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# Public Transportation in the Middle East: A Study on the Sustainability and Efficacy of Taxis in Amman and the Future of Public Transportation

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# Public Transportation in the Middle East: A Study on the Sustainability and Efficacy of Taxis in Amman and the Future of Public Transportation

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## **Abstract**

This research aims to explore the current public transportation status in the city of Amman, Jordan. Many Middle Eastern cities in the Levant are under critical urban transformations. This is due to both the increasing investment in infrastructure from countries located mostly in the Gulf States and through the mass destruction and neglect from internal conflicts. Amman is the only city in the Levant Region that is growing, and with a population of roughly 4 million, there is no adequate public transportation system in the city. This research includes a review of literature in urban studies and transportation, drawing on the theories of neoliberalism and public transportation. Cities such as Amman that undergo neoliberal transformations prioritize a lifestyle of excessive consumption for the elite, which ultimately relies on global capital and huge reserves of money from wealthier countries. As a result, the city is further formed for the needs of the elite.

The researcher hypothesizes that whether due to the prioritization of the middle and upper classes of Amman and their consumption of personal vehicles or the disorganized structure of public transportation ministries within Amman, public transportation will likely not improve in the near future. This study's significance is related to Amman's exponential and unprecedented population growth in large part to the Syrian crisis, and how redefining the city will affect its citizens socially and economically. This research aims to find a sustainable solution for the future. Data was collected through interviews with government officials and taxi owners, questionnaires distributed to a random sample, and GPS technology following the movement of taxis. This study contributes both qualitative and quantitative perspectives of the taxi system in Jordan to broaden the academic discussion of public transportation in the region.

**Keywords: Geography, Transportation, Neoliberalism**

## **Introduction**

Amman is at a point of critical urban and social transformation. Due to conflict within the Levant, many citizens from neighboring countries (Syria, Iraq, Palestine) have sought Jordan as a state of refuge. Between the years of 2010 and 2015, the city of Amman had doubled in population, from 2,000,000 to roughly 4,000,000, and continues to grow today. As a result, Jordan has haphazardly created infrastructure to house those in need on the outskirts of Amman. However, local Jordanians are combating the local issues and are constantly trying to create a neoliberal urban restructuring of Amman, that caters “to a lifestyle of excessive consumption for the elite...” (Daher, 100), which parallels the development plans of cities in the Gulf States. While Amman never had an adequate system of public transportation, the exponential increase in population, traffic, and poverty has increased the already-existing demand for transportation; this has resulted with the city of Amman struggling to become a city that meets the needs of both the Levant and the Gulf States; Amman has become a crossroads politically, socially, and geographically.

One of the ways Amman has shifted to a privatized-sector economy has been through public transportation. The current public transportation system relies heavily on private companies. Due to the fact that the government does not subsidize public buses, the management and reliability of these buses have fallen into the hands of private owners. As a result, Amman has adopted a system consisting of different types of privately operated taxis and buses to substitute an already-desired public transportation system. In Amman, there are essentially four different types of taxis: the white, yellow, grey, and ride-hailing. Few studies have explored the specific reasons to why Jordan has adopted the taxi system, and none have studied the impacts neoliberalism has had on the city’s public transportation. Research on this

topic is often unorganized and incohesive; “public transportation” is under the jurisdiction of many organizations and people; besides all of the private companies, some of the public-sector committees responsible for public transportation includes the Land Transport Regulatory Commission (LTRC), Greater Amman Municipality (GAM), and Ministry of Transport. As a result, many of the individual organizations conduct their own studies, but seldom are there studies with all of the organizations.

This research will explore the question of how sustainable and effective the taxi system of Amman is, and how the current system is prepared for the future. The objective of this research is not to prove or disprove a specific hypothesis, but to rather expand the field of knowledge and data available. Amman’s identity is at a crossroads - socially, politically, and physically - it is trying to rapidly suit the needs of the Levant countries by creating housing for the incoming refugees, while trying desperately to restructure the city to model those of the Gulf States, where catering to neoliberalist policies is encouraged. The city of Amman has created explicitly-zoned low-income residential cities on the fringes of Amman, such as Jizza, Marka, and Sahab, where many of the refugees live. At the same time, Amman has pushed for a more exclusive living environment in the center of the city, with projects such as the “New Downtown” Abdali, a plethora of new shopping malls such as Mecca Mall, City Mall, Barakeh Mall, and Abdoun Mall, and residential “gated” communities such as Green Land and Andalucia. The researcher recognizes that writing about and analyzing the push for more of a spending economy is far beyond the capability of this paper. Instead, this research is more specifically interested in *how* the push for more of a spending economy has affected the city’s transportation.

## Terms and Definitions

This research will focus on how transportation in Amman is adjusting to the overall neoliberalist restructuring of the city. Neoliberalism is a term that will be used quite often throughout this paper; the researcher uses the definition that Marxist geographer David Harvey uses in his book *A Brief History of Neoliberalism*.

Neoliberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free market and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices (Harvey, 2).

Many Arab cities, especially in the Gulf States (e.g. United Arab Emirates, Saudi Arabia, Qatar) have adopted neoliberalist policies based on the notion that entrepreneurial freedoms and excessive spending will further the well-being of its citizens. Based off of the research conducted by Rami Farouk Daher in his article “Neoliberal urban transformations of the arab city” this research will be conducted under the assumption that Amman is under critical economic-policy shifts which favor the effects of neoliberalism, such as deregulation, increased spending habits, and exclusive luxury zones. Neoliberalism, however, can lead to what academic Edward Soja calls a socio-spatial dialectic, where both the society and the space it lives in continually affect each other. Spatially, neoliberal policies have already manifested themselves into Amman through the high-end business towers of Abdali, gated exclusive communities, and new high-end malls. However, there are many social consequences to neoliberal socio-economics. The state is continually pulling itself out of many sectors that often are considered to be under the responsibility of the government, such as education, healthcare, social housing, and for the purpose of this study, public transportation. Public transportation has become increasingly privatized in Amman through the adoption of private taxis; as the city experiences more geographies of inequality, the purpose of this research is to understand how the

government is adjusting to the needs of neoliberalism and the incoming refugees through its public transportation, and who the future projects and routes will affect.

Additionally, ownership and regulation within Amman's transport systems (public or private) are often confusing due to the lack of organization between public-sector organizations. Currently, the fate of public transportation is decided by the legislators and regulators. The legislators consist of both the lower and upper houses of Parliament. The regulators are the Ministry of Transport, the Land Transport Regulatory Commission (LTRC), and the Greater Amman Municipality (GAM). The board of LTRC is headed by the Minister of Transport, and serves the public transportation needs for all of Jordan except Amman and Aqaba. Amman is operated by the Greater Amman Municipality (GAM), which is responsible for public transportation services within the Amman governorate. GAM must comply with the regulations that LTRC establishes. LTRC is headed by the Minister of Transport, which must heed the laws that the lower and upper houses of Parliament enact.

## **Literature Review**

As mentioned previously, it is essential to understand the social and spatial transformation of cities in the 21st century. In an increasing globalized world, most developing and developed cities have transitioned to a neoliberal-focused economy that stresses the overall privatization of public-sectors. To understand the general theory of neoliberalism, the researcher extracts upon the work of David Harvey in his book *A Brief History of Neoliberalism*.

Neoliberalism has become a popular economic policy in many developing cities because its supporters claim it jumpstarts the economy by promoting competition within several companies, whether that be through "individuals, between firms, [or] territorial entities" (Harvey, 65). Neoliberal theorists argue that less governmental intervention will

eventually drive more production in the city or state. However, David Harvey points out an essential issue with neoliberal theory. Due to the fact that there is no government intervention, there is a likely rise of an oligopoly or monopoly, due to the fact that stronger firms by nature will drive out the weaker ones. In developing cities, this can be an extreme hazard where governments are already often unorganized. While Harvey points out that neoliberal theorists find this unproblematic, the researcher supports Harvey's arguments that companies that acquire "natural monopolies" over government responsibilities can be problematic; the "possibilities for profiteering and abuse...are very real" (Harvey, 67).

To expand on neoliberalism's relevance to Amman, the researcher relies on the work of academic Rami Farouk Daher in his article "Neoliberal urban transformations of the arab city" to understand how Amman is changing its economic strategies and the impacts this will have for the future of the city. In the article, Daher bases his research on previously well-known academics in neoliberal socio-economics, such as geographer David Harvey and philosopher Michel Foucault. The researcher uses this article to further understand the urban disparities, emergence of consumerism, and geographies of inequalities specifically affecting Amman. Although the name in "public" transportation implies that it is for all - tourists, students, citizens, the impoverished - the construction of new public routes are always political, as they prioritize certain groups of people, and by nature, exclude others. Neoliberalist policies encourage more private "gated" communities, malls, and skyscrapers in Amman, and the researcher attempts to connect the policies and construction of new projects in Amman to the relationship they have with the future of planned public transportation projects. Additionally, the researcher supports Daher's arguments that the government has continually shown flexibility to corporate capital

“through the informalization of public decision-making when it comes to approving large-scale and corporate neoliberal investment in [Amman]” (Daher, 111). The history of investment and city-planning is not often discussed in the article, and will mostly be used to understand future projects in Amman.

