status and land prices. At a broader level, there is a marked and well-recognized differentiation between the

### 3.3.2. Exclusion strategies

west and east of the city, which is best recognized when the distribution of category B residential lands is viewed (Figure 19). But, if on the other hand, the distribution of smaller residential plots is examined in detail, a strong element of concentricity is revealed (Potter, et al., 2009).



**Figure (19): Category A, B, C, & D Residential Land in Amman**

Source: (Potter & Darmame, 2009)

From another perspective, there is an unbalanced participation of gender in the job market, where only 15% of the Jordanian work force in 2010 are female (Jordan News Agency, 2013), while the percentage of females in universities is 80 per cent. The household survey concerning public transportation in the Amman that was conducted by GAM revealed that many women choose not to join the work force due to **the inadequate and inconvenient transportation modes** (Smadi, 2012). Social and cultural barriers may also play a role hindering women from being employed. It is expected that with the increasing role of women in society that came along the increase in the youth

population that are joining the work force, the demand on public transportation will increase.

The flat rate system that many operators apply on the trips is also criticized to be unjust especially to many **elderly users** who tend to use the public transportation for a relatively small proportion of the trip to avoid walking on the “pedestrian unfriendly streets”. Although the Jordanian government has decided to increase the public transportation tariffs by 6% in 2012, it has not intervened in the applied flatrate system.

**3.3.2.2. Weak infrastructural lines**

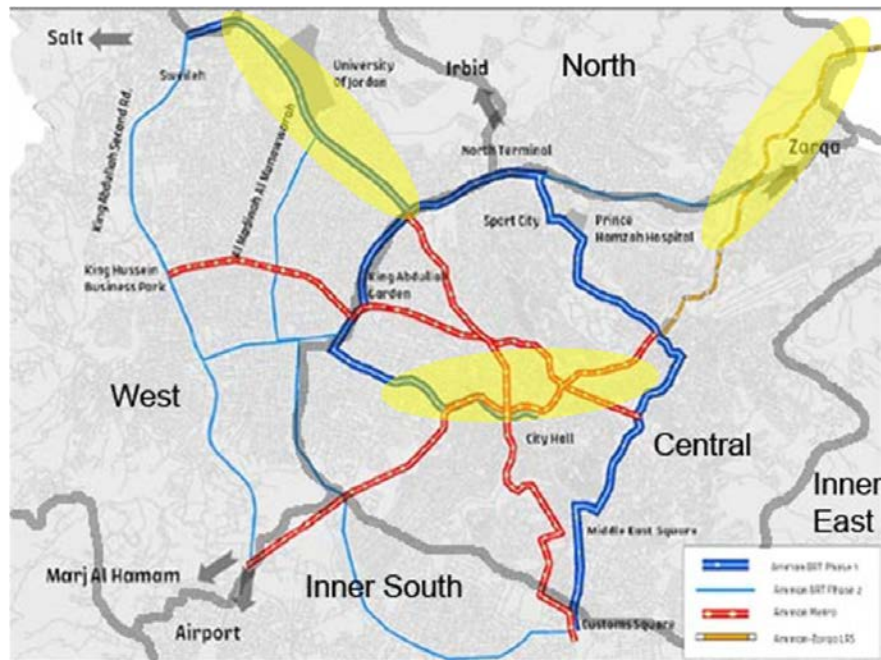
In Jordan there is a total of 7,891 Km of paved roadways (CIA, 2009), 4000 Km of them are in Amman. The road network is extensive and modern while the public transportation network is basic and lacks integration. Other weaknesses of the public transportation network are its limited fleet (Table 3) and unreliable time schedule.

<b>Table (3) : Public Transportation Capacity in Amman</b>			
<b>PT Mode</b>	<b>Vehicles</b>	<b>Lines</b>	<b>Operators</b>
Bus	515	90	6
Minibus	352	139	315
White Taxi (shared)	3248	70	3233
Yellow Taxi	11000		
<i>Source: Smadi (2012 a)</i>			

The main Public transportation corridors in Amman are highlighted in yellow below in Figure (20). As the figure also shows that these transportation corridors will be served by the planned public transportation backbone described in the TMMP (The World Bank, 2008). The capacity of urban

### 3.3.2. Exclusion strategies

transport planning and alignment of the [railway track] inside the city borders will have a great impact on the success of the project.



**Figure 20: Public Transportation Corridors in Amman City**

Source: (Smadi, 2012a) adapted by researcher

The Ministry of Planning and International Cooperation (MOPIC) (MOPIC, 2012) in its third competitive Jordanian report called on the necessity of finding a comprehensive reform program and defined the following challenges that are faced by the transportation sector:

- Weak infrastructure that support the stations of departure and arrival of the vehicles along the transit lines. Many of the stations are underserved.
- The design of the public transportation network is unplanned and not integrated.

### **Chapter (3): Analyzing the Socio-economic and Environmental Aspects of Public Transportation in Amman**

- High cost value of investment in light rail system which demotivates the private sector from such investments.

To conclude, Amman city exhibits weak infrastructural transportation lines which results in an overall underserved users. This works as an exclusion strategy towards an efficient transportation sector in Amman.

## **Chapter (4): Analysis of the Bus Rapid Transit Planning Process**





## **Chapter (4): Analysis of the Bus Rapid Transit Planning Process**

### **4.1 Introduction**

After discussing and analyzing general context information about the public transportation system in Amman city ([chapter 3](#)), [chapter \(4\)](#) at hand focuses on the BRT project in terms of planning process. The BRT has overseen six consecutive cabinets from its launch back in July 2010 to present-day. This fast track political change has negatively influenced the advancement of such a public project. This change was followed with more changes when the government of Jordan dissolved all municipal councils in the country, where the mayor of Amman / director of GAM was relieved of his duties in March 2011. Ayman Smadi, the director of transportation and mobility department at GAM declared that “*It was the beginning of the Arab Spring. There was a very delicate dance between the Cabinet and parliament*” ([Jordan Business Magazine, 2013](#)).

The political motive of changing different governments is related to the Arab spring occurring in other neighboring Arab countries. A series of failures in public good projects such as the BRT and the social housing Royal initiative (Decent housing for decent life) was triggering anger on the Jordanian streets. Therefore, a series of investigations were opened to look into claimed corruption charges in these projects, especially the BRT ([Figure 21](#)).



**Figure (21): A cartoon mocking investigation committees looking for corruption.**

Source: (Al-Horeya News, 2012)

## 4.2 A Bird-Eye Review of the BRT Planning Phases

The cabinets had different views over the project. While one cabinet represented by the PM approved and launched it, the following governmental cabinet interfered abruptly and ordered its stoppage which ultimately compromised GAM's image and credibility. Referring to the case of the city of Curitiba, the creation of the Urban Research and Planning Institute of Curitiba (IPPUC) which is the Planning agency of the city, and the political continuity ensured the city's master plan's implementation. GAM acknowledges the municipal role of the "autonomous" planning authority in Curitiba as an example of international best practices in large cities (GAM, 2010 a).

A prominent question here is regarding the planning hierarchy and the different prevailing tiers at which level they are decentralized and to which extent are the planning bodies autonomous. The governmental interference reveals a weak institutionalized system of decision making. Following a decree by the presidency of the council of representatives (at the Jordanian Parliament), a designated parliamentary investigating committee was created, although the

#### 4.2. A Bird-eye Review of the BRT Planning Phases

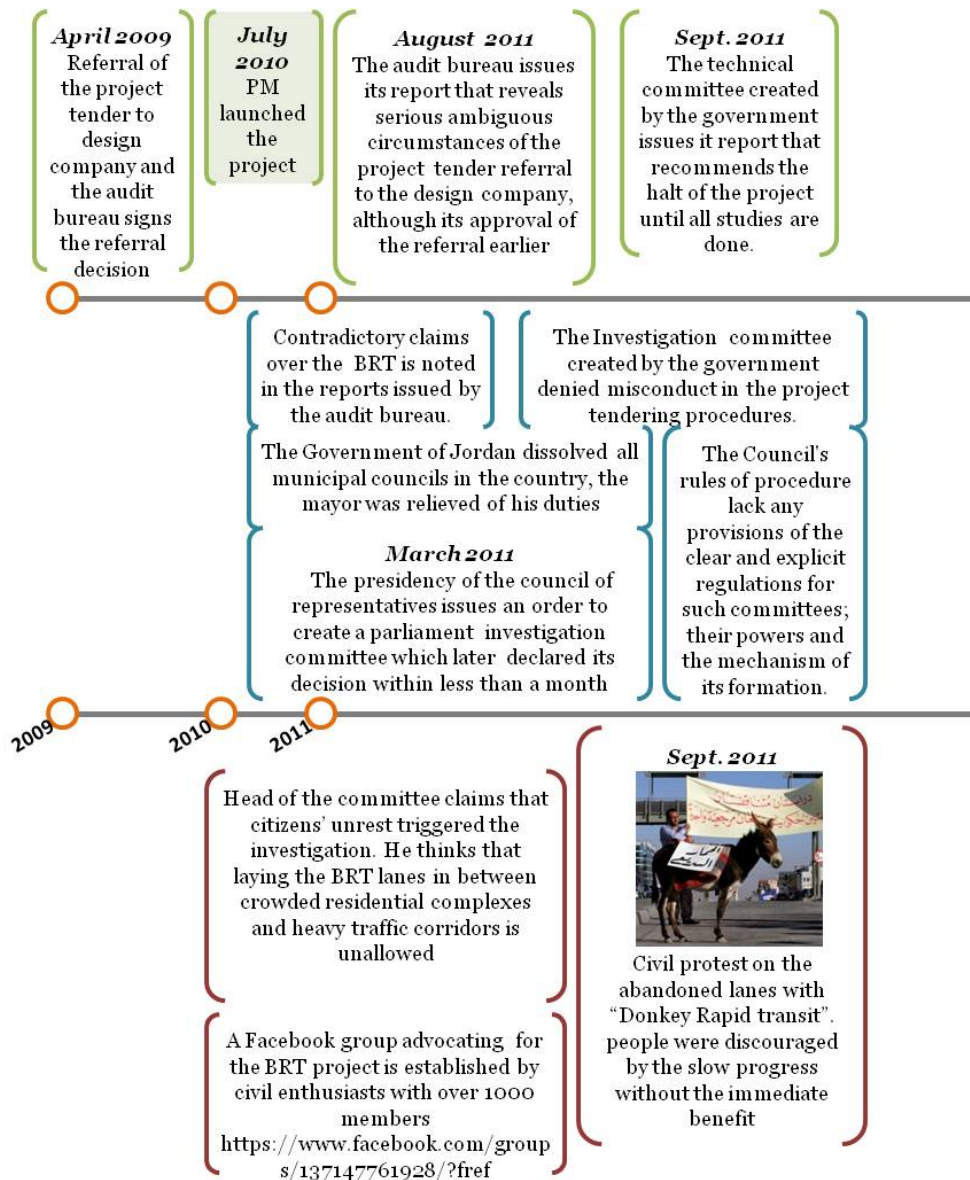
council's rules of procedure lack any clear and explicit provisions of governing regulations for the work of such committees and their power and the mechanism of their formation. Smadi claims that the committee was not qualified to discuss the matter and was not easy getting along with it in providing engineering responses to the reservations, as well as the lack of objectivity in the discussion (Amoun News, 2012). He also believes that “*the GAM and municipalities should be independent, the mayor answers to the prime minster*” (Jordan Business Magazine, 2013).

Contradiction is not only the word describing the different governments' positions from the project, but also the positions of the parliament and most strangely the audit bureau. The audit bureau issued as a governmental financial auditor (law #28 1952) its approval of the project and its representative agreed to sign the project tendering referral to the design company in April 2009. Later, after the project was investigated, the bureau issued a contradicting report talking about incorrect procedures in the project tendering referral process.

The parliamentary investigation committee had also its share of contradicting results; therefore the government started an international bid for auditing the project, which was awarded for an international company in December 2011.

In February 2013, the auditing company issued its final report that recommended persisting with the BRT project for its necessity of solving the problem of transportation in Amman, but with the changes in the number of tracks proposed for implementation. Following that, the Cabinet adopted the report, but without a final decision, giving the opportunity to GAM to implement a number of recommendations that the report included. Meanwhile the audit bureau continued to hold its position against the continuation of the project. Figure (22) presents the timeline of the BRT project describing events occurring in the administrative, political, and civil society lines.

