A Systems Approach to Understanding and Mitigating Barriers to Travel Accessibility and Well-being in the West Bank, Palestine

by

Omaya Heidi Ahmad

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved March 2015 by the
Graduate Supervisory Committee:

Aaron Golub, Chair
Rimjhim Aggarwal
Ahmad Saleh Sadaqa

ARIZONA STATE UNIVERSITY

May 2015

ABSTRACT

The conflict conditions that afflict the livelihoods of Palestinian residents living in the West Bank are embedded within the population's ability to travel more so than any other routine activity. For Palestinian residents, domestic and international travel is a process of following paths riddled with multiple barriers that are both physical and political. Past studies have done well to paint a clear picture of the harsh transportation landscape in the region. However, less attention has focused on how barriers interact to indirectly and directly affect levels of accessibility and well-being. Additionally, suggested development solutions are rarely capable of being successfully implemented given current political conditions. This dissertation uses a systems approach to understand drivers of accessibility challenges in the West Bank and uses the understanding to propose a method to identify transition strategies that may be presently initiated whilst maintaining the ability to provide adequate benefit. The research question informing the study asks, *How do drivers influencing the issue of poor accessibility and well-being in the West Bank persist and interact, and how might solutions be approached?* The dissertation approaches the question in four sequential actions that each produces a functional planning deliverable. First, a system map that depicts the drivers and influences to the problem of poor accessibility and well-being is constructed (Chapter 4). Second, a future vision for the transportation system in the West Bank is identified (Chapter 5). Third, the system map and vision are used to assess how conflict conditions affect transition research (Chapter 6). Finally, the previous three deliverables are used to suggest a guide for transition management for transportation development in the West

Bank (Chapter 7). Combinations of four different data sets, including an extensive review of published literature, field observations, individual field expert interviews, and group commuter interviews inform the research. Additionally, the Transformational Sustainability Research framework provides a normative base for the steps taken throughout the research. Ultimately, the dissertation presents an interpretation of information that has theoretical and practical application potential in transformational sustainability research and development efforts in the region respectively.

ACKNOWLEDGMENTS

I alone could have never accomplished this writing. Many people played significant roles in supporting my endeavors, and they deserve the greatest "thank you" I can offer. It truly takes a village, and in my case, it took the world.

First and foremost, I give my thanks to the School of Sustainability (SOS) and Arizona State University. I am grateful that my 2009-self discovered the program and decided to apply. Thank you to the many faculty members who expanded the scope of my capabilities. I am now so much more than the chemical engineer I was when I entered Wrigley Hall. Also, thank you to SOS for funding my first visit to the West Bank. The benefit that preliminary trip afforded my research is immeasurable.

The first people I would like to single out are the three who comprise my fantastic dissertation committee. Thanks to Aaron Golub for jumping out on a limb to oversee a project in an unfamiliar region when everyone else was too apprehensive. Your guidance is the reason this project came to be what it is. Thanks to Rimjhim Aggarwal who helped me shape this project from day one and who was the one who brought Aaron to me. Ever wonder how a chemical engineer ends up writing a dissertation on sustainable development in the Middle East? All I needed was one semester in Rimjhim's course and here I am. And finally, thanks to Ahmad Saleh Sadaqa who oversaw my work in the West Bank and provided my project some much needed regional expertise. I stumbled into Ahmad's office in the Ministry of Planning about a half hour late during my first visit to the West Bank, and he still welcomed the opportunity to collaborate. It is because of him that I can say my project is an actual international endeavor.

Throughout my tenure as a graduate student, I held many positons that bolstered my ability to conduct research, teach audiences of all levels, and fund my studies. For this reason, I would like to thank all of them individually. First, thank you to the Decision Center for a Desert City where I was a research assistant under the direction of Patricia Gober and then Dave White. Thank you to the GK-12 program Sustainability Science for Sustainable Schools where I worked as a fellow for two years in classrooms all over the Valley under the guidance of Monica Elser and Lynette Pollari. Thank you to faculty member Susan Clark whom I worked under as a teaching assistant along with a wonderful group of other teaching assistants to perfect the Sustainable World course. Lastly, a huge thank you goes to my current family at the Sustainability Science Education Project at Biodesign: Annie Warren, Leanna Archambault, Jackie LeFevers, Victor Nevárez, Catharyn Crane, and Lee Hartwell.