The theory of neoliberalism is used in this research to understand the future urban planning of Amman, due to the fact that many scholars claim Amman is going in this direction. However, to understand the general laws and history of government involvement with public transportation, the researcher uses academic Matti Siemiatycki’s article “Implications of private-public partnerships on the Development of Urban Public Transit Infrastructure”. In order for a private-public partnership to be successful, Siemiatycki argues there must be a proper procedure to transfer public responsibility to private responsibility. There are many functions that both sides (private and public sectors) desire: to design, build, operate, transfer, and style all the needs of public transportation. Siemiatycki’s studies are used to show how substituting the roles of the government for the use of private companies has led to failing to “drive technological innovation or limit cost escalations during the planning process” (Siemiatycki, 137). While the researcher believes private-public partnerships can be beneficial, the researcher agrees with Siemiatycki’s points that there is likely to be more corruption in the public-private partnership process in developing cities such as Amman.

However, research regarding the public transportation in the specific region of Amman relies on a different article. In 2017, the Center for the Study of the Built Environment (CSBE) released a report titled “Public Transportation in Jordan: A Policy Study Report”. In this study, the authors try to target the challenges affecting public transportation, and then offer possible solutions. Some challenges preventing the improvement of public transportation in Amman

mentioned in the report are that public transportation does not seem to be a priority, the sector does not receive any significant financial support, a lack of coordination within the government, privatization, and more. The solutions offered require a substantial restructuring of government organization, and blame the overall historic lack of coordination and organization to be the main contributing factor of an inadequate public transportation system. While the researcher agrees with the possible remedies (subsidizing public transport, addressing the issue of individual ownership, implementation of smart systems, etc.), the report is used in this research to understand the general framework of the government's history and involvement with public transportation rather than trying to offer active solutions to the current issues. The researcher's solutions to the problems of Amman's public transport stems from both the CSBE's research and individual interviews.

Because Amman's history of public transportation has always relied on private companies to liasson the buses and taxis, there is not significant research on the public transportation of Amman, whether due to the fact that the individual companies conduct their own studies or the multitude of public organizations of Jordan are uncoordinated. The researcher uses Daher's neoliberalism article to understand the future projects of Amman, and uses the CSBE's article to understand Amman's past policies concerning public transportation. However, the literature that most relates to Amman's current public transportation situation lies in understanding the role of taxis in developing cities. The researcher therefore relies upon the research prepared by Antonio Nelson Rodrigues da Silva and Ronaldo Balassiano in their paper "Global Taxi Schemes and their Integration in Sustainable Urban Transport Systems" to understand how developing cities switch from taxi-based transportation cities to more conventional systems used in bigger cities such as buses or a metro system. As the authors note,

“taxis are often used to supplement inadequate public transport systems based on buses or trains.” (Da Silva and Balassiano, 1). As a result, taxis do not hold the same functions as those seen in developed cities. Rather, taxis are characterized by a form of cheap carpooling and low cost single passenger services. Although the theoretical framework of this article focuses on cities in South America, the issues that taxi-reliant cities face often see striking similarities in unregulated markets. The researcher uses Daher’s studies of neoliberalism to further understand Da Silva and Balassiano’s arguments on how unregulation in the market results “in an oversupply of services, high competition for passengers and, as a consequence, low fares and low incomes for taxi operators.” (Da Silva and Balassiano, 2). The article “Global Taxi Schemes and their Integration in Sustainable Urban Transport Systems” offers a concrete understanding of the different roles the conventional “yellow” taxis play in different developing cities around the world. However, to understand Amman’s complex multitude of different types of taxis, the researcher resorts to interviews for information.

The last written information of secondary sources that the researcher uses is data conducted by the Greater Amman Municipality, or GAM. The researcher received the data from the “2015 Transport Sector Annual Report” published by the Ministry of Transport, which currently has the most up-to-date publicly available information about public transportation in the region. The researcher uses the data and statistics that received from the Ministry of Transport to understand the departments that the Ministry of Transport claims to represent: LTTC and GAM. Data in this research is used to understand ridership patterns, government budgets, and the effects of different modes of transportation (e.g. service taxi, yellow taxi, bus, etc.) have in the region.

## **Methodology**

In seeking to answer how Amman's government is preparing for a more sustainable and effective public transportation system, the researcher conducted data in a variety of different forms, both qualitative and quantitative, including interviews, questionnaires, and GPS data collecting. Before collecting data, the ultimate goals in the data gathered was to understand how the current form of public transportation operates and how the government is preparing for Amman's urban future. To acquire a basic understanding of Amman's current and future plans for public transportation, the researcher conducted five different interviews. All interviewees were between the ages of 40 and 60, and all but one were male. The interviewees were chosen due to having some significant role in Amman's current public transportation system. Three of the people interviewed were government officials responsible for public transportation, and two were taxi-owners of current taxi companies in Amman.

Government officials were found and contacted through the help of the researcher's advisor, Dr. Ismaiel Abu Amoud. For one case, Dr. Abu Amoud also served as a translator. The taxi owners were found by developing relationships with taxi drivers during the months of school in Amman prior to the Independent Study Project time. Interviews were semi-formally constructed, meaning the researcher came into the interview prepared with two main themes, accompanied by five questions for each theme. By coming into the interview with prepared questions, the researcher was able to ask further questions if the interviewee went on a tangent, while still remaining able to return to the original questions. Interviews typically lasted between 45-60 minutes and were conducted in the interviewees' offices. The researcher took notes on what the interviewees had to say, and later turned those shorthand notes into longhand notes. During the ISP period, the researcher made the decision that using a recorder was not necessary.

This reasoning was furthered in the belief that interviewing participants without a recorder would lead them to say more statements that potentially wouldn't have been said if there was a recorder present.

In terms of the content, the government officials were interviewed in regards to understand how the government currently transfers and supervises public transportation, and how they prepare to make changes for future public transportation projects. The taxi owners were interviewed to understand the role of taxis in Amman's public transportation, and how taxi companies are preparing for future Amman. All participants signed a letter of consent form, and in efforts to protect the identity and opinions of all the interviewees, all participants have been assigned a letter rather than their name.

The second form of collecting data was through providing around 90 questionnaires to students at the University of Jordan. Questionnaires provided the researcher with information on ridership patterns of University students in Amman. Patterns included mode of transportation, place of residence, commute time, and spending. The questionnaires consisted 7 multiple choice questions and 1 open-ended question that asked for any additional comments about public transportation in Amman. After the questions were written by the researcher, a member of SIT translated the questionnaire. Once translated, the questionnaire was emailed to the researcher's advisor at the University of Jordan, who distributed them to his students. All of the questions listed ask no type of question that would reveal the identity of the participant. Though rare, there were some instances of participants leaving certain questions blank, but there is not a significant occurrence of this to affect the results.

The final form of data collection was through GPS data. The researcher wanted to have evidence of where taxis go in a day. This was accomplished by comparing the ridership of two

different taxi companies: a yellow taxi company and Mumayiz. For each company, the researcher gathered data for two different days. The first set of data was collected for roughly 4 hours, while the second set of data was collected for roughly 2 hours. The researcher gathered the GPS data from Mumayiz by going to an IT employee at the main Mumayiz office. Though the employee was not allowed to email or download the data, the researcher was able to take a photo of the maps on the computer screen. The researcher later hand-drew the routes to the best of his ability. To gather GPS data for the yellow taxi, the researcher sat in the backseat of a yellow taxi on two separate days, for about 4-5 hours each. The researcher used his own GPS on his personal smartphone to track where the taxi was going, and recorded additional information in his notebook, such as travel time, travel distance, amount of passengers in the car, etc.

### **Obstacles to Research**

In this research, the researcher's goal was to understand how people in Amman utilize the public transportation. A city is inherently filled with people of different demographics and interests, and given the one-month period the researcher had to do the research, it was not feasible to understand in depth how the different taxis and buses operate throughout the city. For this reason, the results gained from the interviews, questionnaires, and even GPS data are all true, but by no means fully represent the public transportation situations in Amman. In terms of the questionnaire, the questions were only given to University of Jordan students. The researcher picked the University of Jordan to survey because it is an institution where a roughly equal proportion of students from around the city and outside of the city come to Amman. The University of Jordan also lays in a centrally located area, where it would be possible to arrive by public transportation. However, out of the thousands of students that attend the University of

Jordan, only 90 were sampled. If the researcher had more time, a larger sample size would be conducted.

However, most of the researcher's troubles came with the GPS data. Throughout Amman, thousands of taxi routes are created on a daily basis. However, the researcher was only able to capture four different taxi rides for a minimum amount of time. SIT was not responsible for finding taxi drivers willing to drive the researcher around. Instead, it was upon the researcher to find drivers and pay them to have him sit in the back seat. Because all the GPS work came out of the researcher's own pocket, the research is very limited and only represents a miniscule amount of routes that are covered every day. Many biases inherently arose, one of which was recording data at a specific part of the day. For example, the researcher recorded data during peak rush hour, so the taxi drivers often tried to avoid the center of the city due to traffic. Additionally, many passengers, mostly women, would not enter the taxi since there was a male sitting in the backseat. Had the researcher not been in the taxi, the GPS data would have looked slightly different.