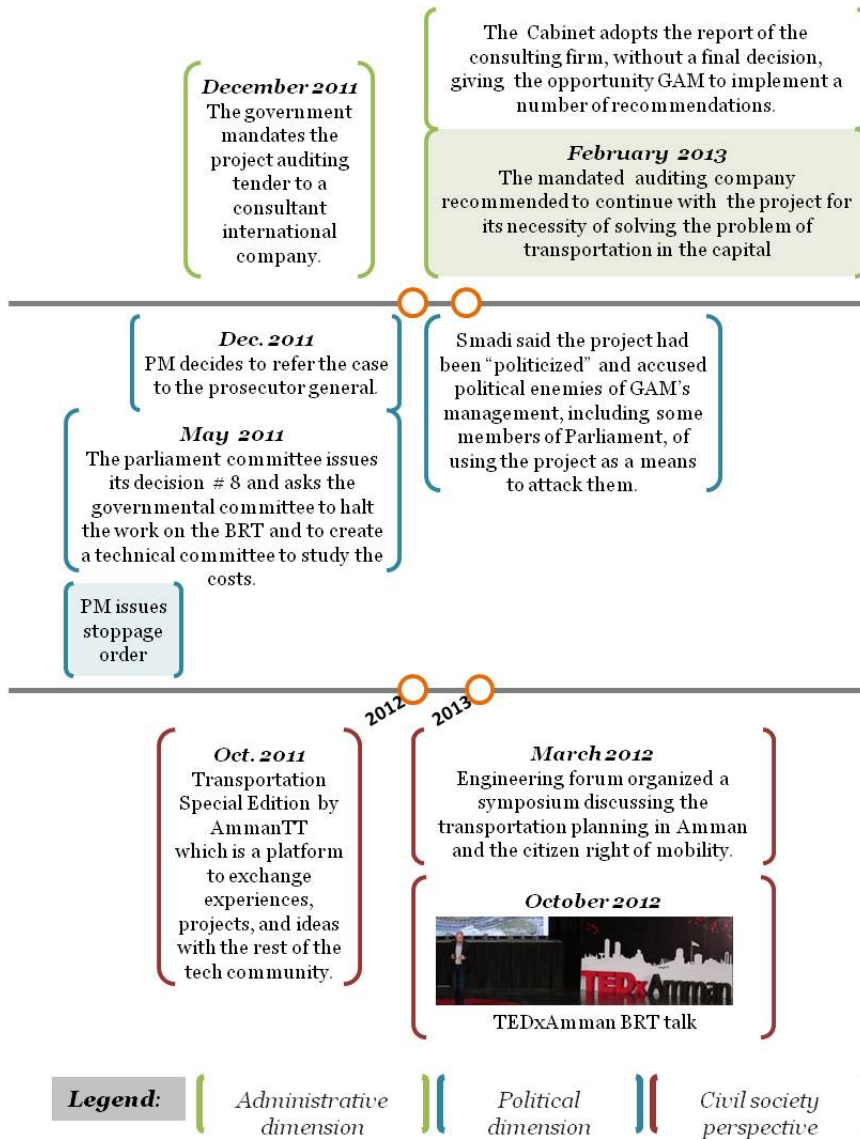
**Chapter (4): Analysis of the Bus Rapid Transit Planning Process**



**Figure (22): Timeline of the BRT Project (2009-to Present)**

Source: Researcher (2013)

## 4.2. A Bird-eye Review of the BRT Planning Phases



### 4.3 Public Participation in the BRT Project

To contextualize the truism of public participation in the BRT project and following Arnstein’s (1969) elucidation for the notion of power in decision-making using the ladder of Arnstein for public participation, the research at hand examined the related archives, also using field observation to the project to assess the level of public participation in the BRT project. Actually, the most important feature of this project compared to that of Arnstein’s ladder, is that an appropriate level of stakeholder’s involvement is not reached, and arguably the project could only be placed on moderate level along the ladder of Arnstein (Table 4). More germane, it is strongly believed that the GAM could not secure a sense of ownership to the project among stakeholders, and the public awareness campaign was not able to clearly point out the designated role of the BRT, and therefore different groups and stakeholders have developed their own “claimed” spaces (Section 2.1.2) that clearly differ from the envisaged output of the project as declared by the GAM.

**Table (4): Contextualizing the Ladder of Arnstein for Public Participation to the BRT Project**

Ladder Step	Ladder of Arnstein	Characterization of the Project
1	Manipulation	<p>A sense of dissatisfaction among the citizens about this project could have easily been seen; actually many of them see that the [GAM] and the related competent authorities have manipulated them as the project commenced and stopped without any proper explanation.</p> <p><i>“The Jordanian citizens refute the sudden stoppage of the project due to personal agendas.... We desperately need the BRT as it will useful for all .... [the] most important thing that there is no other feasible alternative at hand.”</i> Posted by <a href="mailto:bashingbash@hotmail.com">bashingbash@hotmail.com</a> on 21/08/2011. Translated by the researcher.</p>

### 4.3. Public Participation in the BRT Project

2	Therapy	<p>The [GAM] tried to calm the citizens and allow them to express their dissatisfaction, by developing and mobilizing social media network (e.g. Facebook and Twitter), but unfortunately the citizens feedback were not integrated properly in the project.</p> <p><i>“I demand to retrieve all the money I paid to this project, and all involved officials should be brought into a trial.... and I am not going to ask for remedy and reparation due to the frequent delays I face daily while commuting to my work....”</i></p> <p>Posted by <a href="mailto:sarsareeyeh@hotmail.com">sarsareeyeh@hotmail.com</a> on 02/09/2011. Translated by the researcher.</p>
3	Information	<p>The [GAM] informed the citizens about the project activities, but after the decisions have been made.</p> <p><i>“They [officials] sit drinking coffee and have some nargile (hubbly-bubbly) and gossip a little, then they come up with such an idea [BRT] like if we are in Germany or Japan. And upon the vested power they enjoy they simply decided to implement the project, and they have extensively advertised for the project in the local media to prove that they have a strategic outlook for the future....”</i> Posted by <a href="mailto:ma_bio@hotmail.com">ma_bio@hotmail.com</a> on 20/09/2011. Translated by the researcher.</p>
4	Consultation	<p>The citizens were occasionally consulted, only when the [GAM] and the related competent authorities decide it is necessary (maybe for propaganda). Nevertheless, the citizens where in a position to suggest some mitigating proposals.</p> <p><i>“I suggest that the current designated path for the BRT be used temporarily by the ambulances and fire trucks to ease their movement in the rush hours.”</i> Posted by <a href="mailto:shareef_allan@yahoo.com">shareef_allan@yahoo.com</a> on 20/09/2011. Translated by the researcher.</p>
5	Placation	<p>The citizens could express their views that might have affected the final decision made by the [GAM] and the related competent researcherities.</p> <p><i>“....the project has been halted for months and it seems it will never be concluded. Nevertheless, I sympathies with drivers who should take the roads affected by the preliminary construction of the project.”</i> Posted by Mohammad on 11/09/2011. Translated by the researcher.</p>



6	Partnership	The Jordanian civil society organizations and private sector usually have filled in the gap and fuelled process of cooperation between citizens and the competent authorities in similar projects before, where both are equally concerned. Though, GAM secured a loan in the format of Build-Operate-Transfer from the French Development Agency to finance the BRT's implementation, it is argued that a partnership stance have never been realized, especially as the project was halted for a period of time.
7	Delegated Power	This is a step of further future cooperation, where the citizens are most concerned and they have veto-right.
8	Citizen Control	This is an idle step, where the citizens are in role of principal.
Source: Adapted by the researcher from <a href="#">Arnstein (1969)</a>		

#### 4.4 Rationale of the BRT Project

Within the concerted efforts to ameliorate the state of public transportation, GAM has set two types of interventions, namely: new polices as defined by Amman master plan and Technical as stated in TMMP.

Following is a brief overview of both types of interventions:

##### 4.4.1 Amman Master Plan

Amman Master Plan sets the following transportation-related strategies:

1. *Compact Development* to save JD2Billion in road construction by 2025
2. *Integration of all transport modes:*
  - Pedestrian
  - Public Transport
  - Vehicles
3. *Integration of Public Transit with Land Use*
  - Densification along High Order Transit Corridors & Nodes
  - Linking Places to Live, Work and Shop with Transit



#### 4.4. Rationale of the BRT Project

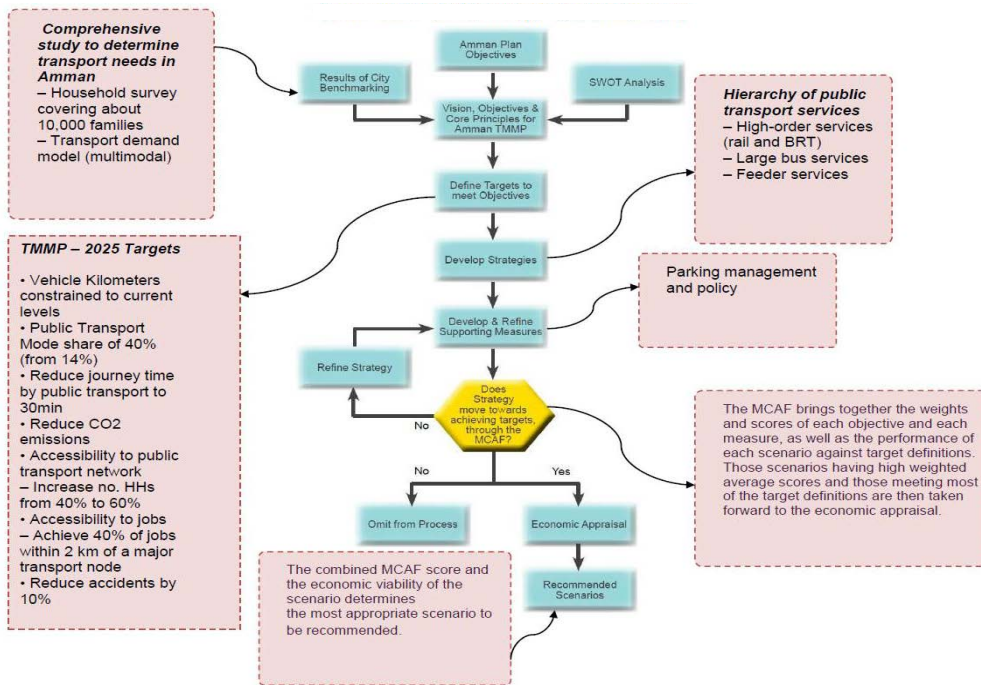
##### 4.4.2 Transportation and Mobility Master Plan (TMMP)

The technical response strategies stated in the TMMP could be summarized, as follows:

1. *Create analytical framework (and data): “that was achieved through a household survey (HHS) was conducted across Greater Amman. This was the first HHS conducted since the mid 1980’s. The sample of the person trip survey was conducted on the basis of the household data obtained from the Census survey in 2004. An overall sample of 9,256 households was achieved or 2.1% of households.”* In addition to that, multimodal transport demand model was developed. It revealed data about Household Income and Vehicle Availability; Time to Nearest Public Transport Service (minutes); Daily Trip Purpose Distribution; Daily Trip Distribution for each Journey Purpose; Main Daily Public Transport Trip Movements; Trip Length Distribution (TLD), amongst others (GAM, 2010, pp. 16).
2. *Refine hierarchy of public transport:* which includes High-order services (rail and BRT), large bus services and Feeder services.
3. *Manage parking supply*
4. *Develop a pedestrian friendly environment*
5. *Take advantage of smart technologies*

Figure (23) describes the Process Methodology to choose the most appropriate transportation scenario.

## Chapter (4): Analysis of the Bus Rapid Transit Planning Process



**Figure (23): Process Methodology to Choose the Most Appropriate Transportation Scenario by GAM**

Source: Edited by the researcher from TMMP (GAM,2010, pp. 27)

According to GAM (2010), “In order to determine the optimal combination of measures across the multiple strategies, a number of scenarios were constructed, varying from minimal improvements to the transport system to major investment programmes and the application of demand management measures” (Table 5).

#### 4.4. Rationale of the BRT Project

**Table (5): Comparison among the Possible Scenarios to Solve the Public Transportation Dilemma in Amman**

Technology	Cost (Million JD/km)	Capacity	Complexity
Bus		1500-3000	
BRT	3.5	6000	■
Tram	20-40	3000-8000	■ ■ ■
LRT	50-80	8000-16000	■ ■ ■
Metro	80-200	16000-14000	■ ■ ■ ■ ■



Source: (Smadi, 2012a)

Since the BRT is less complex in terms of implementation and management and cheaper than the other scenarios, it was chosen. The first BRT system was the Rede Integrada de Transporte in Curitiba, Brazil and it was part of a master plan to integrate public transportation into all the other elements of the urban planning system in the city. Curitiba stands today as the primary example of a major city in a developing country that displays some characteristics of eco-city function. As such, Curitiba's BRT can be exemplified as a model system (Goodman, et al., 2006).

Following the identification of the BRT as part of the most appropriate scenario, a feasibility study and the preliminary design were developed. That included identification of the main routes, identification of the economic, social and environmental impacts and cost estimation and funding. Given the need for major civil works and road closures and taking into account the time needed to complete major urban development projects, it was decided that the transit backbone would be implemented in two phases (Table 6).

**Table (6): Phasing-out of the BRT Project**

	Phase 1: 2009-2015	Phase 2: 2015-2025
BRT	32 km	40 km
LRT/Metro	20 km	20 km

Source: (Smadi, 2010)

#### 4.4.3 Implementation Phases of the BRT Project

Smadi (2010) highlighted the *“need of demonstrating improvements on the ground by, for example, starting with early wins that are most noticeable by users”*. Later in another interview Smadi speculated that the first phase of implementation of the project in such a high-traffic congested road was not the best choice. Instead he suggested that a more positive impact would have been accomplished if the implementation’s first phase should have *“focused on the junctions, dealt with the different parts first and then linked them together”* (Jordan Business Magazine, 2013).

The Phase 1 of the BRT project that was supposed to be implemented from year 2009 till 2015 covers up the construction of 32 Km of the bus dedicated corridors that includes 3 lines with 27 bus stops (Figure 24). The stops vary between non-stop (direct service) and limited stop (rapid service).