Thank you to my peers—to the many students near and far who crossed my path as I set out to finish my degree. And although I cannot name all of you, know that I learned so much because of you. A special shout out goes to the 2009 SOS graduate cohort. Thanks to Auriane Koster who met me three times over happy hour just to talk me into beginning my writing and to Debbie Namugayi who was there when I finally got words down on paper last summer. Thank you to my three peers at the National Spatial Plan office, Moayad Switti, Ruba Dahdal, and Haneen Awa for being so welcoming and for lending your support to my project throughout our daily conversations.

Thank you to my longtime friends who were always curious about what I was up to and were the first to celebrate in my victories. Thanks to my North Canyon crew:

Tiffany, Lisa, and Ravi. Thanks to my dance families at Movement Source Dance Company (Mary Anne, Suzi, Stacy, Claire, Kristen, Paola, Jen, Kelly, Nikki, Tom and Herschel) and AZDance Group (Kenda, Nicole, Katie, Linda, Desi, and Paula) for being such a wonderful, artistic reprieve.

I want to thank my family. So much of who I am is because of the time I spent with all of you. It is a joy to make you proud. Thanks to my father, Hikmat Ahmad, for instilling the heart and soul of Palestine into my life. Thanks to my mother, Heidi Cocco, who is my everlasting teacher and closest confidant. Thanks to my grandparents, Amixtocle and Waltraud Cocco, for being my second set of parents and equipping me with so much confidence. A special thank you goes to my family in Palestine for their support during my travels: Nabil, Sandy, Samer, Samia, Salam, Kenan, Amal, Samira, Nadia, Hamdallah, Majdi, Nadien, Amani, Khalid, Yousef, Zaina, Hala, and Abdallah. Thank you to my aunts and uncles who have taught me many life lessons: Amneris, Salman, Radames, Kristie, Alfio, Ivonne, Dwight, Arcangelo, Uschi, Peter, Kamal, and Hanan. And thank you to all my beautiful cousins who were like the siblings I never had: Omar, Athena, Ramsey, Jenny, Alfio, Valerie, Gianinna, Andrew, Lisa, Arisztid, Cassie, Annastacia, Shajira, Imam, Nabih, and Rashad. I love all of you.

I have one final acknowledgement. I save Andrew Thoesen for last. He is the one person who experienced every single struggle and celebrated every single triumph I had while writing this document. Thank you for lending your intelligence, love, and support. You're my favorite.

TABLE OF CONTENTS

Page

CHAPTER Page

CHAPTER Page

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER 1

INTRODUCTION

"He measures time by cars. The checkpoint is 58 cars away, two minutes for each car. Counting is a game, helps pass the time. Sometimes he measures cars by length to estimate the distance. Too much time to pass, not enough time to live"

--From the poem *George*, by Remi Kanazi

Poetic Injustice: Writings on Resistance and Palestine, 2011

1.1 THE WEST BANK CASE

The conflict conditions that afflict the livelihoods of Palestinian residents living in the West Bank are embedded within the population's ability to travel more so than any other routine activity. Movement throughout the West Bank is heavily manipulated by the Israeli military rule occupying the Palestinian Territories. For a Palestinian resident, travel through and among Palestinian cities and villages is a process of following dilapidated paths additionally riddled with multiple physical and political barriers. For Palestinians, movement is an exercise in patience. Even more alarming, access to destinations of necessity is not guaranteed.