Finally, it is simply difficult to conduct research in a country with an unfamiliar culture and language. Even though the researcher had translators, interviewing in a mix of Arabic and English made questions often more simple than had intended to be. When the researcher interviewed representatives of the public transportation system in Amman, the answers were often saying that the government is "working on" new projects, but any further discussion in the interviewees' responses seemed vague. Because the answers were inherently filtered through the translator or because the researcher didn't know that much Arabic, answers were often not put in the most detailed way possible.

## **Findings**

At the moment, Amman's current public transportation is viewed by all parties (drivers, passengers, owners, and government officials) as hectic and dysfunctional. While this research aimed to explore the sustainability and effectiveness of Amman's public transportation, all parties (including the researcher) had different opinions as to why the system is dysfunctional and how to adopt a better system for the future. To understand the findings in the most cohesive way, the researcher will first discuss the results of the five interviews. These results will be discussed from the highest of power to the lowest, meaning findings will start with government officials and end with taxi-owners. Following the interviews, the researcher will discuss his findings with the questionnaire that he conducted at the University of Jordan. Finally, the last findings included in this paper will be from the GPS data that was recorded on two separate occasions in Amman.

### **Interviews**

Interviews were conducted with two major themes: current problems of the public transportation system and current solutions. All interviews were held with participants that have some role in the public transportation sector of Amman. For the sake of confidentiality, the researcher will be using letters as replacements for the interviewees' names. The first 3 interviewees, A-C, are government officials, two of which work at the state level, and one of which works at the city level. Interviewee A is a representative from the Greater Amman Municipality, or GAM. Interviewee B is a representative of the Land Transport Regulatory Commission, or LTRC. Interviewee C is a representative of the Ministry of Transport. The last two interviewees are taxi owners. Interviewee D is one of the owners of a successful private taxi company based in Amman called Mumayiz. Interviewee E is an owner of three yellow taxis.

**Interviewee A:**

Interviewee A is the Executive Director of the Public Transportation section of the Greater Amman Municipality (GAM). As one of the top officials for public transportation in the region, Interviewee A is responsible for knowing the current and future status of public transportation in Amman. According to Interviewee A, as of 2015 there are around 14,400 vehicles operating as “public transportation”. The words *public transportation* are put in quotation marks due to the fact that the vehicles that function and serve as public transportation vehicles are not necessarily run and overlooked directly by the government. As Interviewee A pointed out, the government establishes basic rules (regarding maintenance, licensing, price control, etc.), but leases the responsibility of operating the vehicles to private companies.

Public transportation in Amman manifests itself in five main forms: small car (service taxi), medium bus, large bus, yellow taxi, and Taxi Al-Mumayiz. The service taxi is a 5-seat white car that has designated routes determined by GAM. As of 2015, Interviewee A said that there are approximately 3,000 white taxis registered in Amman. The Medium Bus is typically a 30-seat Toyota Coaster from the 1990s; as of 2015, there are about 200 medium buses serving Amman. Large buses can typically fit roughly double the size, and take on streets that are denser in population. There are currently around 500 large buses in Amman. However, as Interviewee A pointed out, the main form of public transportation in Amman is considered to be the yellow taxi. The government sells licenses to taxi companies, which then sell the taxis to taxi owners. The taxi owners then lease out the cars to taxi drivers. There are currently around 133 taxi offices in Amman, which operate a total of 10,400 taxis all throughout the municipality of Amman. However, the company Taxi Al-Mumayiz is considered to be a separate company, due

to the fact that they have a ride-hailing app, dispatch services, and cost a little bit more money than the yellow taxis.

Even though Mumayiz offers street-pickup services as the yellow taxi does, the researcher saw striking similarities to similar ride-hailing apps such as Uber, Lyft, and Careem. Interviewee A made it very clear that these ride-sharing apps are deemed illegal by the Jordanian government. When questioned why, Interviewee A explained that these companies do not go through the standard proper procedure to be licensed; in other words, they don't pay to operate as a taxi service in Amman, while the other taxi services do. However, Uber, Lyft, and Careem do not necessarily operate in the same manner as the yellow taxis, and it was clear that the government has gone out of its way to make it difficult for these companies to operate in Amman.

According to Interviewee A, there is a simple explanation. Global ride-sharing apps such as Uber and Careem will drive out the competition for the current 133 taxi offices in Amman. Although it is simple neoliberalist economics that "competition often results in monopoly or oligopoly, as stronger firms drive out [the] weaker" (Harvey, 67), the government in Jordan is actively trying to avoid private monopolies or oligopolies, to "protect the jobs of the taxi drivers" (Interviewee A). However, as Jordan adopts a more neoliberal model where there is supposed to be less government intervention, having government intervention securing the position of the yellow taxis actually might be hurting the progress rather than protecting.

While the taxi system of Amman has been a viable solution for most of Amman's history, Interviewee A implied that there are major shifts in how people move around the city. There has been an increase in private cars which has led to more traffic. Since taxi drivers are paid by distance, traffic makes them have even less of an income. Riders have to wait longer to travel,

due to no reliable schedules offered by the services of the white taxi and buses. The solution, according to Interviewee A, is to create larger projects that will serve the community of Amman. As of right now, the government is constructing 3 major Bus Rapid Transit (BRT) routes and is in the talks for a future Light Rail. According to Interviewee A, the first BRT line will go from the Northwest-Amman neighborhood of Swuayleh, through the University of Jordan, eventually ending near Downtown Amman. The second line will stem from the first line from the neighborhood of Sports City, and will serve as a southbound route that eventually curves into the southern part of Downtown, going through stops with significant government buildings and museums. Finally, the third BRT is planned to go from Amman to neighboring-city Zarqa.

While many cities have adopted public transportation systems that include buses and light rail, there is a severe problem that Jordan has not recognized until now; there are nearly 3,500 public transportation companies that operate the public transportation system, and there is little to no cooperation between them. One significant impact on this is a lack of information for timetables and prices. Service taxis and buses operate at a flat rate of around 35 cents, but if a passenger chose to transfer, they would be required to pay again, because often they are switching to a vehicle operated by another private company, and the government has no standardized method of payment or transferring.

As a solution, Interviewee A said GAM is currently working on an app that would encourage ride-sharing through the yellow taxis, increase the knowledge of routes, timetables, and fares, and create a standardized system of ticketing. Coming into Jordan as a non-local, the researcher was not knowledgeable of any of the current information. There was no indication of maps in buses, on the street, or even in offices. When the researcher asked Interviewee A how to look at routes, Interviewee A took 10 minutes to try to find the map online and eventually

showed me what is Figure A. Not only is there no map available with all the routes labeled, when one picks on the specific route they choose to take, there are not even street labels. The government is currently not prioritizing the accessibility and affordability of public transportation in Amman; rather, they are prioritizing the security of taxi drivers' jobs.

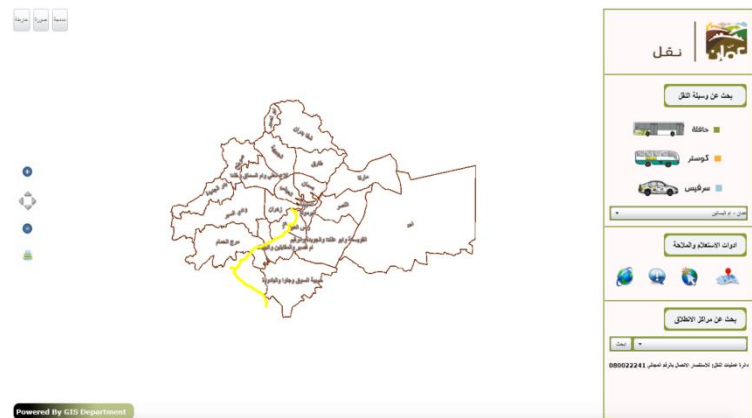


Figure A. The routes are offered for the three modes of transportation that have designated routes: Bus (large bus), Coaster (medium bus), and Service (white taxi).

## Interviewee B

Interviewee B is a mid-40s female who is employed at the Land Transport Regulatory Commission (LTRC). While GAM is responsible for all transport within Amman, LTRC is responsible for all transportation into and outside of Amman. Among other transportation duties, LTRC is responsible for public transportation throughout all of Jordan. However, in 2007, the regulation and responsibility of public transportation within Amman was transferred from the LTRC to GAM, due to an unprecedented increase in population which required a more specific organization to overlook the public transportation in the city.

When speaking with Interviewee B, she was very hesitant to talk about Amman's public transportation, and constantly said it was under the responsibility of GAM. Interviewee B did not have the same extent of knowledge Interviewee A had in terms of public transportation in Amman. When the researcher asked about public transportation in other cities in Jordan, the answers were also vague, due to the fact only Amman and the seaport city of Aqaba have their own respective transportation committees (Aqaba's is ASEZA). Because these two Jordanian

cities have their own city governments responsible for public transportation within the region, Interviewee B is responsible for public transportation for vehicles outside of the cities and vehicles entering or leaving the city; this includes the second and third largest cities of Amman, Irbid and Zarqa, respectively. However, while Interviewee B was not aware of the current status of public transportation projects in Amman, as a federal employee for Jordan's transport, she explained the reasons why Amman is not creating an efficient taxi system.