#### 4.4. Rationale of the BRT Project

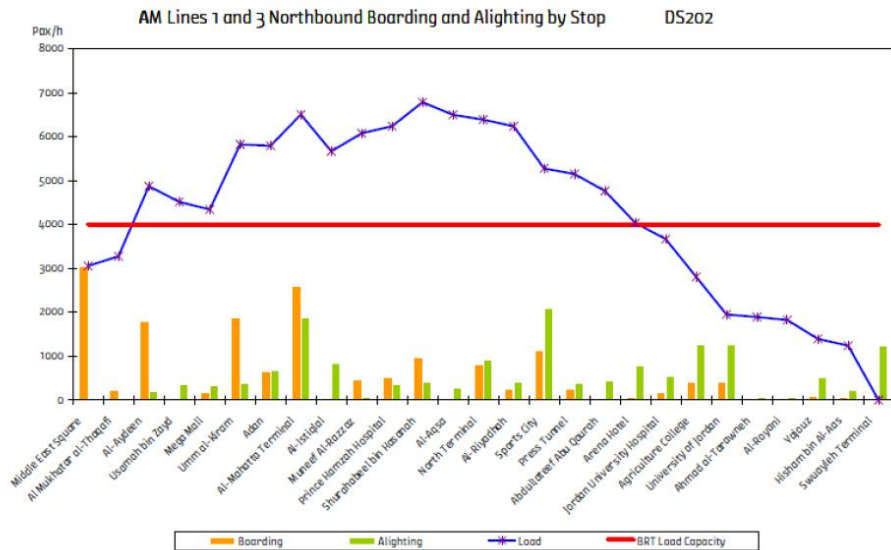


**Figure (24): Bus Rapid Transit (BRT) Phase -1**

Source: [Researcher \(2013\)](#)

Following the identification of the demand along the bus lines, the boarding and alighting loads per stop were determined. [Figure \(25\)](#) below compares the morning loads to the fixed BRT load capacity of 4,000 passengers per hour.

## Chapter (4): Analysis of the Bus Rapid Transit Planning Process



**Figure (25): Boarding and Alighting by Stop**

Source: (GAM, 2012)

The operating plan of the BRT identified the need of 150 double-buses to run on the corridors. In morning peak hours, one bus per 90 seconds will be needed. As part of refining and developing the BRT supporting measures, the operating plan included the restructuring of the existing public transportation lines through the creation of new intersections with the potential BRT lines and extensions of some lines to meet and feed the BRT system. Buses that are planned to be used in the BRT are very user-friendly. Technologies such as: smart cards for fair (check-in & check-out), website, route planning and Information Tracking System (ITS) will be included in the service (Smadi 2012). The bus operators may be many, so pressure of the responsibility of coordination between the different operators will be the responsibility of GAM (Zureikat 2012).

### 4.4.4 The technical/engineering design

The design of the bus lines and intersections went under a wave of controversy. The parliamentary investigation committee and the audit bureau accused GAM of not providing adequate solutions to some of the potential problematic



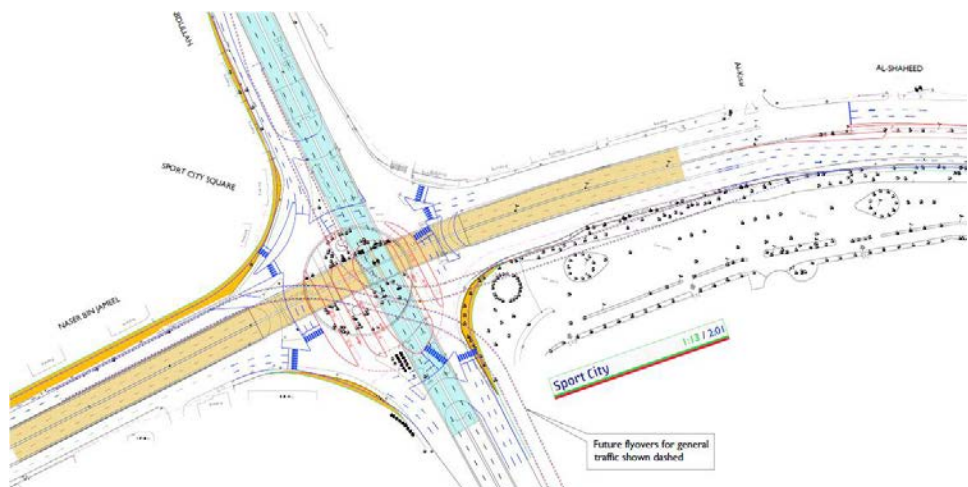
#### 4.4. Rationale of the BRT Project

junctions. This section will address in details some of the design technicalities in order to understand this aspect.

The international consultant report submitted to the government in February 2013 revealed the different recommendations about the design. These recommendations could be summed into the following three points:

##### ***Technical Recommendation 1***

The line starting from (Sweileh) bus stop till (Mahatta) bus stop that covers the distance of 5.25 km meets the transportation demand set for the BRT and meets the economic feasibility of its implementation. The line is divided into two parts: the line starting from (Sweileh) station till the (Sport City) Station. The construction of this corridor was started in 2009. The consultant recommended the completion of its implementation, taking into account the observations included in the report, regarding the engineering design for this part, and solutions for traffic intersections, and other notes (Figure 26).

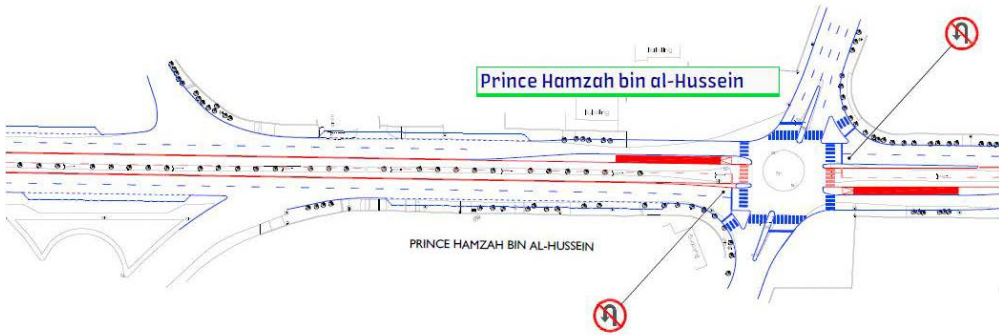


**Figure (26): The Sport City Intersection and BRT Station**

Source: (GAM, 2012a)

The second part of the BRT line is from the (Sport City) Station till the (Mahatta) station. The report revealed that the 12% slope of this path is

contradicting to international design standards of BRT systems as per the consultant company report. Therefore, alternative design options were provided to GAM (Figure 27).



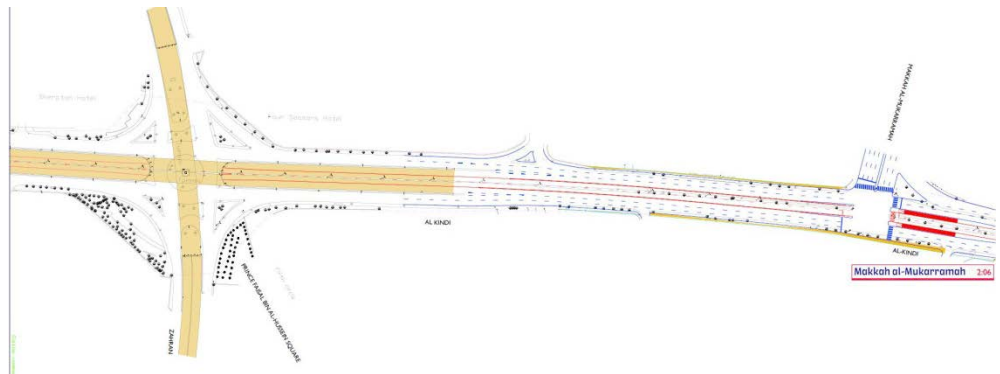
**Figure (27): Part of the path inappropriate slope of 12%**  
Source: (GAM, 2012a)

### ***Technical Recommendation 2***

The consultant report revealed that the actual traffic demand on the path running between the (Sport City) station towards the fifth roundabout (5<sup>th</sup> circle) that covers a distance of 9 Km falls below the traffic demand provided by the BRT. In addition to that, the report revealed that due to the intersection of the BRT line with many existing streets along this path, the economic feasibility of running the BRT on it will be connected to the overall development of the public transportation system in Amman. The consultant ultimately recommended re-evaluating this line for the long term implementation (Figure 28).



#### 4.4. Rationale of the BRT Project



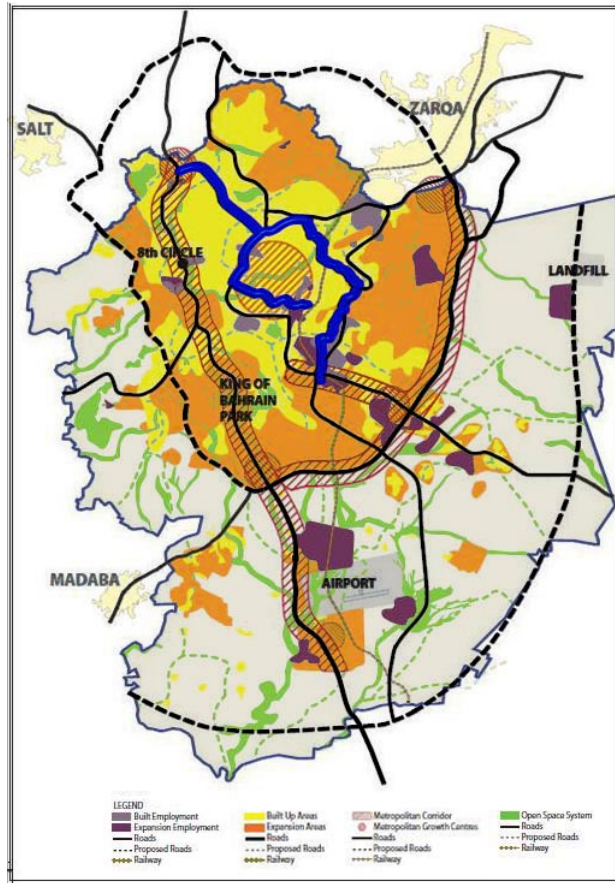
**Figure (28): Part of the path recommended to be re-evaluated**  
Source: (GAM, 2012a)

#### ***Technical Recommendation 3***

The consultant recommended no to construct the BRT line between the (Mahatta) to the Southern terminal Station since it lacks a dedicated corridor for the buses to run on. This means that the buses will mix with the existing traffic which contradicts the BRT design standards (Alarab Alyawm Newspaper, 2013).

#### **4.4.5 Implications of the BRT-First Phase on the Urban Level of Amman**

In this section, the impact of first phase BRT lines on the urban level of Amman city is going to be examined by the juxtaposition of the three proposed lines against four important layers provided by the Amman Master Plan, namely: the Settlement areas; the Metropolitan Corridors and Metropolitan Growth Centers; the Employment areas; and the Open Spaces System (Figure 29).



**Figure (29): BRT-First Phase at the level of Amman city**  
 Source: adapted by researcher from (GAM, 2008, pp. 51,53,55,57)

The following is a brief analysis as per each of these maps.

- Laying out the BRT lines that are part of the first implementation phase against the settlement area map provided shows that the lines connect the built up areas of Amman. The areas shown in orange as expansion areas are not served by the BRT as the built up areas (Figure 29).
- As for the metropolitan corridors and metropolitan growth centers identified by the Amman Master plan as part of the intensification/densification strategy, the BRT terminals are located in

#### 4.4. Rationale of the BRT Project

them. The BRT line 2 serves in most of its length inside the metropolitan growth center of Central Amman (Figure 29).

- The Amman metropolitan plan also highlights the built employment and the expansion employment areas. As shown in (Figure 29), BRT line 3 runs through the built and the expansion employment center in Central Amman. Line 2 also runs partially through a built and expansion employment center.
- Testing the BRT against the open spaces system shows that the three BRT lines to be implemented in the first phase insignificantly connected with the open spaces. The lines intersect only in four areas with open spaces (Figure 29).

To conclude, the current layout of the BRT is deficient in two aspects that affect its integration with the urban planning of the city: linking the urban hubs to the newly developed areas and creating access points to public/open spaces. Therefore, it is important to address these deficiencies.



## **Chapter (5): Public Perception on the Bus Rapid Transit Project**



# Chapter (5): Public Perception on the Bus Rapid Transit Project

## 5.1 Introduction

This chapter provides an analysis to the public perception in Amman city and beyond. This analysis has been conducted to get the perception and feedback of the potential users of the BRT, as such we come full-circle in understanding the public participation in the BRT project after investigating it theoretically using Arnstein Ladder of Public Participation (section 4.3, Table 4). A special questionnaire has been designed to test the awareness of lay persons about the BRT, and the general perception about its phases and specific objectives (Annex 2).

As one way of investigating inductive or data-based social research, the SPSS software has been used to synthesize and analyze the collected statistical data. Based on the statistical analysis of the questionnaire that has been done using the SPSS, this chapter distills the main findings.