The presence and severity of Palestinian access and movement restrictions are linked to historical turning points of the Israeli Occupation. After defeating the Arab nations in the Six Day War of 1967, Israel first gained and has since maintained control over the borders surrounding the Palestinian Territories including the West Bank, East Jerusalem, and the Gaza Strip. The occupied borders of the West Bank that include East Jerusalem were defined in 1967 and are known as the 1967 border or the Green Line.

The organized restriction of movement for Palestinian people, goods, and services did not begin until two decades later. Modern methods of movement control, including periodic closures and the development of a system of checkpoints, proliferated throughout the West Bank following the first Intifada (Palestinian uprising) in 1987 (Calì & Miaari, 2013). Although the system of restrictions greatly impeded Palestinian activities during the years of the Intifada, which concluded in 1993, the system was loosely enforced through the remainder of the 1990s (Calì & Miaari, 2013). In 1993, the Oslo peace process began, marking a period of relative calm in the region. During this period, many checkpoints were actually removed (Calì & Miaari, 2013). Near the end of the century, tensions began to surge in response to frustrations regarding unmet agreements featured in the Oslo Accords. In September of 2000, a second Intifada began and lasted for nearly five years (Abu Ghazaleh, 2008). It was during this period that Israel severely scaled up restrictions on Palestinian movement by employing harsh restrictions to regional Palestinian access with a dividing passport identification system; erecting roadblocks, barrier gates, trenches, and new permanent and floating checkpoints to control access to cities and roads; and causing the costly destruction of Palestinian transportation infrastructure whilst legislatively impeding repair and development activities (Calì & Miaari, 2013). Additionally, in 2002, Israel began construction on the Separation Wall, which runs inside the 1967 borders and illegally cuts through Palestinian neighborhoods.

Such conflict related restrictions run rampant at the same ferocity until today. The current situation is complicated by additional factors. The Palestinian National Authority (PA) is limited in its ability to initiate development due to a lack of autonomy

over the West Bank and a weak Palestinian economy. Also, unfavorable travel behaviors exhibited by Palestinian commuters, like an incessant disregard of travel rules, contribute to instances of congestion and threaten commuter safety. These behaviors are not unrelated to the region's conflict and are negatively influenced by increased Israeli restrictions. The common results of all barriers to movement in the West Bank are that Palestinians face heavy travel delays and humiliations, access to necessary destinations is not always certain, and the possibility for Palestinian economic development is constrained (Calì & Miaari, 2013). Throughout this document, the term *West Bank Case* is used to represent the existence of transportation restrictions in the West Bank due to the Israeli Occupation and the resulting societal effects.

Past studies have done well to paint a clear picture of the harsh transportation landscape in the West Bank. However, less is known about how transportation barriers indirectly and directly affect levels of accessibility and well-being. Additionally, suggested development solutions for accessibility are rarely capable of being successfully implemented given the current political constraints. This research uses a systems approach to understand the drivers of accessibility challenges in the West Bank and employs that understanding to propose methods for uncovering interventions that may presently begin to mitigate such challenges. This study attempts to recognize the complexities of the West Bank Case. In the West Bank, transportation barriers are unique to the region; there are multiple opposing parties working to perpetuate or change the landscape; and proposed solutions meet unique foreign and domestic political opposition. This study aims to determine and account for characteristics that decrease the

viability of optimal transition strategies so that proposed interventions may be presently initiated. Such an aim provides an added benefit of enabling well-being improvements for current and future generations of Palestinian residents.

1.2 PROBLEM STATEMENT

Palestinians face many regionally unique challenges to their daily movement. Existing studies descriptively document specific transportation barriers, their prevalence, persistence, and their effects on the well-being of Palestinian residents both individually and as a collective national community (Elias, 2011; Maoh & Isaac, 1999; Keshnet, 2006). Additionally, there is a wide consensus that transportation solutions are paramount to the region's future ability to function prosperously (Awadallah, 2011; Bdair, 2011; Shearer, 2006). As such, domestic and foreign development efforts have proposed solutions suggestions that range from infrastructural development, to policy implementation, and even to political cooperation. For example, the National Spatial Plan currently in development by the PA includes a defined goal of improving intra and international connectivity in the Palestinian territories and also stipulates the extension and integration of the Palestinian Road and Transportation Master Plan (UNDP, 2013). In addition, the RAND Corporation is responsible for designing and proposing a popular transportation system known as the Arc, which if implemented would link major cities of the West Bank to Gaza City by way of an Israeli corridor (Suisman, 2005). Other scholarly studies propose similar infrastructural development propositions and also include frameworks for development with specific time budgets (Saleh, 2005; Abu-