The problem, according to Interviewee B, is not the same as what Interviewee A believes. Interviewee A stated that public transportation has become an issue solely due to the small-scale modes of transportation (Service Taxi, Coaster, yellow taxi) that do not have the proper infrastructure to go faster than private cars. While Interviewee B acknowledges that this has catalyzed the instability for public transportation in the region, Interviewee B believes that congestion and population increases have occurred due to "incorrect and insufficient planning". Many of the new sprawling neighborhoods created for the incoming refugees are not created in a careful and appropriate manner; rather, Interviewee B believes city planners simply create quick solutions. However, the problem does not solely lay in the city planners. In order to create a sustainable public transportation-friendly city, Interviewee B believes city planners must coordinate more with the public transportation agencies. According to Interviewee B, both the city planners and public transportation planners work for GAM, but seldom coordinate. City planners and public transportation planners rely on public usage of the city - parking, walking space, bus stops, bus lanes - but do not work together to understand if their choices are most suit.

In terms of how LTRC plans to prepare for the future of Amman's public transportation, the commission is currently working on the Bus Rapid Transit (BRT) line that would connect Amman with Zarqa. When the researcher asked about the BRT project that is supposed to

connect the two cities, Interviewee B said that LTRC is still waiting for the completion of infrastructure in Amman, and there is no answer to when it will be finished. Even if the construction of the BRT line miraculously finishes by the projected due date of 2019, no private companies have yet to invest into running and operating the buses. The progress of LTRC's BRT is strikingly similar to those of Amman; the publicly-funded infrastructure has been delayed and under construction, and the private interest still remains in a vacuum. While the BRT projects can be very successful for the citizens of Amman, the city must have an organized plan not only for public transportation, but the planning of the city as well. Better cooperation between the different offices within GAM would lead to better transportation, housing, and lifestyle. Interviewee B is a testament to the fact that there is a lack of communication between GAM and LTRC. The government has not finished any of their proposed public transportation projects, and little to no private companies are taking interest for any of the future projects. This has only increased mistrust, redundant roles, and unproductivity among the citizens, government, and private companies.

### **Interviewee C**

Interviewee C is a mid-aged male who works for the Ministry of Transport. Like the LTRC, the Ministry of Transport operates and maintains the responsibilities of Jordan on a national scale. When questioned about the efficiency of Amman's public transportation, Interviewee C claimed that a significant contribution to Amman's current chaos (in public transportation) stems from the lack of jurisdiction the Ministry of Transport has over GAM. With the current system of privatized public transportation through the Service taxis, yellow taxis, and buses, Interviewee C claims that the city of Amman has "reached a deadlock". On a national scale, Interviewee C states that it is very clear to see that the increase in private cars and

private companies maintaining the public transportation hasn't helped. This is because the city must dedicate more employees to prioritize restructuring the city to cater to the needs of better transportation, rather than prioritizing companies to purchase the buses and taxis. Interviewee C believes that while there is a good relationship with GAM, the Ministry of Transport is not the issue. Very similar to what Interviewee B had to say, Interviewee C stated that the nation provides the money to create the infrastructure for public transportation in Amman. However, at a city level, GAM is not putting the money in the right places, and the investment needed from private companies is scarce.

In order to gain the people of Amman's trust, Interviewee C claims that GAM must finish their BRT projects. Once the BRT line is finished *and* under operation, regardless if it is under the full-projected operation, citizens of Amman will gradually transition from using their private cars to public transportation, largely due to the BRT's appeal of avoiding traffic through dedicated lanes. Both LTRC and GAM will finish their parts on constructing better public transportation infrastructure; but finishing the BRTs will nowhere near solve the issues that Amman faces today. While there is an increase in private cars, the cars are not the reason public transportation has become so unreliable. Amman's public transportation is slow, expensive, and dangerous due to the fact that the city government prioritizes funding private operators to run "publicly" designated vehicles on publicly funded roads. However, until now with the BRT projects, Amman has never invested into using public money towards public transportation-dedicated infrastructure. Interviewee C claims that the Ministry of Transport should have increased jurisdiction over GAM. With more jurisdiction, the Ministry of Transport could influence where GAM invests its money for public transportation.

So far, all the people interviewed currently work in the government-funded public transportation sector of Amman and Jordan. However, the problems and the solutions posed by these interviewees were all slightly different. Interviewee A, working on a city scale, believed that too many taxis and private vehicles have increased the traffic. This has resulted in the lowering of potential wages taxi drivers had made before, and the longer travel time for passengers. The solution, therefore, is to create more big scale projects (that will presumably be supervised under private companies and investors) that include implementation of a BRT system, increase in buses, and even creating a light rail in Downtown. Interviewee B, who works on a national scale, acknowledged the traffic and wages as an issue, but not the root of the problem. Rather, the underlying cause of Amman's public-transportation crisis supposedly lays in the insufficient planning and coordination between offices in GAM and communication to the national committees such as LTRC and the Ministry of Transport. With better communication between all the government agencies, the bigger projects will be more likely to succeed. Interviewee C, who also works on a national scale, believes that the lack of coordination has deterred private investors from taking interest in the larger public transportation projects that rely off of privately-funded money. Therefore, if the coordination within GAM offices increases and has a better understanding of each other's goals, as proposed by Interviewee B, and the increased cooperation leads to the opening of the BRT lines as Interviewee A wishes, there will be more private investors from all over the world, due to an understanding that the government is indeed organized and determined, as stated by Interviewee C.

## **Interviewee D**

Unlike the past interviewees, Interviewee D does not work for the public government. Instead, Interviewee D is one of the owners for a private taxi company that operates out of Amman: Mumayiz. Mumayiz started in 2008, funded by Kuwaiti investors, as a tourist transportation company. The company competed with the existent yellow taxis due to having cleaner and more spacious cars, reliability, and safety. While initially claiming to operate on a dispatch service, where customers would call in for a taxi, Mumayiz adopted street-side service almost immediately.

Mumayiz is considered to be a form of public transportation since it is a form of a taxi. However, unlike the yellow taxis, Mumayiz has some privileges over the yellow taxis that might affect Amman's public transportation in the future. According to Interviewee D, Mumayiz is successful because it is a large company that is more organized than any of the yellow taxis. There are people dedicated to tracking cars using GPS systems, advertisements in malls, and an application that allows customers to directly order a Mumayiz. Due to the fact that ride-sharing apps such as Uber, Careem, and Lyft are deemed illegal to promote the jobs of the taxi drivers of Amman, Mumayiz drivers seem to reap the benefits of both legally operating a ride-sharing app that yellow taxis do not have, while also maintaining street pick-up services that Uber and Careem are not able to do.

Due to the rising organization of the company, Interviewee D believes that the government will eventually have to rely on Mumayiz to be in charge of most of the yellow taxis in the future. The current mode of yellow taxis is not sustainable because many people are involved owning the taxi, many of the employees are not sufficiently payed, and taxis don't have the information to know when to access lesser-travelled areas due to not having the technological

infrastructure that Mumayiz has built up. Mumayiz has taken advantage of the yellow taxi disorganization, and uses their pools of money to invest into dedicated lanes in private malls and applications that allow customers to order Mumayiz on-demand. Because of the organization and existent infrastructure of Mumayiz, Interviewee D claims that the government will eventually have to rely on Mumayiz.

Interviewee D believes that the yellow taxi companies will eventually have to consolidate. There are more than 133 yellow taxi offices that operate over 10,372 vehicles. None of the yellow taxi companies have their own technology to track their customers, and are less organized, leading to less employee screening and structure. In terms of Mumayiz's role in the future of Amman's public transportation, Interviewee D believes that with the technological upper-hand in the competing business, the government will seek Mumayiz to understand the role taxis have to play in Amman's public transportation system, even if the cars that Mumayiz drives are not painted yellow. One significant case of this is through Mumayiz's app development. The Jordanian government is working on an application (according to both Interviewee A and D) that would provide routes, fares, and even a pick-up service for Jordanians. However, when the researcher interviewed Interviewee A, a GAM employee, and asked who would be responsible for creating this app, Interviewee A simply stated that a private company is currently under the process of working on it. Interviewee D, who works for Mumayiz, claimed that Mumayiz was the company responsible for making the app.

The government chose Mumayiz because it was the only taxi company that was able to gain technological and organized infrastructure through a legal process to become the top contender for taxi services responsible for Amman. While Mumayiz might be in charge of the "public" app of taxis, yellow taxi companies at first will still be able to work independently.

With Mumayiz owning the app services for both their own company and the rest of the yellow taxis, the function of a yellow taxi will drastically change. As yellow taxis renew licenses under the public government, the government is looking towards the private company of Mumayiz to undertake the responsibility for all of the taxis. Interviewee A stated that the government prioritizes the yellow taxis by making Uber and Careem illegal, even though advertisements are clearly visible throughout the city (Figure B). Mumayiz will become the de-facto taxi company because the government has a lack of organization and favors private companies through their newer neoliberal policies. With an upper-hand in the private and public sector, Mumayiz has climbed the ladder to be most influential in the taxi-sector of Amman.