The findings herewith are presented as per the main themes of the designed questionnaire. The questionnaire consists of 4 main themes/sections. The first section covers general background on the respondents and the BRT project. The second part covers the BRT project related communication tools, simply to learn about how the respondents knew about the BRT, if valid. The third part covers the different propositions in the opinion of the respondents that led to the stoppage of the BRT project. The fourth section tries to find the needed possible solutions in terms of management and logistical aspects to make the BRT a success story.





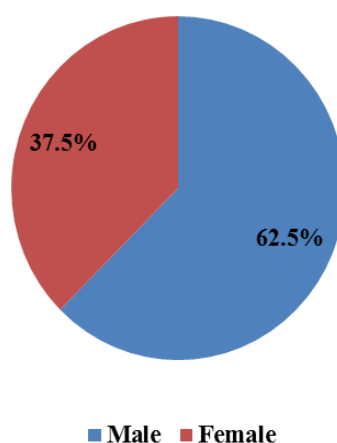
## 5.2. Sample Size and Selection

<b>Table (7): Distribution of Respondents, according to Main Station of the BRT</b>			
<b>No.</b>	<b>Station (Name)</b>	<b>Frequency (No.)</b>	<b>Percentage (%)</b>
1	Jordan University	19	23.8
2	Almahatta	15	18.8
3	The 5 <sup>th</sup> Circle	12	15.0
4	Down Town / GAM	12	15.0
5	Al-Madina Al-Riyaddya	22	27.5
<b>Total</b>		<b>80</b>	<b>100.0</b>

## 5.3 Respondent's Profile

### 5.3.1 Gender and Age

More than one-third of the respondents were females calculating 30 respondents (37.5%), and the remaining were male calculating 50 respondents (62.5%) (Figure 31). Almost half of the respondents were young as they were less than 25 years old (only 5% of which are less than 18 years old). 30 % of the respondents were in middle age between 26 and 40 years old. The remaining were above 40 (only 5% of which are more than 60 years old).



**Figure (31): Respondent's Distribution, according to Gender**

### 5.3.2 Social Status and Income

Predominantly, most of the respondents were single at 57.5% of the respondents, whereas 42.5% were married (40% of which were married with children at 4.6 children in average). Almost half of the respondents have a monthly income of less than 350 JD; 35% of which have a monthly income of less than 150 JD.

### 5.3.3 Place of Residence

About 54% of the respondents live in the eastern part of the city of Amman, whereas only 12.5% of the respondents live in the western part of Amman. 27.5% live outside the city of Amman, and the remaining of the respondents at 6% were visitors and tourists from outside the country (Figure 32). This distribution shows that most of the users for the public transportation in the sample come either from east Amman or outside the city.

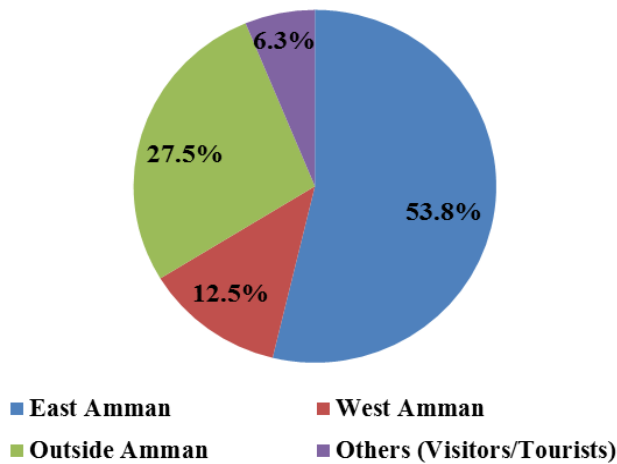


Figure (32): Respondent's Distribution, according to Residence

### 5.3.4 Academic Achievement and Employment

Most of the respondents at 78 out of the 80 respondents are literate; 47 (almost 59%) hold a university degree; 30 (37.5%) have finished their high school; and only one female was pursuing her post graduate studies. Only 10% of the respondents were working in the public sector, and 22.5% were engaged in a

#### 5.4. General Background-Purpose of Use

position related to the academia sector, whereas the majority at 46.3% were working in the private sector, and the remaining were unemployed at 21.2%.

#### 5.4 General Background – Purpose of Use

##### 5.4.1 Purpose of Using the BRT

A considerable part of the respondents at 38.8% said that they would use the BRT to reach their workplaces, whereas 18.8% would use it to go to school/university, and a low percentage of the respondents were willing to use it for personal occasional visits for families and friends at 12.5% of the respondents. Nevertheless, 20% of the respondents said that they would use the BRT for other purposes, including visiting touristic places inside Amman city, and beyond, or just experiencing the BRT as a new modern project. A considerably low percentage of the respondents at 9.9% were willing to use the BRT for multiple purposes, majorly to go to workplace and for occasional visits.

**This entails that GAM has to encourage the future users to use the BRT for multiple purposes by providing incentives for the families to use the BRT for occasional visits and to make the related facilities hospitable as such.** Needless to say, this would decrease the rate of using private cars in the long run.

A survey conducted by GAM in 2010 during the data collection phase of the preparation of TMMP included transport counts, journey time surveys, household survey, and origin – destination surveys (GAM, 2010, p. 15). The survey revealed that the highest percentage of daily trips is made in purpose of reaching an educational facility with a share of 44 % of the daily trips made. Following that are the trips for the purpose of reaching a workplace with 21 % (GAM, 2010, p.20). Thus, the respondents opinion in the analysis at hand differ than the official generalized results of the TMMP in terms of prioritizing the destination trip either to workplace or educational facilities.

### 5.4.2 Trip Destination

Though most of the respondents had their place of residence in east of Amman (and outside Amman) (Figure.32), 45% of the respondents assured that they would use the BRT as a mean to get to the western part of the city, showing that west Amman would remain the main attraction point in terms of employment or entertainment places. 35% of the respondents said that they would use the BRT to go to east Amman, while 20% said that they would use it to get outside the city. By, cross-referencing the place of residence for the respondents with their daily trip destinations, similar results are attained. Actually, the statistical analysis comes in line somehow with the stereotype that Ammanis live in the eastern part of the city and go daily for the western part to work or shop, as the analysis shows that 40% of the respondents who live in east Amman use the public transportation to wander in the eastern part, while 49% would go to the western part, and the remaining at 11% would go outside the city as a destination. More interestingly is the result of the analysis that shows about one-third of the respondents who live in west Amman actually use the eastern part of the city as a daily destination point (Table 8). This would mean that the considerable strata of Ammanis still see the eastern part of the city as a haven in comparison to the western part that is inflated with high prices. **Therefore, the organic connection between the Eastern and Western parts of Amman should be maintained and maybe also be revitalized.**

**Table (8): Place of Residence Vs. Trip Destination of Respondents**

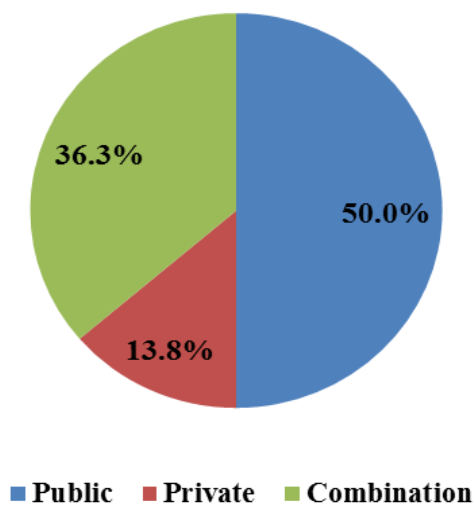
		Address of Daily Trip Destination from Place of Residence			Total
		East Amman	West Amman	Outside	
Place of Residence	East	17	21	5	43
	West	3	4	3	10
	Outside	8	9	5	22
	Others	0	2	3	5
Total		28	36	16	80

#### 5.4. General Background-Purpose of Use

In comparison, the TMMP shows that largest numbers of daily trips occur between central, west and northern Amman. Movement using public transportation is mostly made from eastern Amman or outside Amman from the Eastern City of Zarqa' towards central Amman (GAM, 2010, pp.21).

##### 5.4.3 Current Means of Transportation

Importantly to notice is that 50% of the respondents use the public means of transportation, whereas only 13.8% use the private sector. The remaining at 36.3% use both the public and private for their everyday life usage; the public means to go to their jobs, and the private means to visit the family or friends (Figure 33). This shows that the respondents do not find the public means of transportation as a hospitable means to be used for personal/family activities. Others believe that using the public transportation means would mark their social standards below than the average. This is actually a socio-cultural stereotype that I could notice while doing the interviews with the respondents.



**Figure (33): Current Means of Transportation**

Nevertheless, it is worthy to mention that the TMMP (GAM, 2010, pp.22) dictated that the main modes of transportation are private car (33%), walking (26%), public transport (13 - 14%) and yellow taxi (9%), which is collectively over 80% of all trips. And the public transport in Amman city basically comprises public buses, minibuses, and white taxis (common, or shared taxis).

#### **5.4.4 Affordability Conditions of Public Transportation**

The affordability conditions for using the current means of transportations in terms of timing and cost remain considerably bad, as it takes more than 52.5% of the respondents an hour or more commuting per day, while only less than 29% said that it takes them less than half an hour per day. It is stated in the TMMP (GAM, 2010, pp.22) that 80% of trips are under 30 minutes in duration; 96% of trips are under 60 minutes in duration; 22% of trips are less than 10 minutes in duration, which indicates that slow modes, especially walking, are competitive. Only 1% of the trips take longer than 90 minutes. As for the accessibility to public transport, the expanded survey data shows that access to public transport is good, with an average walk time of 9 minutes. The 85% percentile is 15 minutes (GAM, 2010, pp.18).

It is worthy to mention here that 35% of the respondents said that they are the only users for public transportation within their household, while 15% said that there are 3 users or more within their households. Likewise, more than 57.5% of the respondents said that they pay more than 50 JD per month on transportation. More than 82% of the respondents who pay 50 JD or less on transportation per month have a monthly income of less than 350 JD; 44% of which have a monthly income of less than 150 JD. This entails that the transportation expenses are higher compared to income for the poorer, or those who have lower monthly incomes.

It is interestingly important to notice that only about 10% of the respondents who use the public means of transportation work in the public sector, whereas more than 46% who use the public transportation work in the private sector and

## 5.5. Communication and Cooperation Tools

28% work in the academia, keeping in mind that the remaining users of the public transportation out of the respondents at 15% do not have a job. Nevertheless, 60% of the respondents who use the private means of transportation work in the private sector, 20% work in the public sector, 10% work in the academia, and 10% do not have a job (Table 9).

It is evident that GAM has to address the affordability of public transportation both in terms of cost and timing by devising and adopting the appropriate policies.

### 5.5 Communication and Cooperation Tools

#### 5.5.1 Dissemination's Tools of the BRT

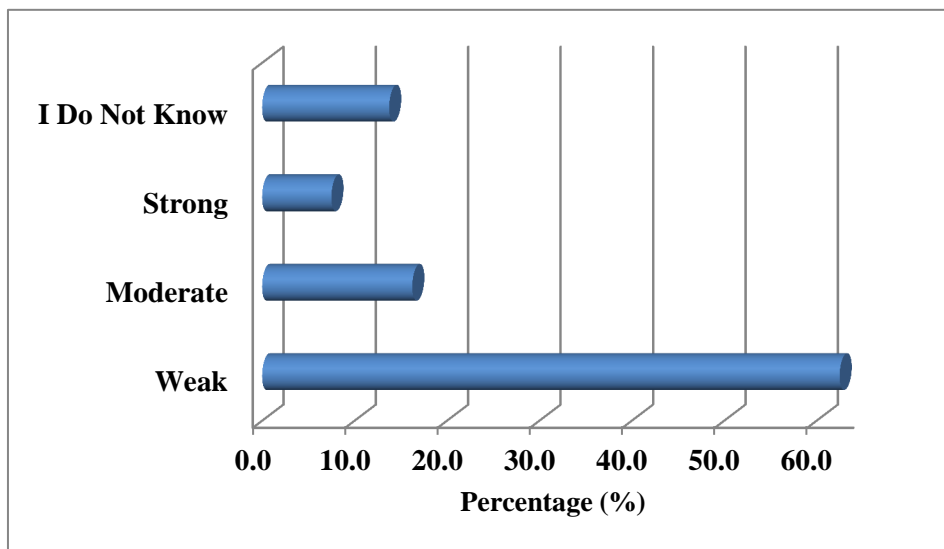
When the respondents were asked how they had heard about the BRT project, 46.3% said that they saw the first steps of the project by their naked eyes, 22.5% said they heard about it from the TV, 8.8% read about it in the newspapers, 6.3% learned about it from the public hearings organized by GAM. None of the respondents knew about the BRT directly and only from the designated BRT project website, though 3.8% knew about the BRT through the social media (blogs, facebook, etc.). Nevertheless, 2.5% of the respondents new about the BRT project through its website indirectly via social media, newspapers, and TV, but the remaining 9.8% knew about the BRT from both the TV and newspaper.

<b>Table (9): Employment Vs. Current Means of Transportation of Respondents</b>					
		Current Means of Transportation			Total
		Public	Private	combination	
Employment	Public	4	2	2	8
	Private	18	6	13	37
	Academia	11	1	6	18
	Others	6	1	7	14
Total		39	10	28	77

This shows that the layperson still believes in the physical evidences on the ground as a tool of publicity. Also, the conventional media tools like TV and newspaper remain more dominant for publicity of new plans and projects like the BRT in comparison to other tools. It is worthy to mention that these statistics remain relatively valid for the respondents answer regarding the tools used in the follow-up of the planning process by the competent authority.