Eisheh, Nablus, & Al-Sahili, 2006). All of the aforementioned development suggestions assume an independent Palestinian State before any possible application.

As a whole, past development suggestions aim to alleviate issues associated with the region's available transportation services by analyzing the past and current situation to suggest future development. However, if true sustainable and robust solutions are the ultimate goal, a transformational approach to solutions-oriented efforts is necessary. Such an approach adds three additional research streams to the common analysis of past, current, and future scenario consultations. They include: (1) a normative concentration that aims to suggest how complex, human-environment systems would function if identified value-laden goals and objectives were met, (2) a concentration on strategic and operational questions that aim to reveal how the current system functions, and (3) a final concentration on the identification of specific solutions to sustainability problems and the most feasible transition pathways to attain them (Wiek, 2011). My research takes a transformational sustainability approach to describe the complex transportation landscape in the region and to explore ways to combat poor accessibility and well-being at the present time rather than waiting for Palestinian independence to be realized. The aims of the study are four-fold and are heavily influenced by the transformational sustainability research streams:

1. Complete a system analysis of the West Bank transportation system that has a heavy emphasis on problem drivers and driver interactions;
2. Develop a vision for travel accessibility in the West Bank;

3. Identify the challenges that transformative development in the region faces due to the conflict conditions;
4. Explore the appropriate points of intervention to transition from a state of poor accessibility and well-being.

It is important to mention that the aims are sequential, meaning each builds upon and informs successive aims.

1.3 RESEARCH QUESTIONS AND OBJECTIVES

Central research questions correspond with the previously mentioned aims and are designed to address the steps outlined in the methodological framework for transformational sustainability research, which is discussed in detail in Chapter 2. Each central question is presented with corresponding sub-questions, a justification for inclusion in the study, and a brief explanation of how the study will address the questions.

1. *What characterizes the complex system propelling poor accessibility and well-being in the West Bank?* (Chapter 4)
    a. What are the boundaries of the system?
    b. Which stakeholders are involved in the system and what are their roles?
    c. What are the system drivers and how do they behave in the system?

Information about the current state is needed in order to think about sustainable future states and the transitions necessary to reach them (Remington-Doucette, 2013). Physical characteristics, like roads and land topography, and political characteristics, like restrictions and laws, make up the region's complex travel landscape. Many agencies

including the Palestinian Central Bureau of Statistics, the World Bank, and branches of the United Nations (UN) provide statistical reports that describe such features. Some studies have additionally used transportation statistics and quantitative data about portions of the region's transportation system to evaluate effects on various well-being indicators, especially indicators affected by the Separation Wall whose construction received worldwide scrutiny (Elias, 2011; Calì & Miaari, 2013). This study seeks to classify different drivers of the problem of poor accessibility and well-being and identify linkages between them so as to create a comprehensive system analysis. The analysis may become useful outside this study to justify future development plans. Within this study, the analysis is useful to identify and assess probable intervention points for sustainability transitions aimed at moving the region away from its current state.

2. *What is the future vision for the transportation system in the West Bank?* (Chapter 5)
    a. How do differing commuter experiences affect preferences for development?
    b. What are the major areas of consensus among differing visions?
    c. How may the vision influence a sustainability transition?