Figure B. The advertisement says “Stay, Uber is coming. Forget parking and the tiredness of driving around.”

### **Interviewee E**

Like Interviewee D, Interviewee E is also an owner of taxis in Amman. However, unlike Interviewee D, Interviewee E is a taxi owner of three yellow taxis. Interviewee E started out as a yellow taxi driver, but realized that in order to make a better profit, investing into the taxis was a smarter option than just renting them out on a daily basis. Even though he works for a private yellow taxi company, Interviewee E believes that the taxis should not represent public transportation in Amman. This is because the government, although trying to preserve the jobs of the yellow taxi drivers, has done little to ensure better livelihoods for them. This is because there is little regulation towards yellow taxi companies, as long as the companies pay their fees on a yearly basis. As Interviewee E explained, the yellow taxi system in Amman has many different layers of operators. On the top level, a company can buy taxis for a considerably cheap price. The companies are required to pay very little taxes for the taxis, while car taxes in Jordan

for ordinary customers can likely succeed 150% of the original price. The company then sells the cars to owners, who operate under the individual owner, such as Interviewee E. Even though the government does not require the companies to pay a lot of money for the taxis, the government has large taxes for the owners to buy the taxis from the companies. Today, according to Interviewee E, owners are required to pay around 50,000 Jordanian Dinar (JOD), while only 10 years ago it was around 22,000 JOD. The owner only creates a profit by renting out the car for about 30 JOD for a 12-hour span to taxi drivers. This means the maximum amount of money a taxi owner could make for an individual taxi is around 60 JOD per day, the equivalent of 85 US dollars. The major profit is made by the taxi companies, not the owners.

Interviewee E believes that the yellow taxi scale isn't sustainable because there are too many companies. In his view, the companies should be completely cut out of the equation, so that yellow taxis can be sold directly to Jordanian citizens for cheaper rates. However, as the government pushes for increased privatization, stronger yellow taxi companies and Mumayiz would destroy any competition individual taxi owners would have. For this reason, taxi owners such as Interviewee E desperately want the solutions to involve more government participation, organization, and consolidation. Interviewee E sees GAM as favoring the small and disorganized companies to protect the stability of the taxi companies, but sees the solution in either having the government run the taxi business or have a couple of companies compete.

Regardless of what the solution is, all interviewees had similar opinions about government participation; the government is entangled with some kind of self-created paradox. Through neoliberal policies, the government puts private companies in charge of public transportation responsibilities, but continues to create unnatural laws (contradictory to neoliberal policies) that ensure and protect the rights of taxi owners. However, the government does not

necessarily create laws bettering the lives of these taxi drivers and owners. For example, Interviewee E explained that the rate of the taxi has not increased in years. Because the country has experienced inflation, increased traffic, and more competition, the taxi drivers are forced to work at a low rate simply to get any business at all. Currently, Amman is a developing city that can not afford many bigger-scaled public transportation projects. For this reason, the yellow taxi has become the de-facto mode of “public” transportation. However, as a taxi owner and driver, Interviewee E proves that the fate of the yellow taxi is rapidly about to change. In the coming decade, it is likely to see more consolidation between the 133 different taxi companies. As the taxi companies do not have the proper money or investment to create advertisements and applications that Mumayiz can, it will be sooner than later that taxis will be forced to consolidate. Until the government understands that it is their responsibility to consolidate the different taxi firms, Interviewee E believes that there will be no progress in Amman’s public transportation, both for the owners and the riders.

Vehicle Category	Number of Routes	Number of Operators	Number of Vehicles
Service Taxi	84	3,013	3,007
Medium Bus	69	192	204
Large Bus	81	11	495
Taxi Office	N/A	133	10,372
Taxi al-Mumayiz	N/A	1	330
<b>Total</b>	<b>234</b>	<b>3,550</b>	<b>14,408</b>

Figure C. Number of vehicles operating under the authority of the Greater Amman Municipality (GAM) until the end of 2016. Data acquired by GAM, data provided through the Ministry of Transport.

## Questionnaire Results

Along with the interviews, the researcher also created a questionnaire that aimed at understanding ridership patterns of Amman. The questionnaires provided daily ridership information for students attending the University of Jordan. The University of Jordan was chosen as a case study due to the fact that roughly the same percentage of people from all of Amman and outside of Amman attend the school, therefore proposing an ideal location to understand the ridership patterns of Amman (Figure D).

According to the questionnaire, roughly half

of the students (47%) sampled at the University of Jordan take public transportation (Figure E).

Public transportation, as described in the questionnaire, involves any use of the Service taxis or buses. Public transportation is clearly high in demand for University students. Regardless of the reasons public transportation is taken, the University of Jordan lies on University Street, one of

Count of Residence

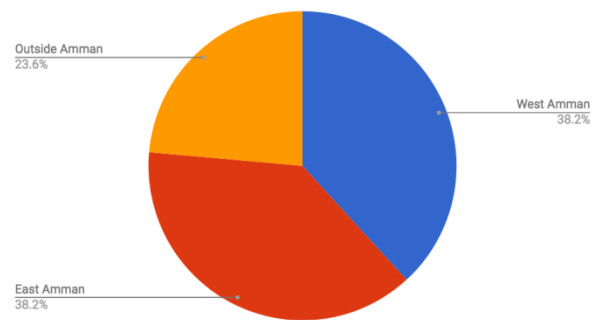


Figure D. Out of the 90 people surveyed, the same exact number of people were from West and East Amman. There were slightly less people from outside of Amman.

Amount Spent on Daily Transportation (Jordanian Dinars)

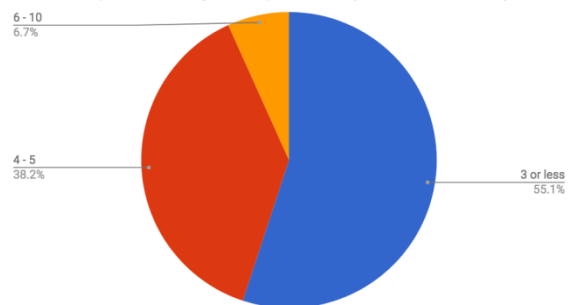
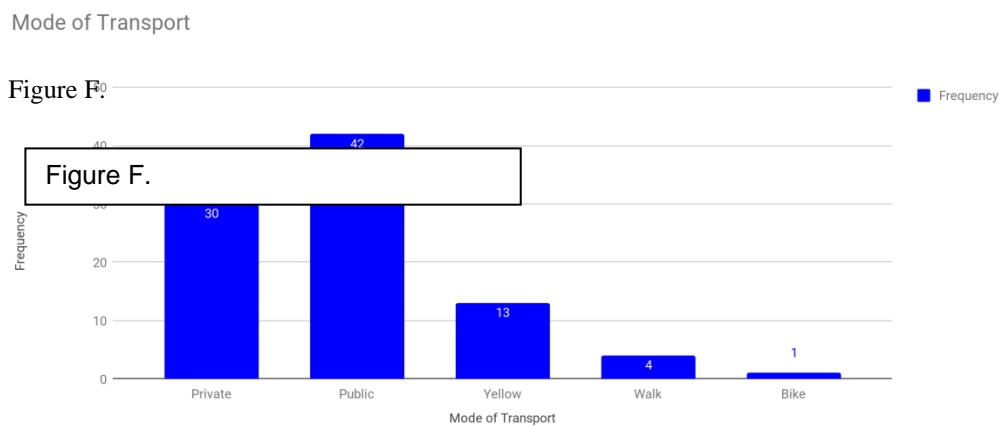


Figure E.

the most heavily-used corridors in Amman. For this reason, the BRT is currently under construction on this street.

While the University of Jordan is centrally located, the amount of time, cost, and modes of transportation vary between region. However, because Amman is under a critical urban transformation, some areas are prioritized more than others. As the city of Amman continues to



grow, the western section of the city, or “West Amman”, experiences more wealth, with businesses, embassies, and the wealthy moving to this new developed region. On the other hand, Eastern Amman typically hosts the majority of refugees (Palestinian and Syrian) residing in Amman. While there are many different reasons as to why East Amman is not receiving the same amount of refabrication and development as West Amman is, the fact of the matter remains that investors see the future of Amman in West Amman. The questionnaire provided me information as to how the public transportation and ridership patterns in Amman is affected by region.

Figure G.

Figure H.

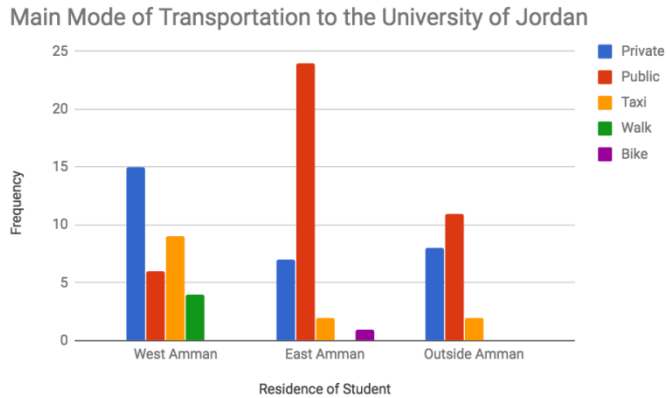


Figure G.