### 5.5.2 Evaluation of the Dissemination's Tools of the BRT

Most of the respondents at 62.5% think that the used tools (e.g. TV, newspaper, etc.) for communicating the BRT project were weak, whereas 16.3% evaluate it as moderate, only 7.5% evaluate it as strong tools, and 13.8% could not evaluate it and said that they do not know (Figure 34).



**Figure (34): Respondent's Evaluation to the Dissemination Tools for the BRT Project**

Actually, the majority of the respondents at 86.3% do not think that the public announcement about the BRT project was enough, 8.8% think it was enough, and the remaining 5% did not know. For instance, 48.8% of the respondents did not hear about any of the announced success stories of the BRT worldwide that were mentioned in GAM's promotion campaign, 32.5% did not know even that the GAM mentioned such examples, and the remaining 18.8% said that they heard some examples such as in China, Europe, and the Gulf region.



## 5.5. Communication and Cooperation Tools

By means of cross tabulation of the attained statistical results, the following empirical notes could also be summarized, as follows:

- 90% of the respondents who evaluated the influence of used communication tools as weak believe also that the public participation was not enough during the planning process of the BRT project. Actually, 50% of the respondents who said that the public participation was not enough during the planning process of the BRT project have evaluated the used communication tools as weak. Thus, one could conclude that the public participation would be among the most important tools for the BRT project communication purposes.
- Likewise, 92% of the respondents who evaluated the influence of used communication tools as weak believe also that the public announcement about the BRT project was not enough or efficient. Thus, one could conclude that the public announcement would be among the most important tools for the BRT project dissemination purposes.
- 46% of the respondents who evaluated the influence of used communication tools as weak believe also that private sector and the academia have played a positive role in the BRT project. Thus, one could conclude that the role of the private sector and academia should be further expanded and emphasized in the future endeavors related to the BRT project.

### 5.5.3 Competent Authorities Responsible about the BRT

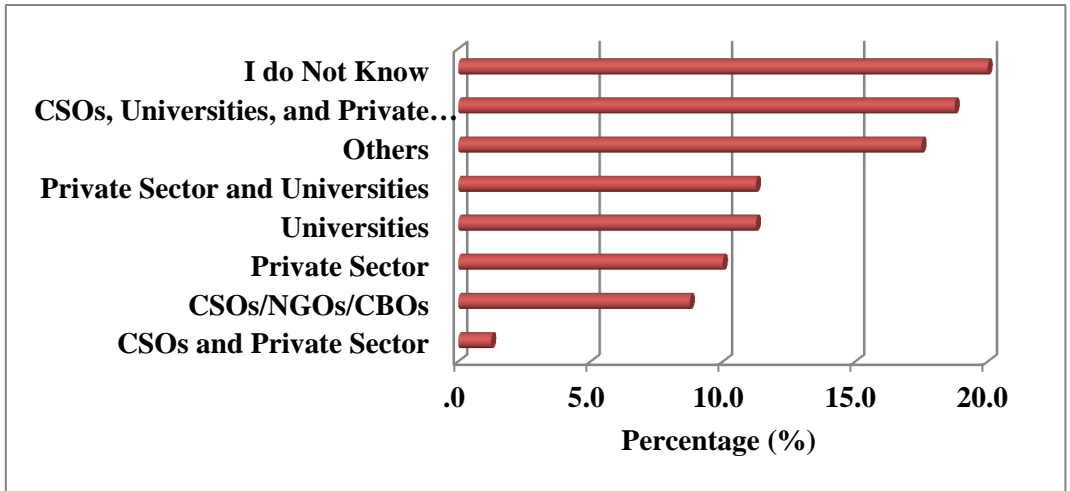
Only 39% of the respondents were confident that GAM is the competent authority responsible for the planning and management of the BRT project, while 17.5% believe that this is the responsibility of the Transportation Ministry and 3.8% believe that it is the responsibility of the Land Transport Agency, which is mandated only with regional (inter-city) transportation projects

outside the city of Amman. 6.3% of the respondents indicated that other competent authorities are supposed to be responsible for the BRT project, without mentioning any of them. Importantly to notice that almost 29% of the respondents did not know which one of the competent authority is responsible for the management of the BRT project. 2.5% of the respondents think that it is a shared responsibility among GAM and the Transportation Ministry, and the remaining 2.5% think that it is an extended shared authority including the Land Transport Agency. Therefore, it is vivid that there is ambiguity regarding the competent authority in charge of the BRT. This would undermine the trust among the potential future users in such a project. **It is recommended that the GAM deploys more physical evidences and artifacts to widespread the fact that it is responsible for the project in order to gain more public trust in the BRT.**

### 5.5.4 Main Stakeholders in the BRT Project

Almost evenly distributed at a percentage of 10%, the respondents believe that each of the universities, private sector, and Civil Society Organizations (CSOs) / Non-Governmental Organizations (NGOs) / Community-Based Organizations (CBOs) are the main stakeholders in the BRT project. 17.5% believe that there are other stakeholders without mentioning them, and 21.3% did not know who the main stakeholders of the BRT project are. 18.8% of the respondents think that the main stakeholders of the BRT project are CSOs/NGOs/CBOs, universities, and private sector, inter alia, while 1.3% think that the CSOs/NGOs/CBOs and the private sector are only the main stakeholders of the BRT project (Figure 35). This analysis shows that the layperson remains ignorant about the main stakeholders in such flagship projects, also the lay person does not find a concrete cooperation on the ground in such projects between the CSOs/NGOs/CBOs and the private sector. Actually, when asking about the private sector and academia role, 43.8% of the respondents said that they've played a positive role, 41.3% said that they did not play a positive role, and 15% did not know.

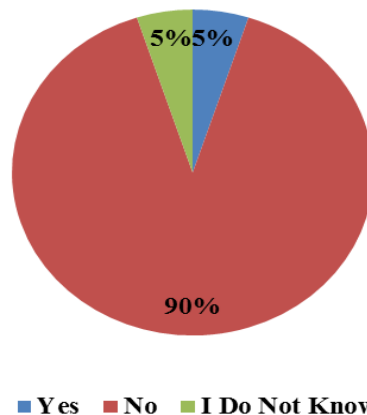
## 5.5. Communication and Cooperation Tools



**Figure (35): Main Stakeholders in the BRT Project**

### 5.5.5 Public Participation in the BRT Project

Only one of the respondents has personally participated in the consultation process related to the BRT project. In the same vein, only 3 out of the 80 respondents said that they knew a person who participated in the consultation process for the BRT project. 90% of the respondents do not think that the public participation during the planning process was enough, 5% think that it was enough, and the remaining 5% did not know. Therefore, it is safe to conclude that the public participation in the planning process of the BRT project is negatively perceived by the laypersons in Amman (Figure 36).



**Figure (36): Public Participation in the Planning Process for the BRT Project**

### 5.5.6 Achieving a Successful BRT Dissemination Strategy

More than one-third of the respondents (exactly 36.3%) think that law enforcement is what is needed to achieve a successful BRT dissemination strategy, referring to abiding by the law regulations of transparency and accountability, or just organizing open public hearings about the BRT project, since another 12.5% of the respondents think that this would be the appropriate tool to achieve a successful dissemination strategy. Nevertheless, the knowledge of the layperson in Amman remains weak about what would be an efficient tool to achieve a successful dissemination strategy, as 21.3% said that they do not know which of the tools would be more appropriate. 17.5% of the respondents think that sourcing out this task for foreign transportation expertise would be the most efficient tool. The remaining part of the respondents at 12.4% thinks that a mix between the above mentioned tools would be the only solution to achieve a successful dissemination strategy for the BRT project (Table 10).

<b>Tools of Dissemination</b>	<b>Frequency (No.)</b>	<b>Percentage (%)</b>
Public hearings	10	12.5
Foreign transportation expertise	14	17.5
Law enforcement	29	36.3
I do not know	17	21.3
Foreign transportation expertise; public hearings; and law enforcement	3	3.8
Public hearings and law	4	5.0
Foreign transportation expertise	2	2.5
Foreign transportation expertise,	1	1.3
<b>Total</b>	<b>80</b>	<b>100.0</b>

## 5.6. Communication and Cooperation Tools

As the majority of the respondents believed that law enforcement is the tool to achieve a successful BRT dissemination, it is safe to conclude that allegations of corruption about the BRT project remains an issue to be addressed if the BRT project would be implemented.

### 5.6 The BRT Project Details and Purposes

#### 5.6.1 The BRT's Kick-off

Though 45 (56.3%) out of the 80 respondents said that they know when the BRT started, only 6 (13.3%) of them gave the right answer that is the year 2009. The remaining of the respondents at 43.7% said that they do not know when the BRT has started. Interestingly to notice that more than one-third of the respondents who said that they know when the BRT has started said that the BRT started in 2011, i.e. when it was actually stopped. This entails that the mass public has not been satisfactorily engaged in the project. The fact that the stoppage of the project drew much more attention than its launch reveals that the project might have been politically driven.

#### 5.6.2 The Key Elements of the BRT

When the respondents were asked about the key elements of the BRT, only 38.8% gave the right answer that is a combination between designated buses and dedicated lanes, whereas another 2.5% and 1.3% of the respondents thought that it mainly consists of designated buses or dedicated lanes (with conventional buses), respectively. Another 7.5% of the respondents have mistakenly said that the key element of the BRT is a light rail, and another 37.5% said that they do not know. The remaining part of the respondents said that the BRT is a mix between buses and light rails (1.3%) or buses, dedicated lanes, and light rail (11.3%) (Figure 37). The high percentage of respondents who did not know what the key elements of the BRT are indicates that the BRT has not been communicated as properly as what should have been to achieve a satisfactory public awareness.

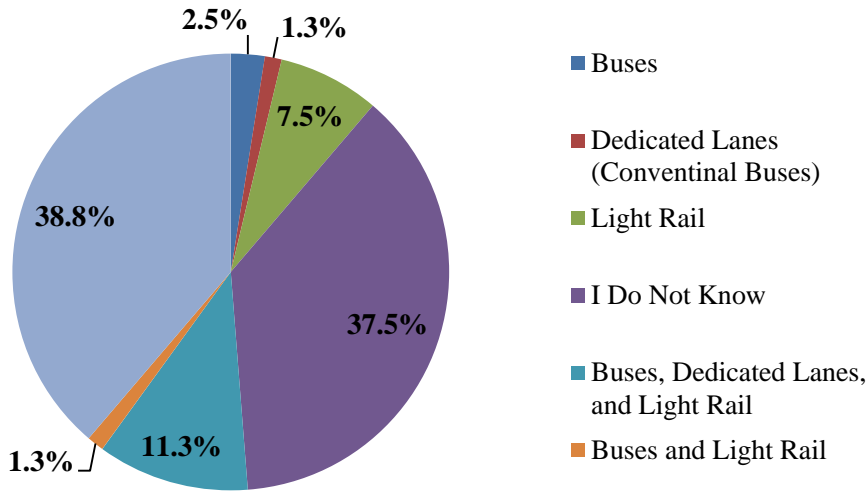
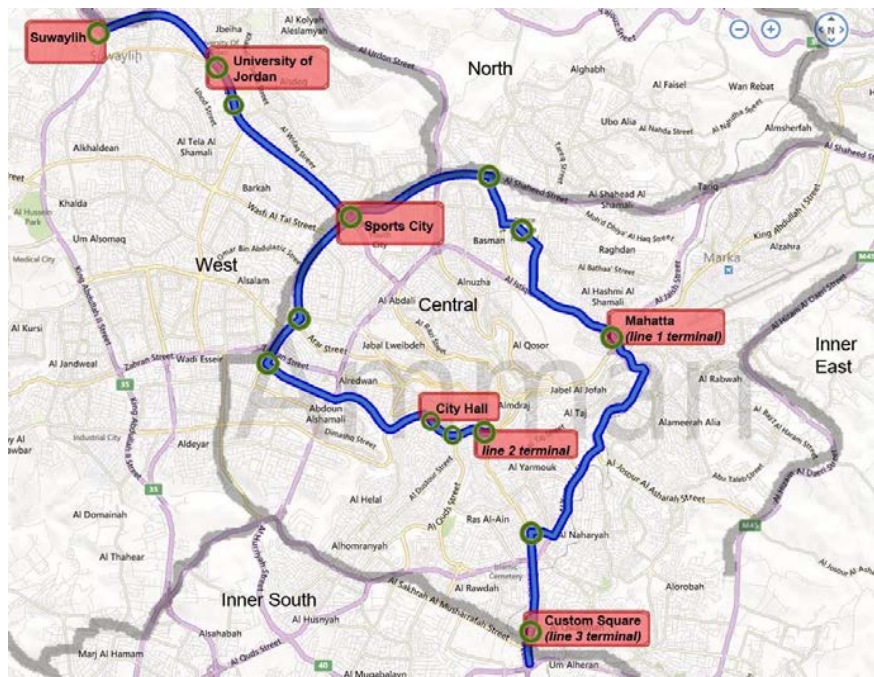


Figure (37): Key Elements of the BRT

### 5.6.3 The Layout of the BRT

The proposed layout of the BRT is supposed to link the central part of the city together and with the northern and western parts (See Figure 38, the BRT routes are in dark blue line). Nevertheless, 11.3% of the respondents said that the BRT only connects Northern-Western Amman; 7.5% said that it only connects Eastern-Western Amman; 2.5% said it only connects Eastern Amman together; 5% said it only connects Western Amman together; 1.3% said it extends beyond Amman; and 13.8% of the respondents said that they do not know the BRT layout. This entails that only 18.8% of the respondents have indicated a correct answer about the proposed layout of the BRT.