Visioning ideally follows the creation of the system analysis in order to initiate a transition away from the current state to a more sustainable state. "Visions describe desirable future states" and can promote movement toward sustainability in a variety of ways (Remington-Doucette, 2013, p. 306). This study aims to create a cohesive future vision for the transportation system in the West Bank using multiple narratives provided

by Palestinian commuters. The breadth of change Palestinians desire from their transportation system is large because the current system functions so poorly. Additionally, social groups interact with the system differently based on differing needs and social norms. While adhering to sustainability quality criteria, the presented vision is comprehensive and demonstrates an expected range of opinion. The identified vision is later used as a tool to suggest and support probable transition strategies.

3. *How do conflict conditions affect probable transition strategies?* (Chapter 6)
    a. How may the attainability of probable transitions strategies be predicted?
    b. Are there tradeoffs to achieved benefits when attainability is more strongly valued?

Traditionally, a "backcasting" approach would follow the visioning process to determine steps leading from the identified vision to a transition strategy. However, barriers inherent to conflict conditions in the West Bank inhibit this process to an extent that any transition may be completely blocked. It is important to reiterate that this study is particularly concerned with transitions that may be presently initiated. Since the normative transition framework does not account for the impact of conflict barriers, this study aims to identify and account for inhibiting barriers using researched information and empirical information gained through stakeholder engagement.

4. *How may transition management for transportation development in the West Bank be guided?* (Chapter 7)

The final consideration of this study is to use the uncovered information to suggest and classify a method for identifying and managing transition strategies based

upon a variety of characteristics including: urgency, manageability, cost, temporal and spatial scales, barrier inhabitance, and overall ability to improve the system. Describing a method for guiding transition strategies enables the research findings to directly influence actions intended to improve the situation in the West Bank Case.

1.4 DISSERTATION CHAPTERS

This document is comprised of eight chapters, including this introductory chapter. Each of the proceeding chapters presents discussions on existing information and/or analyses using original data for specified purposes, which are alluded to in the following summaries:

Chapter 2, *Methods* details the methods employed throughout the duration of this research. I make the argument that a qualitative approach to research is the best approach to use in order to answer the research questions I posed for the West Bank Case. I then describe the Transformational Sustainability Research framework as the central normative framework employed in the study. The steps the framework provides for approaching transformational sustainability research are presented and help to structure data analyses in proceeding chapters. I make a few adjustments to the TSR framework by excluding a step, *scenario construction*, and embedding two additional frameworks, the Capabilities approach and the Transition Management Cycle, and discuss how doing so makes the framework more appropriate to use on the West Bank Case. The remainder of the chapter is dedicated to describing the data collection methods used throughout the study and the analysis procedures I followed to assess the acquired data in the chapters that directly address my research questions (Chapters 4 through 7).

Chapter 3, *Literature Review* describes the three branches of literature used to inform this research. The three branches are accessibility, capabilities, and sustainability. The literature review is accomplished by presenting the originating ideas responsible for launching the concepts central to each branch. The review also accounts for areas of overlap among the three distinct branches in order to define how they relate and connect to each other.

Chapter 4, *Current State Analysis* performs the first step in the TSR framework, which requires an understanding of the current state in order to obtain an understanding of the problem. This study identifies the problem of poor accessibility and well-being in the West Bank to be the paramount consideration. Analysis of the current state of the problem begins by defining the system boundary within the local and regional level and determining the main stakeholders involved at the present time. Information provided by interviewed experts is used to define stakeholder roles within the system perpetuating the problem. The majority of the chapter follows these analysis components and concentrates on identifying and classifying problem drivers and the relationships among the drivers. Expert opinion, reviews of published information, and field observations are used to support the inclusion and defined impact of each driver. The chapter culminates by presenting a system map that summarizes the uncovered behavior of drivers by type of influence and their relative impact on the entire system.