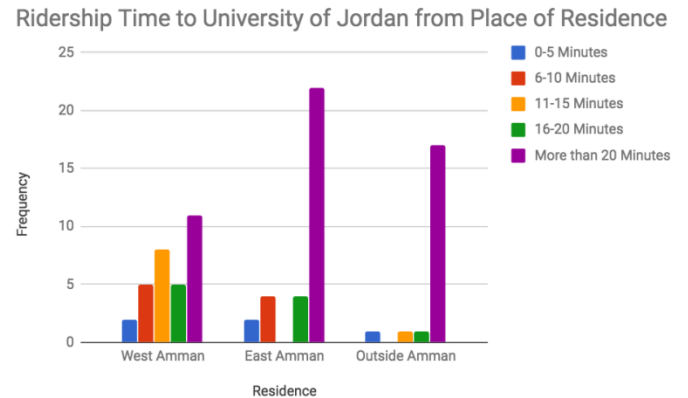


Figure H.

While the routes of the white taxis and buses were not available in one map, the data from Figures F and G make a point that the residents of East Amman are far more likely to take public transportation, which ultimately takes a significantly longer time for commute. Before, it was stated that yellow taxis are considered to be a form of public transportation. However, according to Figure F, only 2 of the 90 people surveyed fit the category of living in East Amman and commuting by yellow taxi. This is probably due to the fact that commuting by white taxi and bus is significantly cheaper, costing only around .35 JOD for each vehicle. While taxis are convenient by not having to switch vehicles, they cost significantly more money than many people in East Amman can afford. Therefore, the people who theoretically need better public transportation the most are the people in East Amman, since the majority of them do not take private cars to work and spend long times commuting.

## GPS Results

Even though yellow taxis are not used by University of Jordan students as the primary source of transportation, the researcher was curious to know where yellow taxis *do* go around the city. To understand where the yellow taxis go throughout the city, the researcher went into the back of a yellow taxi twice and tracked its location for several hours. Figure H compares the route of the yellow taxi the researcher followed for 4 hours, and a route of a Mumayiz taxi. Figure I compares the routes of a yellow taxi and a Mumayiz taxi, but only covers the timespan of 2 hours, rather than 4. To acquire the Mumayiz data, the researcher went to the Mumayiz main office and took photos of a randomly selected car that was going for the same duration of time on the same date. Therefore, both routes were happening at roughly the same time. The yellow taxi is represented in the purple line, and Mumayiz is represented in the green line.

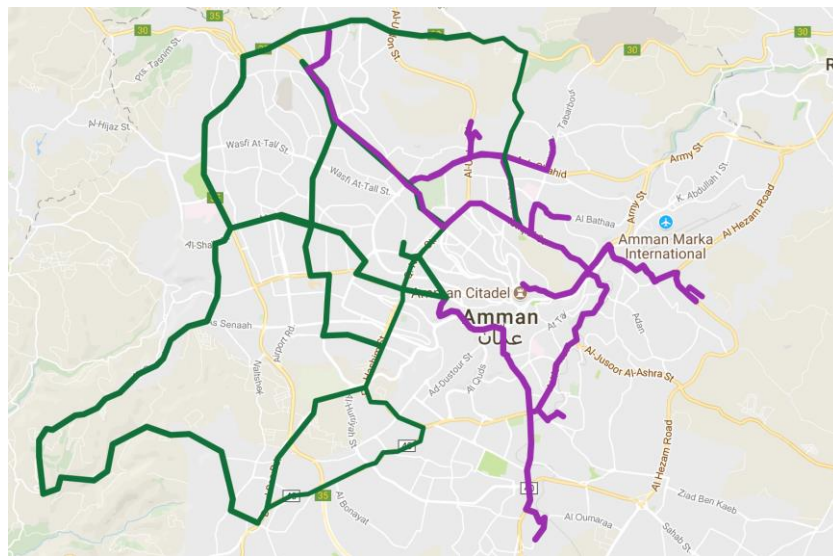


Figure I. Following the routes of two taxis between the hours of 4-8pm. The yellow taxi (purple) predominantly gravitated towards Eastern Amman. The Mumayiz taxi (green) took mostly bigger roads on the west side of Amman.



Taxi 1								
Gender	Start Time	End Time	Driving Time	Search Time	# of People	Travel Distance (km)	Amount of Talking	Cost (JD)
M	4:03	4:07	4		1	1.05	1	0.43
M	4:21	4:35	14	0:14	3	7.65	3	1.88
F	4:35	4:53	17	0:00	1	5.7	2	1.55
M	4:55	5:11	16	0:02	3	6.4	1	1.67
M	5:12	5:26	14	0:01	1	3.5	1	0.86
M	5:36	6:05	29	0:10	1	11.1	5	2.72
F	6:17	6:21	4	0:12	1	1.2	2	0.52
M	6:34	6:39	5	0:13	1	1.9	4	0.64
F	6:50	6:55	5	0:11	1	1.5	1	0.5
M	6:58	7:10	12	0:03	1	2.9	1	0.98
M	7:30	7:39	9	0:20	1	3.7	2	1.09
Average			11.73	0:08	1.36	4.24	2.10	1.17

Figure K.

Taxi 2								
Gender	Start Time	End Time	Driving Time	Search Time	# of People	Travel Distance (km)	Amount of Talking	Cost (JD)
M	3:31	3:46	15		2		4	1.59
M	3:46	3:53	7	0:00	1		1	0.79
M F	3:55	4:19	24	0:02	2		4	1.34
M	4:20	4:29	9	0:01	2		2	0.75
M	4:40	4:48	8	0:11	1		5	0.62
M	4:53	5:20	27	0:05	2		2	2.37
M	5:20	5:29	9	0:00	1		5	0.58
Average			14.142857 14	0:03	1.5714285 71		3.2857142 86	1.1485714 29

Figure K.

## Conclusion

The purpose of this research was to further the understanding of Amman's public transportation system. As war-torn countries in the region have decreased the population size of every single city in the Levant region except for Amman, Amman poses as a unique case study to understand how Levant cities prepare for population increase. Amman is the 10th largest city in the Middle East, and is only one of two cities in the top ten to not have a tram or metro system. Some have blamed the physical geography, while others have blamed a lack of financial resources. However, after interviewing, polling, and using GPS data, the answer lays within a lack of government organization and goals.

Throughout the research, the researcher uses the theory of neoliberalism to further his understanding as to why and how Amman is changing, on a social and physical scale. With examples given in the malls and private communities, Amman has rapidly tried to become a global city by adopting a spending culture that is seen in many developed cities today. One way the spending culture has manifested itself in Amman is through the promotion of purchasing private cars. As more cars are on the road and the city slowly becomes more expensive, Amman's current form of transportation is not adequate for its residents.

The addition of private vehicles is an issue because the cars use the same roads and public infrastructure that the government provides. However, as much as the government has pushed for all the vehicles on the road to be privately owned, there are no dedicated lanes, roads, or rails for the privately-owned public transportation vehicles, such as the Service Taxi, yellow taxi, and the Coaster bus. While GAM and other Jordanian committees have some responsibility over the public transportation, most of the transportation relies off of private companies who invest; this is simply because while the Jordanian government (barely) has the capacity to create

public transportation infrastructure such as roads and bus stops, the government does not have the amount of money nor organization to create bigger transportation systems that the bigger cities in the Middle East experience. While neoliberalism usually entails that a couple of companies would dominate each sector of the economy (in this case, public transportation), the government actively tries to keep many of the private companies in Amman afloat to maintain job security in the region. The white taxis, yellow taxis, medium buses, and large buses are all run by different operators, with a total of 3,350 different operators or offices (Figure C). If Amman truly wants to keep all the different operators instead of creating an institutional system like most global-cities have (e.g. New York's MTA or Cairo's Metro), the government must invest into *publicly* funded roads for *private* public transportation companies. The private companies are too small to be able to afford creating their own lanes, and the government has realized this.

Currently, the government hopes to alleviate some of the congestion and price concerns with bigger projects, such as the implementation of 100 more buses, the BRT routes, and even a proposed Light Rail Transit (LRT) route going through Downtown. However, regardless of what projects the government has in mind and regardless if one is in favor of neoliberal policies, public transportation has to consolidate the existing plethora of private companies in a cohesive matter to have a consistent mode of paying. While Interviewee A claims that the government is working on an application that would give access to routes, timetables, prices, and more, the government also has to take in consideration that making public transportation a Public-Private-Partnership in a developing city is risky business. In a matter of fact, the app that is under development right now is under the eyes of Mumayiz, who has interests in Jordan's private

vehicles (taxis) that operate as public transportation. To create a better public transportation system in Amman, there are some of the priorities the government must take.