## 5.6. Communication and Cooperation Tools



**Figure (38): The BRT Layout in Amman City**  
Source: adapted by researcher from (Smadi, 2012 a)

Nevertheless, only 12.5% of the respondents said that there is a need to extend the proposed routes of the BRT. Couple of respondents proposed to include the refugee camps, another couple of respondents recommended to serve the universities in the city of Amman, and others recommended to include the northern-western parts of the city, mainly Swelieh, and the rest recommended to extend the BRT routes to reach Al-Zarqa (north of Amman) at the long run, which is the second biggest urban center after the capital Amman.

### 5.6.4 Expected Improvements by the BRT

#### 5.6.4.1 Environmental Quality

There was a wide optimism between the respondents that the BRT would improve the environmental quality in Amman city when operated, as 78.8% of the respondents assured that the BRT would have a positive impact on the environment, 11.2% of the respondents said that the BRT would not help in improving the environmental quality of Amman, and 10 % said that they do not

know what would be the impact of the BRT on the environmental quality of Amman city.

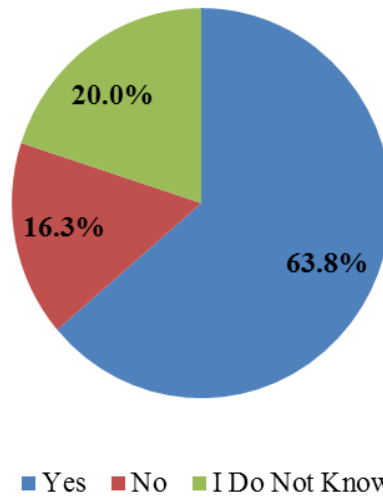
Almost 29% of the respondents, who said that the BRT would have a positive impact on the environment think this could be accomplished through improving air quality directly, and another 27% said that it would indirectly improve the air quality by reducing the congestion rates in Amman city. Nevertheless, another 30.2% of these respondents did not know how the BRT would improve the environmental quality exactly, but they were sure that it will. Another 2.5% of these respondents said that it will both decrease the congestion and improve the air quality at the same time. The remaining of these respondents at 11.3% said that it would decrease the number of used private cars and make the environment cleaner. To conclude, the BRT is perceived to have a positive impact on the environment among the respondents, nevertheless they lack awareness of the how this improvement would be accomplished.

### **5.6.4.2 State of Public Transportation (Expenses & Timing & Attractiveness)**

Only 7.5% of the respondents said that the BRT would not improve the state of public transportation in Amman city, and 8.8% did not know what would be the anticipated impact of the BRT on the generic state of public transportation in Amman city. The majority of the respondents at 83.8% said that they anticipate a positive impact on the state of public transportation when the BRT is operated.



From one perspective most of the respondents believe that the BRT would decrease the associated personal expenses on public transportation. Actually, 63.8% of the respondents said that the BRT would decrease the transportation expenses, 16.3% of the respondents said it would not decrease the transportation expenses, and 20% said that they do not know whether the BRT would decrease the associated transportation expenses or not (Figure 39). Nevertheless, it is important to keep in mind that more than 82% of the



**Figure (39): Decrease in the Transportation Expenses**

respondents who pay 50 JD or less on transportation per month have a monthly income of less than 350 JD; 44% of which have a monthly income of less than 150 JD. From another perspective, 64% of the respondents who anticipated that the BRT would improve the state of public transportation would also decrease the spent time on transportation by more than 50%.

Likewise, half of the respondents said that the BRT will be attractive enough to be used. The notion of attractiveness was mainly translated by the respondents in terms of modernity and hygiene.

Importantly to notice is that about 72% of the respondents who anticipate that the BRT would improve the state of public transportation in Amman city also believe that the personal transportation expenses will decrease. Likewise,

## 5.7. The BRT Project Stoppage/Resume

almost 39% of the respondents who anticipate that the BRT would improve the state of public transportation in Amman city also believe that the BRT will save more than half of the time spent on daily basis. Within the same vein, about 57% of the respondents who anticipate that the BRT would improve the state of public transportation in Amman city also believe that the BRT will be attractive enough to be used.

### 5.6.5 The Details of the BRT Services

When the respondents were asked about what details of the BRT services they know about, 20% of which said that the BRT includes **smart cards**; 15% of which said that the BRT includes **punctual time schedule**; 7.5% of which said that the BRT includes both the smart cards and punctual time schedule together; 2.5% of which said that the BRT includes maps; 1.3% of which said that the BRT includes **planned trips and itinerary**; 1.3% of which said that the BRT includes a designated **website**; 25% of which said that the BRT includes all the above mentioned services altogether; 17.4% of which said that the BRT includes mix of these services, but not all of them together; and 10% of which said that the BRT includes other services, majorly electronic billboards inside the buses. It is important to highlight that although the BRT in its definition is a high rapid service, most of the respondents do not believe in the reliability (in terms of the frequency and punctuality) of this service that is provided by GAM based on their previous experience.

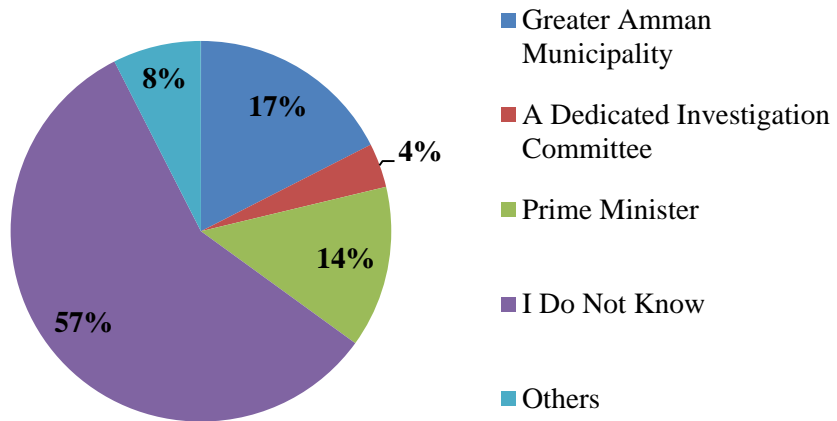
## 5.7 The BRT Project Stoppage/Resume

### 5.7.1 The BRT Stoppage

The majority of the respondents at 63.8% said that they know that the BRT project was stopped, but only 72.5% of which said that it was stopped in the construction phase, which is correct. Nevertheless, 27.5% of those respondents said that the BRT was stopped in the planning phases (almost half of which said that it was stopped during the feasibility study phase).

Importantly to notice that 57% of the respondents did not know which of the competent authorities issued the stoppage decision of the BRT project. 17% of

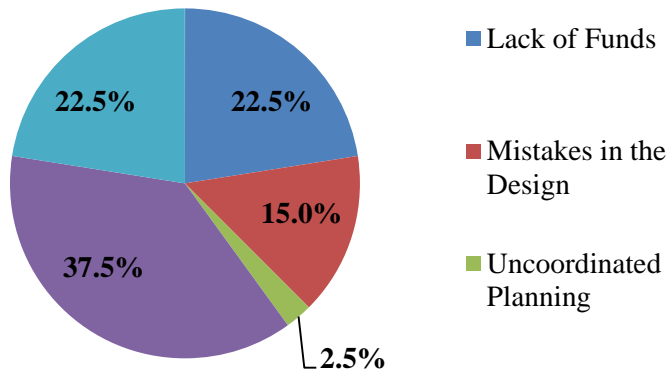
the respondents said that the GAM was the competent authority who issued the decision, 14% think it was the prime minister who issued the decision which is correct, 4% said that it was a dedicated investigating committee, and the remaining of the respondents at 8% did not know (Figure 40).



**Figure (40): Competent Authority Which Issued the Stoppage Decision of the BRT Project**

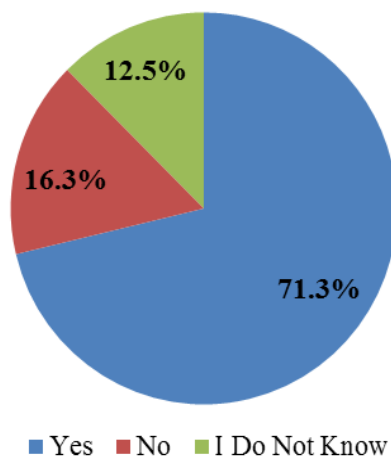
### 5.7.2 The Reasoning for the Stoppage of the BRT

When the respondents were asked about the reasons for stopping the BRT project, 22.5% said due of lack of funds; 15% said because of mistakes in the design; 2.5% said because of uncoordinated planning among the different competent authorities; 37.5% said that they do not know the reason. Although corruption was not listed among the reasons for the project's stoppage in the questionnaire, 22.5% said that there are other reasons, mainly purported for corruption allegations (Figure 41).



**Figure (41): Reasons for the Stoppage Decision of the BRT Project**

Nevertheless, 55% of the respondents do not think that these are legitimate reasons for stopping such a project like the BRT, and only 15% of the respondents said that such reasons were legitimate to stop the project, while the remaining 30% of the respondents did not know. Furthermore, **71.3% of the respondents said that the public should have been consulted before taking the decision of stopping the BRT project**, while 16.3% said that this is the government decision and there was no point from consulting with the public on this regard, and the remaining of the respondents at 12.5% did not know whether consulting with the public on this regard important or not, or even if this is codified in the related laws and by-laws (Figure 42).



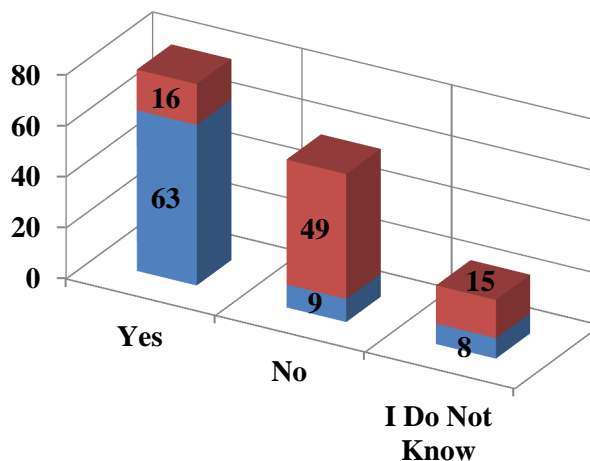
**Figure (42): Consultation of the Public Regarding the Stoppage of the BRT**

## 5.7. The BRT Project Stoppage/Resume

### 5.7.3 Resuming the BRT Project

Though only 20% of the respondents were aware that the government decided recently to resume the BRT project, the majority of the respondents at 78.8% think that it was an important decision and they support it. 10% of the respondents were reluctant and did not know whether this was a good decision, and 11.2% said that they have lost faith in the successful completion and operation of the BRT, since it was stopped and resumed suddenly, alike. The relation between the decision of resuming the BRT project and its importance to the public is concurrent for the success of the project (Figure 43), but unfortunately this relation remains indecipherable for the competent authorities.

- Do you know that planning for the BRT has been resumed recently?
- Do you think that resuming the BRT project was important?



**Figure (43): Relation between the Decision of Resuming the BRT Project and Its Importance to the Public**

### 5.7.4 Alternatives and Recommendation to the BRT Project

When the respondents were asked about the possible alternatives to the BRT project, almost two-thirds of the respondents answered this question. 12.5% of which said that there is no feasible alternative and the BRT project is crucially

needed to the efficient management of public transportation in Amman city (and some recommended scaling it up by introducing light rail routes in certain areas, especially near the universities). The remaining of the respondents said that the BRT project is not crucially needed and the GAM should consider the following recommendations in the integrated management of public transportation in Amman city: decreasing taxes; curb high speed; improvements of the common taxis; pre-paid parking; rehabilitation of road system; renewal of old buses; extend public transportation services to cover all Amman; increase number of buses and their capacities; construct more terminals and bridges amongst others.

## **Chapter (6): Conclusion and Main Recommendations**





## **Chapter (6): Conclusion and Main Recommendations**

This chapter concludes the main recommendation as resulted from the analysis of chapters (3-5).