Chapter 5, *Visioning for Transportation in the West Bank* performs the second step in the TSR framework by consulting with Palestinian commuters to construct a future, desirable vision for the transportation system in the West Bank. In the chapter, I

discuss how the members of the differing commuter groups I interviewed have distinguishable preferences for the transportation system based on their differing experiences with the current system and their required needs. I also talk about how my sample groups may inhabit characteristics that are not generalizable across the larger demographic categories they represent since participants came from the same place of employment, school, or village. I organize participants' stories to construct visioning narratives that begin with the commuters' experiences with the transportation system in their own words and end with identifying challenges shared among the commuter groups. This information helps to construct an understanding of commuter preferences. I then organize participants' future visioning preferences into shared themes. I conduct a quality assessment of the themes to ensure that they adhere to sustainability principles and end the chapter by presenting a cohesive, comprehensive, and sustainability-sound vision for the West Bank transportation system.

Chapter 6, *Transition Research for a Region in Conflict* deviates from the traditional steps of the TSR framework in order to amend for its application in a conflict setting. Because conflict conditions in the West Bank may partially or entirely impede the implementation of optimal transition strategies, the chapter focuses on the development of a tool that may be used to account for the effects conflict imposes on development. The current state analysis and future vision presented in the previous two chapters are incorporated along with other gathered information from the literature and expert interviews to construct a set of criteria that may be used to predict the level of

attainability and expected benefit associated with probable transition strategies. The chapter concludes with a discussion regarding the application of the identified criteria.

Chapter 7, *Transition Management* addresses the final step in the TSR framework, which focuses on intervention research. The chapter discusses the application of deliverables presented in previous chapters to guide transition management activities. I embed the current state analysis, future vision, and transition strategy criteria within the types of activities defined by the TMC to operationalize the activities for the West Bank Case. Using four already developed transition strategies for the West Bank Case discussed by interviewed experts, I show how to apply the TMC framework with the embedded research tools to assess strategies.

Chapter 8, *Conclusion* closes the dissertation by summarizing the main research findings. I particularly highlight the theoretical and practical application of information presented in this dissertation. The chapter also addresses the limitations apparent within the research and introduces recommendations for further studies in the field for both researchers and practitioners.

1.5 RESEARCHER PERSPECTIVE

All field research used in this study was gathered during two consecutive, summer trips I took to the West Bank in 2012 and 2013. My longer stay in 2013 was over a two month period, during which I also worked as an intern for the National Spatial Plan office inside the Ministry of Planning for the PA. My extended stay in the region afforded me the ability to experience daily life in the West Bank, and my work in the Ministry of Planning afforded me access to government documents and personnel.

It is important to mention my personal connection to the region. My father and my paternal side of the family hold Palestinian residence. I have many relatives still living in the West Bank. As a result, I grew up listening to personal accounts of the region's history, and many of the cultural traditions are embedded in my own life. My personal connection afforded me an instant rapport with those participating in my study.

My personal and professional connections to the region heavily influence my perspective as a researcher, especially with this study. First, they have been the source of my interest to conduct studies that may benefit the region. Second, they have given me the ability to address this study as an invested individual who is not completely removed from the implications my findings entail. With that said, I alone am responsible for any errors of fact and interpretation existing in this document. In an effort to avoid errors as much as possible, I use rich descriptions, clarify biases, and conduct triangulations wherever possible.

My regional connections also proved useful for eliciting initial engagements for interviews conducted for this research. Prior to any stakeholder engagement, I appealed to the Institutional Review Board (IRB) to obtain permission for my research (see Appendix A for the IRB approval letter). This involved submitting all recruitment material and my interview questions. Protection of participant rights is particularly important for this study due to the sensitive nature of political opinion in the region. No participant is identified by name. Group interview participants are identifiable only by their demographic category and expert interview participants are identifiable by their general job positions.

CHAPTER 2

METHODS

2.1 INTRODUCTION

This research explores the question: *How do drivers influencing the issue of poor accessibility and well-being in the West Bank persist and interact, and how might solutions be approached?* To answer the question, I employed a series of methods that are described in detail in this chapter. First, I focus on my research approach by discussing my chosen strategy of inquiry and describing the guiding conceptual framework used in the study. Following that, I switch my focus to look at the steps I took during my research process by discussing my data collection methods and analysis procedures. Multiple data collection methods and analysis procedures were undertaken throughout this research and for different purposes, both of which are described in the chapter's culminating sections.