- A. Public Transportation must be a priority, both on the municipal and national scale.
- B. The state must either subsidize more routes, or find adequate funders that will be responsible for *most* of the public transportation in Amman, rather than a specific line, bus, or project.
- C. There must be an increase in communication. There are many public government agencies in charge of public transportation in Amman. Some include LTRC, GAM, and the Ministry of Transport. Better cooperation between these committees will help facilitate the needs of consistent paying methods, increased knowledge of public transportation information, and increased sense of safety and reliability.
- D. Decrease individual ownership. If the government truly wants to become successful using a neoliberal model, the state can not prioritize the individual owners to make public transportation successful. The government must prioritize the streets to cater to the needs of public transportation, rather than the private car, while still having a tight control of the vehicles that *do* remain on the ground.
- E. The government must increase access to information. There are no maps or timetables available online, and rarely any on the street level. Amman residents simply “know” where to go, and tourists must rely off of other transportation methods such as yellow taxis. While the government creates the lines and establishes the rates, the private companies are too small and little-known to create accessible data on their own. It is the responsibility of the government to create a well-known understanding on public transportation.
- F. Finally, Jordan must have a consistent mode of paying. According to Figure E, roughly 40% of the people in this study claim to pay 4-5 JOD a day on public transportation, roughly 5.5-7 US Dollars. This is because there are too many companies, with no form of transferring rides.

Public transportation in Amman will never be completely operated by the government, nor will it ever be completely operated by private companies. However, the governments of Amman and Jordan have a responsibility to create a system where organization and communication is attainable. This study has made the researcher understand that implementing better public transportation modes and routes is only half of the solution. The other half lies in

who controls and operates those different modes and routes. As Amman is currently under a transformation, the future projects of public transportation won't only be about necessity; each project will be highly political and will eventually have a dramatic effect on the communities it serves. As Amman matures into a developed, neoliberal city, we must ask who will reap the benefits of the future public transportation. Will future lines prioritize the University of Jordan students, as seen in the current GAM BRT projects? Will BRT ever expand into higher-demand areas for public transportation, such as East Amman? Perhaps Amman will create public transportation to cater to the needs of tourists, and create a light rail or street-car system that goes to museums and historical areas. Considering where the investment and flow of money has happened in the recent decade, public transportation will probably not be for the public. Rather, it will be a luxury mode of transportation to connect rich neighborhoods to malls, stadiums, and rising business hubs such as Abdali. Public transportation never fully represents the "public" who are spatially and temporally in the respective city. However, as the city changes, public transportation will be a significant indicator that will reflect how those who are changing Amman want it changed.

### **Study Limitations**

While all data and results are true to the best of the researcher's knowledge, the depth of this study was largely limited due to time. Because the researcher was only given a month to conduct research, the researcher decided to gather a little bit of many different collecting methods rather than going in-depth with just one. This included interviews, handing out a questionnaire, and collecting GPS data from taxis. In addition to time constraints, there is of course personal bias. As a white American male who studies urban planning specifically for American cities, the researcher's understanding of city planning in the Middle East is very

limited. The researcher tried to the best of his knowledge to gain the perspective of all sides, from the taxi drivers to the owners of the taxis themselves, but in the end, the analysis is stemmed from an education of public transportation in other parts of the world.

### **Recommendations for Further Study**

Considering how recent the phenomenon of neoliberalism's impact on the Middle East is, there is a lot of further research to be done about the city planning of Middle Eastern cities. Many Lebanese, Kuwaiti, and Saudi companies are largely changing the physical layout of the Levant cities. Further research on foreign investors is necessary to understand Amman's future. Because Amman is currently under urbanizing and developing, further studies are needed to understand the demographics of specific demographic regions of Amman. For the purpose of this study, the researcher only used West and East Amman for the different parts of Amman. However, Amman is a growing city with a complicated geography, separated by mountains, private communities, refugee camps, and more. Understanding where different socio-economic classes and nationalities live is crucial to understand how the city is under change.

Finally, further research needs to be done in collecting more data. For the purpose of this study, the researcher only collected GPS data from two yellow taxis and two Mumayiz taxis. Hundreds, if not thousands of yellow taxis are on the clock at any given moment, and the data from two taxis is not representative. To understand the efficiency of Amman's current public transportation and the future of its public transportation, it is necessary to know ridership information, such as who takes public transportation and where people go throughout the city.

## Bibliography

### Primary Resources

Interviewee	Participant Description	Date
A	Executive Director of Public Transportation, GAM	November 15, 2017
B	Engineer, LTRC	November 26, 2017
C	Head Employee at Ministry of Transport	November 23, 2017
D	Mumayiz Taxi Owner	November 16, 2017
E	Yellow Taxi Owner	November 21, 2017

### Secondary Resources

Da Silva, A. N., & Balassiano, R. (2011). Global Taxi Schemes and their Integration in Sustainable Urban Transport Systems. *Brazilian Development Bank*.

Daher, R. F. (2013). Neoliberal Urban Transformations in the Arab City. *Urban Environment*, 7, 99-115.

Harvey, D. (2011). *A Brief History of Neoliberalism*. Oxford: Oxford Univ. Press.

Ministry of Transport. (2015). Transport Sector Annual Report. *Hashemite Kingdom of Jordan*.

Public Transportation in Jordan: A Policy Study Report. (2017). *Center for the Study of the Built Environment*.

Siemiatycki, M. (2006). Implications of Private-Public Partnerships on the Development of Urban Public Transit Infrastructure. *Journal of Planning Education and Research*, 26, 137-151.

## Appendix A (Copy of Questionnaire)

الاستبيان

What is your gender? 1: ما هو جنسك؟

Female / أنثى	Male / ذكر

Do you live in Amman? 2: هل تسكن في عمان؟

Yes / نعم	West Amman / غرب عمان	East Amman / شرق عمان
No / لا		

What mode of transportation do you use on a daily basis? 3: ما هي طريقة النقل التي تستخدمها كل يوم؟

Walk / مشى	Private Car / سيارة خاصة	Yellow Taxi / التاكسي الأصفر	White Taxi/ Bus سرفيس / حافلة

How much do you spend for transportation each day? (Jordanian Dinars) 4: كم تنفق على النقل (المواصلات) كل يوم؟ (بالدينار الأردني)

More than 10 / أكثر من 10 دينار	6-10 / 10 - 6 دينار	4-5 / 5 - 4 دينار	0-3 / 3 - 0 دينار

What is the average time for you to commute? (Minutes) 5: ما هو متوسط الوقت الذي تحتاجه للذهاب للعمل يومياً؟

More than 20 / أكثر من 20 دقيقة	16-20 / 20 - 16 دقيقة	11-15 / 15 - 11 دقيقة	6-10 / 10 - 6 دقائق	0-5 / 5 - 0 دقائق

When do you commute on a daily basis? (Pick all that apply) 6: متى تنتقل يومياً؟ (إختر كل ما ينطبق)

Night / ليلاً	Evening / مساءً	Mid-Day / منتصف اليوم	Morning / صباحاً

6: هل تشعر بالآمان؟ (إختر من 1 - 5، 1 غير آمنة أبداً، 5 آمنة جداً)

Do you feel safe? (1-5, 1 being very unsafe, 5 being very safe)

5	4	3	2	1

Any additional comments on public transportation? 7: هل لديك أي تعليقات أخرى على وسائل النقل العام؟ (مثل: السائقين، الأجرة، الوقت الخ)

\_\_\_\_\_

## Appendix B (Copy of Consent Form)



### Transportation in Amman: A Study on the Sustainability and Effectivity of Taxis in Amman, and the future of Public Transportation in the Middle East

Henry Nieberg / Macalester College

School for International Training—Jordan: Modernization and Social Change

1. The purpose of this study is to understand Amman's choices to adopt a multifaceted taxi-system as a substitute for a more traditional public transportation system.
2. **Rights Notice**  
**If at any time, you feel that you are at risk or exposed to unreasonable harm, you may terminate and stop the interview.** Please take some time to carefully read the statements provided below.
  - a. **Privacy** - all information you present in this interview may be recorded and safeguarded. If you do not want the information recorded, you need to let the interviewer know.
  - b. **Anonymity** - all names in this study will be kept anonymous unless the participant chooses otherwise.
  - c. **Confidentiality** - all names will remain completely confidential and fully protected by the interviewer. By signing below, you give the interviewer full responsibility to uphold this contract and its contents. The interviewer will also sign a copy of this contract and give it to the participant.

#### 3. Instructions:

*Please read the following statements carefully and mark your preferences where indicated. Signing below indicates your agreement with all statements and your voluntary participation in the study. Signing below while failing to mark a preference where indicated will be interpreted as an affirmative preference. Please ask the researcher if you have any questions regarding this consent form.*

I am aware that this interview is conducted by an independent undergraduate researcher with the goal of producing a descriptive case study on public transportation in Amman.

I am aware that the information I provide is for research purposes only. I understand that my responses will be confidential and that my name will not be associated with any results of this study.

I am aware that I have the right to full anonymity upon request, and that upon request the researcher will omit all identifying information from both notes and drafts.

I am aware that I have the right to refuse to answer any question and to terminate my participation at any time, and that the researcher will answer any questions I have about the study.

I am aware of and take full responsibility for any risk, physical, psychological, legal, or social, associated with participation in this study.

I am aware that I will not receive monetary compensation for participation in this study, but a copy of the final study will be made available to me upon request.

I [ do / do not ] give the researcher permission to use my name and position in the final study.

I [ do / do not ] give the researcher permission to use my organizational affiliation in the final study.