### **6.1. Governmental decision making process**

#### **6.1.1 Short-term Measures**

The analysis of the state of public transportation in Amman city shows the crucial need for the BRT project (chapter 3). At the beginning, the potential users were in favor of using such means of modern public transportation systems, and it was to their conviction that it could be a solution to the chronic and wicked transportation related problems in the city. Nevertheless, the stumbling in the first stages of implementation of the BRT project undermined to a considerable extent their trust in the implementing bodies, mainly the GAM, which made them a bit hesitant about the BRT project importance (chapter 4). Overall, this hesitation should not be understood by any means as a legitimate reason to stop the BRT project, but it should be a motivation for the implementing bodies to regain the trust of the mass public by adopting a clear, transparent implementation strategy (chapter 5). In short, it is recommended to:

- *Persist immediately in the implementation of the BRT project, based on a clear timetable to the mass public.*
- *The findings of the rigorous assessment study initiated by the designated parliamentary committee should be published to the mass public and the academic and related research organizations.*

#### **6.1.2 Institutional and Political Framework**

In general, results of the conducted public survey revealed a considerable amount of ambiguity concerning the competent authority responsible for the

implementation of the BRT (chapter 5). This begs the questions of who should implement and support the urban transport policy and what would be their lines of mandate. Although GAM was granted all authority to regulate all issues that is related to public transportation within the jurisdiction of its power in 2007, the way of how the BRT was stopped and examined revealed the critical issue of the need of rethinking the system of decision making to avoid the hindering effect of bureaucracy on projects serving the public (chapter 4). Therefore as a recommendation:

- *It is important that the competent authority, in this case GAM, becomes autonomous. Autonomy of GAM will protect it against major political and structural changes, and therefore provide for the stability and continuity needed to plan and implement integrated transportation projects, including the BRT (section 4.2). Nevertheless, this should be realized within the hitherto recognized venues of legitimacy. In other words, the GAM and BRT will be regularly monitored by the higher rank of executive bodies, chiefly: the cabinet.*
- *The political parties within the government and the social movement (CSOs/NGOs/CBOs) at large with the society of Amman should be encouraged to play a more positively active role regarding the BRT project. This could be realized through pressure groups that follow up the implementation of such a project.*

### **6.1.3 Monitoring and Evaluation**

The methodology of choosing the most appropriate transport strategies in the TMMP vividly explained the BRT as a transport strategy and its execution plan (chapter 4). Nevertheless, the plan was not compatible to adaptation that may result from consultations with stakeholders. Therefore, it is recommended that:

- The plan should incorporate monitoring and appraisal methods to ensure linking the transport strategy with a wide web of major

## 6.2. Public participation in planning process

stakeholders. Further to that, communicating the evaluation result enriches the planning process through enforcing the sense of shared accountability among stakeholders. As the monitoring performance is improved, a reliable monitoring system is developed that will ultimately improve management (by identification of indicators, integrating IT systems, etc).

- A designated database on the BRT project should be regularly updated. At the mean time and after the BRT experience, GAM should benefit from the knowledge, data and expertise in the field of urban mobility at large.
- The monitoring and evaluation should be undertaken on a regular basis. In other words, studies conducted after policy implementation (ex-post evaluation) are as important as those conducted prior to it. Such studies assess in providing benchmarks to evaluate how sustainable is the mobility mode/plan.

## 6.2. Public participation in planning process

### 6.2.1 Decision processes

The opinion of the vast majority of the respondents is that the public must have been consulted before taking the two most important decisions of stoppage and later persisting with the BRT (chapter 5). This reveals the need of activating the public participation into the decision making process. Public input can provide knowledge that may be lacking in the market research conducted by GAM, and therefore the qualitative dimension of the urban travel will be addressed. As the sense of ownership is established among the public, GAM will be less vulnerable to the effect of the unorganized criticism. Thus as a recommendation:

- *Public participation should be institutionalized and conducted in such a manner where comprehensive information about the project is*

*communicated to the public via public hearings. Public input must be balanced to ensure that it reflects variable sectors of society and to avoid dragging the project to serve the interest of a certain group rather than common interest. Importantly, the mass public should be educated about their rights and duties on this regard.*

### **6.2.2 Communication Strategy**

The communication strategies deployed by GAM to advocate for and raise awareness about the urgent need of the BRT as a public transportation project was evaluated by the majority of the respondents as not enough and inefficient (chapter 5). The public did not receive the project as a facilitator for their right of mobility in the city and did not see its potential positive impact environmentally, socially and economically in the long-term and eventually the inadequate information has helped the project's proponents to drag into failure. The scene was that the project was prolonged and increased congestion as the car dedicated lanes were taken away (chapter 5).

Thus, as a recommendation:

- *The public must be well informed and prepared by official media channels of GAM about the construction stages, time-frame and cost versus benefit of such a transportation project that is alien to the Jordanian scene. Communication and awareness-raising can be performed through various means (e.g workshops and conferences) and take place in a number of locations; both private (workplaces) and public spaces (schools).*
- *In parallel, awareness media campaign about the future anticipated damages of continuous use of the private cars, in terms of physical and mental health at the individual and community level should be deployed as a tool to promote public transportation by discouraging use of private cars.*

### 6.3. The Action Level

- *The role of the private sector and academia should be further expanded and emphasized in the future endeavors related to the BRT project, especially those related to the communication strategy.*

Nevertheless, based on the fact that more than one-third of the respondents who claimed to know when was the BRT initiated had given the year when it was actually stopped (2011) as an answer (chapter 5), reveals that the actual the demonstrating effect was lost when the first phase of the implementation was on a high-traffic congested road (Jordan University Station). Instead as a recommendation:

- *The demonstration effect must be deployed through the BRT sections that are relatively easier to be implemented. Thus gaining trust of the public by demonstrating on ground progress.*

### 6.3. The Action Level

#### 6.3.1. Elaborating the Alternatives

The current layout of the BRT is deficient in two aspects that affect its integration with the urban planning of the city: linking the urban hubs to the newly developed areas and creating access points to public/open spaces (chapter 4). In light of the international consultant's recommendation to postpone the implementation of the BRT line 2 that serves in most of its length inside the metropolitan growth center of Central Amman and will potentially carry passengers residing in Eastern Amman to their workplaces in Western Amman, the BRT will fail to fulfill its purpose of providing trips to Amman's business hub in Western part of the city (chapter 4). Therefore, the linkage between mobility planning and urban planning should be improved in the case, following these recommendations:

## Chapter (6): Conclusion and Main Recommendations

- *A transit line should be located on one of the most-travelled routes that connect Eastern Amman to the Business hub in Western Amman. Whereas, to compensate for putting off the implementation of transit line 2 on the basis of its unfeasibility, lower-capacity lines shall feed from the less densely-occupied areas to this highly needed main route. These areas should be provided with a range of requirements and development projects, especially to urban and transport aspect of the areas to improve the environment of these areas that act as access to public transport hub.*
- *Transit lines and stops of the BRT, as part of the comprehensive transport and mobility plan of GAM, can play a positive and vital role in ToD at large. Therefore, it is important to make sure that they are integrated, as originally planned into the urban fabric to ensure the success of running them.*
- *The operational characteristics and qualities of the BRT transit lines should not be separated from the hosting urban environment that should be integrated into it. Urban development within the hosting urban fabric should be encouraged in addition to providing the necessary streetscape for the transit line and stops that ensure appropriate pedestrian accessibility.*
- *Integration between the output of real estate development and rising land value within the GAM jurisdiction in order to achieve integration between the legislation and the laws of urbanization with the BRT system is needed to ensure sustainability of transit lines operating thus contributing to the sustainable development process.*

### 6.3. The Action Level

- *Safety measures at the main intersections and stations along the BRT routes should be adopted, especially near the educational and health facilities that exhibit higher densities of users.*
- *A hygienic environment for the different facilities of the BRT system is highly important to make it a pleasing facility for the users.*
- *A signage system, along with a modern information system for dissemination of the BRT operations is important tool for the young and foreigner users.*

#### **6.4. Epilogue**

Studying and analyzing the BRT project in the context of public transportation system in Amman from an academic standpoint has been intriguing to me as a researcher and a potential user.

The way the BRT project has been introduced by transportation experts in Amman made sense to the decision-makers, who have afterwards used this flagship project as a tool to achieve political ends on behalf of socio-economic and ecological ends that would lead to a more sustainable public transportation system in the city of Amman.

Since the timing allocated to this research thesis was limited, much details still need to be addressed, maybe as a future further research, including: how could public participation be institutionalized in city planning activities in the context of Amman? How could the BRT initiative be integrated within the public transportation system in the city of Amman and beyond to plan for more sustainable outcomes? What would be the consequences of the BRT on the current phenomenon of urban sprawl in the future spatial development of the city of Amman?

Finally, as a combination and amalgamation between conceptual and key policy recommendations this master thesis is disclosed with a strong belief that city planning towards sustainability in the context of Amman is becoming more tangible than before with the advancement of such flagship project like the BRT. Hopefully, this thesis will be a fertile environment of further future research for master and doctoral researchers addressing the sustainability of spatial development in Amman city.



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**Annex (1):****List of Key informants**

No.	Name	Job Title	Date
1.	HazemZureikat	Transport consultant	23.8.2012
2.	Ayman Smadi	Director of Transportation and Mobility department at GAM	13.8.2012 27.8.2012
3.	Mohammad Al-Asad	Director of CSBE	3.9.2012



## **Annex (2a):**

### **Questionnaire on the Bus Rapid Transit (BRT)-English version**

#### **Introduction and Background:**

This questionnaire has been developed within the ambit of the master thesis entitled: “Analyzing the Public Transportation in Amman: The Case of the Bus Rapid Transit (BRT)”. The questionnaire aims at testing the awareness of lay persons about the BRT, and the general perception about its phases and specific objectives.

The questionnaire consists of 4 sections. The first section covers general background on the respondents and the BRT project. The second part covers the BRT project related communication tools, simply to learn about how the respondents knew about the BRT, if valid. The third part covers the different propositions in the opinion of the respondents that led to the stoppage of the BRT project. The fourth section tries to find the needed possible solutions in terms of management and logistical aspects to make the BRT a success story.

**Section I-A: General Background - Personal**

- 1.1 Gender:**         M                     F
- 1.2 Income (optional):**  less than 150 JD  150-350 JD  350-500 JD  
 500-750 JD  750-1000 JD  NA
- 1.3 Residence**         East Amman  West Amman  Outside Amman  Others
- 1.4 Academic Achievement**     Illiterate     High School  University Degree  
 Postgraduate
- 1.5 Age**             10-18         19-25         26-40         40-60  > 60
- 1.6 Social Status**  single         married         married with children
- 1.7 Employment**  Public         Private         Academia  Civil Society Organizations  Others

**Section I-B: General Background – Purpose of Use**

- 1.8 Main Purpose of using the BRT**  to workplace  to school/university  occasional visits  others.....
- 1.9 Address of trip destination - from** place of residence  East Amman  West Amman  Outside Amman
- 1.10 Current means of transportation**  Public  Private  combination
- 1.11 Monthly transportation expenses**         <50JD  50-150JD  151-250 JD  
 >250JD
- 1.12 How much time a trip currently takes?**.....
- 1.13 Number of other users of public transportation within your household**         1             2             3  
 more than 3

## **Section II: Communication and Cooperation Tools**

### **2.1 How did you hear about the BRT project?**

- newspapers  TV  public hearings  
 Social media (e.g. facebook, blogs)  BRT Project website  
 others .....

### **2.2 What are the tools used in the follow-up of the planning process by the competent authority?**

- newspapers  TV  public hearings  
 social media (e.g. facebook, blogs)  others .....

#### **2.2.1 How do you evaluate the influence of these tools?**

- weak  moderate  strong  I do not know

### **2.3 Which competent researcherities are involved in the process of the BRT planning and management?**

- Greater Amman Municipality-GAM  Transportation Ministry  
 I do not know  
 others .....

### **2.4 Who are the main stakeholders to the BRT project in your opinion?**

- Universities  Private Sector  CSOs/NGOs/CBOs  
 I do not know  others.....

### **2.5 Did you participate in the consultation personally?**

- Yes  No

#### **2.5.1 Do you know anyone who did?**

- Yes  No

### **2.6 Was the public participation in your opinion enough during the planning process?**

- yes  No  I do not know

#### **2.6.1 If yes, How do you evaluate it?.....**

### **2.7 GAM has mentioned in it's promotion campaign successfully implemented BRT projects across the world. Did you hear about any?**

- Yes  No  I do not know

### **2.8 Do you think that the public announcement about the BRT project was enough and efficient?**

- yes  no  I don't know

**2.9 Do you think that the private sector and the academia have played a positive role in the BRT project?**

yes                       no                       I don't know

**2.10 What is lacking in your opinion to achieve a successful BRT dissemination strategy?**

Public hearings               foreign transportation expertise       law enforcement       new regulations               I do not know

**Section III: About the BRT**

**3.1 Do you know when the BRT started?** ( )Yes ( )No ( )I do not know

**3.1.1 if yes, when?**

**3.2 What are the key elements of the BRT**

( )buses ( )dedicated lanes ( )Light rail ( )I do not know

**3.3 According to your knowledge, which of the following areas are served with the BRT?**

( )Northern-Western Amman ( )Eastern-Western Amman  
( ) Eastern Amman ( )Western Amman  
( )Extends beyond Amman ( )others.....  
( )I do not know

**3.3.1 Do you recommend more routes?** ( )Yes ( )No ( )I do not know

**3.3.1.1 If yes, where? .....**

**3.4 Will the BRT help in improving the environmental quality of Amman?**

( )yes ( )no ( )I don't know

**3.4.1 If Yes or No, how?.....**

**3.5 Based on your personal transportation expenses do you think the BRT will decrease the expenses?**

( )yes ( )no ( )I don't know

**3.6 Do you expect that the BRT would improve the state of public transportation?**

( )yes ( )no

( )I don't know

**3.7 How much do you expect the BRT would save in terms of time?**

.....

**3.8 Do you think the BRT will be attractive enough to use?**

( )yes ( )no ( )I don't know

**3.8.1 If yes, or no, why?**

.....  
.....  
.....

**3.9 What details of the BRT services do you know about?**

( )Smart cards ( )website ( )planned trips  
( )punctual time schedule ( )maps ( )  
Others.....

**3.9.1 What is lacking other than these services in your opinion?**

.....  
.....  
.....

**Section IV: The BRT Stoppage/Resume**

**4.1 Do you know that the BRT was stopped?**

yes                       no                       I don't know

**4.2 Do you know at which phase the BRT project stopped?**

construction phase    planning phase       feasibility study  
 I don't know    Others

**4.3 Who issued the stoppage decision?**

GAM                       A dedicated investigating committee  
 Prime minister       I don't know               Others

**4.4 What are the reasons for the halt?**

lack of funds               mistakes in the design    uncoordinated  
planning  
 I don't know    Others

**4.5 Do you think the reasons are legitimate?**  Yes       No       I do not know

**4.6 Do you think the public should've been consulted prior to this decision?**

yes                       no                       I don't know

**4.7 Do you know that planning for the BRT has been resumed recently?**

yes                       no                       I don't know

**4.8 Do you think that resuming the BRT project was important?**

yes                       no                       I don't know

**4.9 what alternatives to the BRT are feasible in your opinion?**

.....  
.....

**4.10 Do you have any recommendations to the GAM regarding the BRT project?**

.....  
.....  
.....  
.....

**Annex (2b):**

**Questionnaire on the Bus Rapid Transit (BRT)-Arabic version**

رقم	التاريخ: ..... آذار، 2013	
	الإستبيان:.....	
( ) مجمع	( ) مدينة الحسين للشباب	( ) الجامعة الأردنية
		محاور الباص السريع:
		المحطة
( ) أمانة عمان	( ) ميدان الأمير فيصل بن الحسين - الدوار الخامس	
		الكبرى

**I-A: خلفية عامة - معلومات شخصية**

1.1 الجنس ( ) ذكر ( ) أنثى

2.1 الإقامة: ( ) شرق عمان ( ) عمان الغربية ( ) خارج عمان ( ) غير

ذلك .....

3.1 التحصيل الأكاديمي: ( ) أمي ( ) مدرسة ثانوية ( ) درجة جامعية ( )

دراسات عليا

4.1 العمر: ( ) 10-18 ( ) 19-25 ( ) 26-40 ( ) 40-60 ( )

> 60

5.1 الحالة الاجتماعية: ( ) أعزب ( ) متزوج ( ) متزوج ولديه أطفال - عدد

الأطفال.....

6.1 الوظيفة: ( ) قطاع عام ( ) قطاع خاص ( ) القطاع الأكاديمي ( ) منظمات

المجتمع المدني ( ) غير ذلك .....

7.1 الدخل (اختياري): (أقل من 150 دينار اردني ( ) 150-350 ( ) ( )

350-500 ( ) 500-750 ( )

( ) 750-1000 ( ) أكثر من 1000 ( )

القسم I-B: خلفية عامة – الغرض من استخدام الباص السريع

1.8 الغرض الرئيسي من استخدام الباص السريع الوصول ( ) لمكان العمل ( ) لمدرسة / جامعة ( )

( زيارات شخصية

( ) غير ذلك .....

9.1 المكان المنوي الوصول إليه إنطلاقاً من محل الإقامة ( ) شرق عمان ( ) عمان الغربية ( )

خارج عمان ( )

10.1 وسيلة النقل الحالية ( ) وسائل النقل العام ( ) وسائل نقل خاصة ( ) مزيج من الإثنين

11.1 النفقات على التنقل شهرياً ( ) أقل من 50 دينار أردني ( ) 50 - 150 ( ) 151-

250

( ) أكثر من 250

12.1 كم من الوقت تستغرق الرحلة اليومية حالياً ؟ .....

13.1 ما عدد المستخدمين الآخرين لوسائل النقل العام داخل منزلك 1 ( ) 2 ( ) 3 ( ) أكثر من

3 أفراد

القسم الثاني: أدوات التعاون والاتصال

2.1 كيف سمعت عن مشروع الباص السريع ؟

( ) جلسات استماع علنية ( ) الصحف ( ) التلفاز

( ) وسائل الاعلام الاجتماعية (مثل الفيسبوك، مدونات) ( ) موقع مشروع الباص السريع

الإلكتروني



( ) غير ذلك .....

2.2 ما هي الأدوات المستخدمة في متابعة عملية التخطيط من قبل السلطة المختصة؟

( ) جلسات استماع علنية ( ) الصحف ( ) التلفاز ( ) موقع مشروع الباص السريع إلكتروني

( ) وسائل الاعلام الاجتماعية (مثل الفيسبوك، مدونات الكترونية) ( ) غير ذلك .....

2.2.1 كيف تقيم تأثير هذه الأدوات؟

( ) ضعيف ( ) متوسط ( ) قوي ( ) لا أعرف

2.3 ما هي السلطات المختصة التي تشارك في عملية تخطيط وإدارة مشروع الباص السريع حسب رأيك

؟

( ) أمانة عمان الكبرى ( ) هيئة تنظيم النقل البري ( ) وزارة النقل ( ) لا أعرف

( ) غير ذلك .....

2.4 من هم أصحاب المصلحة الرئيسيين في مشروع الباص السريع حسب رأيك؟

( ) الجامعات ( ) القطاع الخاص ( ) منظمات المجتمع المدني / المنظمات غير الحكومية /

منظمات المجتمع المحلي ( ) لا أعرف ( ) غير ذلك .....

2.5 هل شاركت في عملية التشاور شخصياً؟

( ) نعم ( ) لا

2.5.1 هل تعرف أحد قام بالمشاركة؟

( ) نعم ( ) لا

2.6 هل كانت عملية إشراك العامة في رأيك كافية خلال عملية التخطيط؟

( ) نعم ( ) لا ( ) لا أعرف

2.6.1 إذا كان الجواب نعم، كيف تقيم ذلك؟

.....

2.7 ذكرت أمانة عمان الكبرى في حملة ترويج مشروع الباص السريع قصص نجاح لهذا النوع من

النقل العام في أنحاء مختلفة من العالم. هل سمعت بأي منها؟

( ) نعم ( ) لا ( ) لا أعرف

2.8 هل تعتقد أن الإعلان العام عن مشروع الباص السريع كان كافياً من ناحية الحجم و التأثير ؟

( ) نعم ( ) لا ( ) لا أعرف

2.9 هل تعتقد أن القطاع الخاص والأوساط الأكاديمية قد لعبت دوراً إيجابياً في مشروع الباص السريع ؟

( ) نعم ( ) لا ( ) لا أعرف

2.10 ما الذي افنقرت له استراتيجية تخطيط و تنفيذ الباص السريع في رأيك ؟



7.3 كم تتوقع أن توفر من الوقت إذا استخدمت الباص السريع .....

3.8 هل تعتقد أن الباص السريع سيكون جذاباً بما يكفي للاستخدام؟ ( ) نعم ( )

لا ( ) لا أعرف

3.8.1 إذا كانت الإجابة نعم، أو لا،

لماذا؟.....

3.9 ما هي الخدمات التي سوف يتم توفيرها من خلال مشروع الباص السريع؟ ( ) البطاقات الذكية

( ) موقع الكتروني ( ) رحلات المخططة ( ) جدول زمني دقيق ( )

( ) خرائط ( ) غير ذلك .....

3.9.1 ما هي الخدمات الأخرى التي ترغب في توفيرها حسب رأيك؟

.....

**الفصل الرابع: توقف وإستئناف العمل بمشروع الباص السريع**

4.1 هل تعلم أن مشروع الباص السريع قد توقف العمل به؟

( ) نعم ( ) لا ( )

لا أعلم

4.2 هل تعلم في أي مرحلة قد توقف العمل بمشروع الباص السريع ؟

( ) مرحلة البناء والتشييد ( ) مرحلة التخطيط ( )

مرحلة دراسة الجدوى

( ) لا أعلم ( ) غير ذلك

4.3 حسب تقديرك، من الذي أصدر قرار توقف العمل بمشروع الباص السريع؟

- ( ) أمانة عمان الكبرى ( ) لجنة فنية خاصة ( ) رئاسة الوزراء ( ) لا أعلم ( )  
غير ذلك.....

4.4 ما هي أسباب قرار توقف العمل بمشروع الباص السريع؟

- ( ) ضعف الموارد المالية ( ) أخطاء فنية بالتصميم ( ) عدم/قلة التنسيق  
بين الجهات المعنية ( ) لا أعلم ( ) غير ذلك  
4.5 هل تعتقد أن الأسباب مشروعة؟

- ( ) نعم ( ) لا ( ) لا أعلم ( ) غير ذلك  
.....

هل تعتقد أنه كان من الواجب إستشارة عامة الشعب قبل إصدار قرار توقف العمل بمشروع الباص

4.6 السريع؟

- ( ) نعم ( ) لا ( ) لا أعلم

4.7 هل تعلم أنه تم مؤخراً أخذ قرار بإستئناف العمل بمشروع الباص السريع؟

- ( ) نعم ( ) لا ( ) غير ذلك

4.8 هل تعتقد أن قرار إستئناف العمل بمشروع الباص السريع كان هاماً؟

- ( ) نعم ( ) لا ( ) غير ذلك

4.9 ما هي البدائل الأخرى المجدية إقتصادياً لمشروع الباص السريع في عمان؟

4.10 هل يوجد لديك أية إقتراحات أخرى لأمانة عمان الكبرى فيما يتعلق بمشروع الباص السريع؟



## مستخلص

إن قطاع المواصلات العامة يواجه الكثير من التحديات وخصوصاً في الدول النامية ، كما هو الحال في الأردن. إن هذه التحديات في الأردن تتزايد بسبب واقع النمو العمراني المطرد. إن تطوير نظام مواصلات عامة في واقع كهذا يفتقر لدراسات أكاديمية وافية في الأردن، لهذا فإن هذه الدراسة عبارة عن جهد متواضع لدراسة هذا الواقع في مدينة عمان. أكثر تحديداً، إن هذه الدراسة تركز على تحليل نظام الباص السريع والذي تم تسويقه من قبل الجهات المعنية على أنه مشروع محوري في إطار معالجة المشاكل الكامنة في نظام المواصلات العامة الحالي في مدينة عمان.

تتبع هذه الدراسة منهجية بحث قائمة على معلومات كمية ونوعية، بهدف المساهمة في تقليل الفجوة المعرفية المتعلقة بكيفية تلبية إحتياجات المواطنين بقطاع مواصلات عام ذو فعالية عالية وبالتالي المساهمة في تحقيق التنمية المستدامة في مدينة عمان على المدى البعيد.

هذا وتستخلص هذه الدراسة مجموعة من السياسات والتوصيات الناتجة من تحليل مشروع الباص السريع باستخدام أدوات مختلفة، من بينها: عقد مقابلات مع الخبراء في مجال الإختصاص و تحليل إستبيان أعد خصيصاً لمعرفة وجهة نظر المواطن العادي في حيثيات مشروع الباص السريع.

هذا ومن المتوقع أن يكون هناك اثر بعيد المستوى لنتائج هذه الدراسة نحو السعي لمدينة مستدامة في ظل واقع قطاع المواصلات العامة الحالي في العاصمة الأردنية عمان.

كلمات مفتاحية: مشروع الباص السريع، الإستدامة، مدينة عمان.



## إقرار

هذه الرسالة مقدمة في جامعة عين شمس وجامعة شوتجارت للحصول على درجة العمران المتكامل والتصميم المستدام. إن العمل الذي تحويه هذه الرسالة قد تم إنجازه بمعرفة الباحث سنة 2013.

هذا ويقر الباحث أن العمل المقدم هو خلاصة بحثه الشخصي وأنه قد اتبع الإسلوب العلمي السليم في الإشارة إلى المواد المؤخوذه من المراجع العلمية كل في مكانه في مختلف أجزاء الرسالة.

وهذا إقرار مني بذلك،،،

التوقيع:

الباحث : منى شعلان

التاريخ : 2013





# تحليل نظام النقل العام بعمان: دراسة حالة مشروع الاتوبيس السريع

مقدمة للحصول على درجة الماجستير في العمران المتكامل والتصميم المستدام

أعداد: منى شعلان

لجنة أشرف

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أ. مشارك في العمران الدولي  
جامعة شتوتجارت

أ.د. وولف رويتر  
أستاذ في نظريات التخطيط  
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أ.د. محمد عبد الكريم صالحين  
أستاذ مساعد التخطيط العمراني  
جامعة عين شمس

لجنة الحكم

التوقيع

أ.د. .... الممتحن الخارجي  
أستاذ .....  
جامعة .....

أ.د. ....  
أستاذ .....  
جامعة .....

أ.د. ....  
أستاذ .....  
جامعة .....

تاريخ المناقشة:

الدراسات العليا

أجيزت الرسالة بتاريخ:

ختم الإجازة

موافقة مجلس الجامعة .../.../...

موافقة مجلس الكلية .../.../...

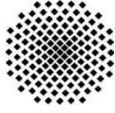
جامعة عين شمس



جامعة شتوتغارت







## تحليل نظام النقل العام بعمان: دراسة حالة مشروع الاتوبيس السريع

رسالة مقدمة للحصول على درجة الماجستير في العمران المتكامل والتصميم المستدام

إعداد

منى شعلان

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