I [ do / do not ] give the researcher permission to use data collected in this interview in a later study.

**Date:**

\_\_\_\_\_

**Participant's Signature:**

\_\_\_\_\_

**Participant's Printed Name:**

\_\_\_\_\_

**Researcher's Signature:**

\_\_\_\_\_

*Thank you for participating!*

*Questions, comments, complaints, and requests for the final written study can be directed to:*

Dr. Ashraf F. Alqudah, SIT Jordan Academic Director

Telephone (962) 0785422478

Email: [ashraf.alqudah@sit.edu](mailto:ashraf.alqudah@sit.edu)

*Access, Use, and Publication of ISP/FSP*

Student Name: Henry Nieberg

Email Address: hnieberg@macalester.edu

Title of ISP/FSP: Public Transportation in the Middle East: A Study on the Sustainability and Efficacy of Taxis in Amman and the Future of Public Transportation

Program and Term/Year: Jordan: Geopolitics, International Relations, and the Future of the Middle East (JOR), Fall 2017.

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Student research (Independent Study Project, Field Study Project) is a product of field work and as such students have an obligation to assess both the positive and negative consequences of their field study. Ethical field work, as stipulated in the SIT Policy on Ethics, results in products that are shared with local and academic communities; therefore copies of ISP/FSPs are returned to the sponsoring institutions and the host communities, at the discretion of the institution(s) and/or community involved.

By signing this form, I certify my understanding that:

1. I retain ALL ownership rights of my ISP/FSP project and that I retain the right to use all, or part, of my project in future works.
2. World Learning/SIT Study Abroad may publish the ISP/FSP in the SIT Digital Collections, housed on World Learning's public website.
3. World Learning/SIT Study Abroad may archive, copy, or convert the ISP/FSP for non-commercial use, for preservation purposes, and to ensure future accessibility.
  - World Learning/SIT Study Abroad archives my ISP/FSP in the permanent collection at the SIT Study Abroad local country program office and/or at any World Learning office.
  - In some cases, partner institutions, organizations, or libraries in the host country house a copy of the ISP/FSP in their own national, regional, or local collections for enrichment and use of host country nationals.
4. World Learning/SIT Study Abroad has a non-exclusive, perpetual right to store and make available, including electronic online open access, to the ISP/FSP.
5. World Learning/SIT Study Abroad websites and SIT Digital Collections are publicly available via the Internet.
6. World Learning/SIT Study Abroad is not responsible for any unauthorized use of the ISP/FSP by any third party who might access it on the Internet or otherwise.
7. I have sought copyright permission for previously copyrighted content that is included in this ISP/FSP allowing distribution as specified above.

HENRY NIEBERG

Dec. 10, 2017

Student Signature

Date

**Withdrawal of Access, Use, and Publication of ISP/FSP**

Given your agreement to abide by the SIT Policy on Ethics, withdrawing permission for publication may constitute an infringement; the Academic Director will review to ensure ethical compliance.

☐ I hereby withdraw permission for World Learning/SIT Study Abroad to include my ISP/FSP in the Program's office permanent collection. Reason:

☐ I hereby withdraw permission for World Learning/SIT Study Abroad to release my ISP/FSP in any format to individuals, organizations, or libraries in the host country for educational purposes as determined by World Learning/SIT Study Abroad. Reason:

☐ I hereby withdraw permission for World Learning/SIT Study Abroad to publish my ISP/FSP on its websites and in any of its digital/electronic collections, or to reproduce and transmit my ISP/FSP electronically. Reason:

HENRY NIEBERG

Dec. 10, 2017

Student Signature

Date

Academic Director has reviewed student reason(s) for withdrawing permission to use and agrees it does not violate the SIT Study Abroad Policy on Ethics.



Dec. 11, 2017

Academic Director Signature

Date

Note: This form is to be included with the electronic version of the paper and in the file of any World Learning/SIT Study Abroad archive.

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## ISP Ethics Review

(Note: Each AD must complete, sign, and submit this form for every student's ISP.)

The ISP paper by Henry Nieberg does conform to the Human Subjects Review approval from the Local Review Board, the ethical standards of the local community, and the ethical and academic standards outlined in the SIT student and faculty handbooks.

Completed by: Ashraf F. Alqudah, Ph. D.

Academic Director: \_\_Ashraf F. Alqudah, Ph. D.

Signature:

A handwritten signature in blue ink, appearing to read 'Ashraf F. Alqudah'.

Program: JOR Fall 2017

Date: Dec. 14th 2017


# SIT Study Abroad

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Human Subjects Review

## LRB/IRB ACTION FORM

<p>Name of Student: Henry Nieberg</p> <p>ISP Title: Public Transportation in Amman: A Study on the Sustainability and Effectivity of Taxis in Amman, and the future of Public Transportation in the Middle East</p> <p>Date Submitted: 11-8-17</p> <p>Program: Jordan: Geopolitics, International Relations, and the Future of the Middle East</p> <p>Type of review:</p> <p>Exempt <input type="checkbox"/></p> <p>Expedited <input checked="" type="checkbox"/></p> <p>Full <input type="checkbox"/></p>	<p>Institution: World Learning Inc.  IRB organization number: IORG0004408  IRB registration number: IRB00005219  Expires: 9 December 2017</p> <p>LRB members (print names):  <i>Ashraf F. Alqudah, Ph. D. Chair</i>  <i>Ismael Abu Aamoud, Ph. D.</i>  <i>Badr AlMadi, Ph. D.</i></p> <p><b>LRB REVIEW BOARD ACTION:</b></p> <p><input checked="" type="checkbox"/> Approved as submitted  <input type="checkbox"/> Approved pending changes  <input type="checkbox"/> Requires full IRB review in Vermont  <input type="checkbox"/> Disapproved</p> <p>LRB Chair Signature: </p> <p>Date: Nov. 13, 2017</p>
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### Form below for IRB Vermont use only:

#### Research requiring full IRB review. ACTION TAKEN:

\_\_\_ approved as submitted \_\_\_ approved pending submission or revisions\_\_\_ disapproved

\_\_\_\_\_  
IRB Chairperson's Signature

\_\_\_\_\_  
Date

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## *Statement of Ethics*

(adapted from the American Anthropological Association)

In the course of field study, complex relationships, misunderstandings, conflicts, and the need to make choices among apparently incompatible values are constantly generated. The fundamental responsibility of students is to anticipate such difficulties to the best of their ability and to resolve them in ways that are compatible with the principles stated here. If a student feels such resolution is impossible, or is unsure how to proceed, s/he should consult as immediately as possible with the Academic Director (AD) and/or Independent Study Project (ISP) Advisor and discontinue the field study until some resolution has been achieved. Failure to consult in cases which, in the opinion of the AD and ISP Advisor, could clearly have been anticipated, can result in disciplinary action as delineated in the “failure to comply” section of this document.

Students must respect, protect, and promote the rights and the welfare of all those affected by their work. The following general principles and guidelines are fundamental to ethical field study:

### **I. Responsibility to people whose lives and cultures are studied**

Students' first responsibility is to those whose lives and cultures they study. Should conflicts of interest arise, the interests of these people take precedence over other considerations, including the success of the Independent Study Project (ISP) itself. Students must do everything in their power to protect the dignity and privacy of the people with whom they conduct field study.

The rights, interests, safety, and sensitivities of those who entrust information to students must be safeguarded. The right of those providing information to students either to remain anonymous or to receive recognition is to be respected and defended. It is the responsibility of students to make every effort to determine the preferences of those providing information and to comply with their wishes. It should be made clear to anyone providing information that despite the students' best intentions and efforts, anonymity may be compromised or recognition fail to materialize. Students should not reveal the identity of groups or persons whose anonymity is protected through the use of pseudonyms.

Students must be candid from the outset in the communities where they work that they are students. The aims of their Independent Study Projects should be clearly communicated to those among whom they work.

Students must acknowledge the help and services they receive. They must recognize their obligation to reciprocate in appropriate ways.

To the best of their ability, students have an obligation to assess both the positive and negative consequences of their field study. They should inform individuals and groups likely to be affected of any possible consequences relevant to them that they anticipate.

Students must take into account and, where relevant and to the best of their ability, make explicit the extent to which their own personal and cultural values affect their field study.

Students must not represent as their own work, either in speaking or writing, materials or ideas directly taken from other sources. They must give full credit in speaking or writing to all those who have contributed to their work.

## **II. Responsibilities to Hosts**

Students should be honest and candid in all dealings with their own institutions and with host institutions. They should ascertain that they will not be required to compromise either their responsibilities or ethics as a condition of permission to engage in field study. They will return a copy of their study to the institution sponsoring them and to the community that hosted them at the discretion of the institution(s) and/or community involved.

## **III. Failure to comply**

When SIT Study Abroad determines that a student has violated SIT's statement of ethics, the student will be subject to disciplinary action, up to and including dismissal from the program.

I, \_\_\_\_\_ Henry Nieberg \_\_\_\_\_, have read the above Statement of Ethics  
(Printed Name)

and agree to make every effort to comply with its provisions.

Student Signature: HENRY NIEBERG\_\_ Date: \_\_11-8-17\_\_\_\_\_