2.2 STRATEGY OF INQUIRY

A qualitative methods procedure was used as a strategy of inquiry. Qualitative research evolved predominately at the end of the 20th century and now has multiple established approaches (Creswell, 2009). Generally speaking, qualitative research can be used to gather an understanding of a population's lived experiences as a group or at the individual level (Silverman, 2006). Creswell (2009, pg. 16) suggests that qualitative strategies "seek to establish the meaning of a phenomenon from the views of participants". In this sense, a qualitative approach for this study's transformative research works best. Any possible sustainable transformation in the region will be facilitated by

Palestinians and must adhere to Palestinian needs even if momentum is initiated or funded from abroad.

Community participation is used as the foundation for the deliverables presented by this research. Participatory research developed in response to an effort "to help improve social and economic conditions, to effect change, and to reduce the distrust of the people being studied" (Macaulay et al., 1999, pg. 774). This type of research stresses the relationship between the researcher and the community through collaboration, action, and education (Macaulay, et al., 1999). Scholars agree that participatory approaches lead to improved project design, reduced corruption, and increased project benefits that are sustained for longer periods (Chambers, 1995; Finsterbusch & Van Wicklin, 1987; Mansuri & Rao, 2004). Participation enters this study by way of a phenomenological examination of the informed views and lived experiences of varying stakeholders.

2.3 CONCEPTUAL FRAMEWORK

This study employs the Transformational Sustainability Research (TSR) framework introduced by Wiek and Lang (2013). The normative framework functions as a procedural guide for collaborative research so that "interventions and transitions that promote human and social prosperity and well-being in an equitable manner, while protecting and enhancing local, regional, and global life support systems" may be realized (Wiek, 2011, p. 5). The complete framework is structured by four guiding steps. This study excludes one step, *scenario construction* of plausible future constellations, because the construction of multiple future scenarios does not inform the research questions I posed for this study on the West Bank Case. Alternatively, future visions

alone are generated through participatory practices and are therefore more appropriate to guide transition strategies for this study.

The three steps I considered for this research include the following and are depicted in Figure 2.1:

1. *Past and current state analysis*, involves understanding the problem, how it developed and how it persists, with the intent to use the information to guide thinking about future transitions toward sustainability. The step is accomplished by,
    a. Identifying system boundaries;
    b. Performing stakeholder analysis to examine guiding behavioral actions;
    c. Classifying system drivers;
    d. Identifying linkages among drivers (Remington Doucette, 2013).

    This step acts as a necessary prerequisite for the following two steps. The past and current state analysis may also be used outside the context of this research in other similar planning and research endeavors for the West Bank Case.
2. *Visioning research*, involves envisioning a preferred future state and establishing goals that lead to the preferred state (Remington-Doucette, 2013). Unlike the previous step, visions do not have to be grounded in reality nor are they limited by feasibility. The step is accomplished by encouraging visioning participants to think creatively to come up with desirable system characteristics. It is within the researcher's role to reach a consensus on differing perspectives, values, and preferences for desirable future states (Wiek, 2011). It is also up to the researcher

to judge whether or not proposed visions meet quality criteria for sustainability visions (Wiek & Iwaniec, 2013). Like the previous step, this step must also be accomplished before intervention research is completed because visions should inform intervention research.

3. *Intervention research*, involves developing transition strategies that, when implemented, will guide systems away from the current state to a sustainable (usually the preferred) state (Remington-Doucette, 2013). Intervention research must conjunctively take stock of the current situation and ensure that transition strategies approach visioning goals. The process of using visions to guide intervention research is called "backcasting". The step is accomplished by determining intervention points in the system of interest and designing transition strategies to address those specified points (Remington-Doucette, 2013; Wiek, 2011).

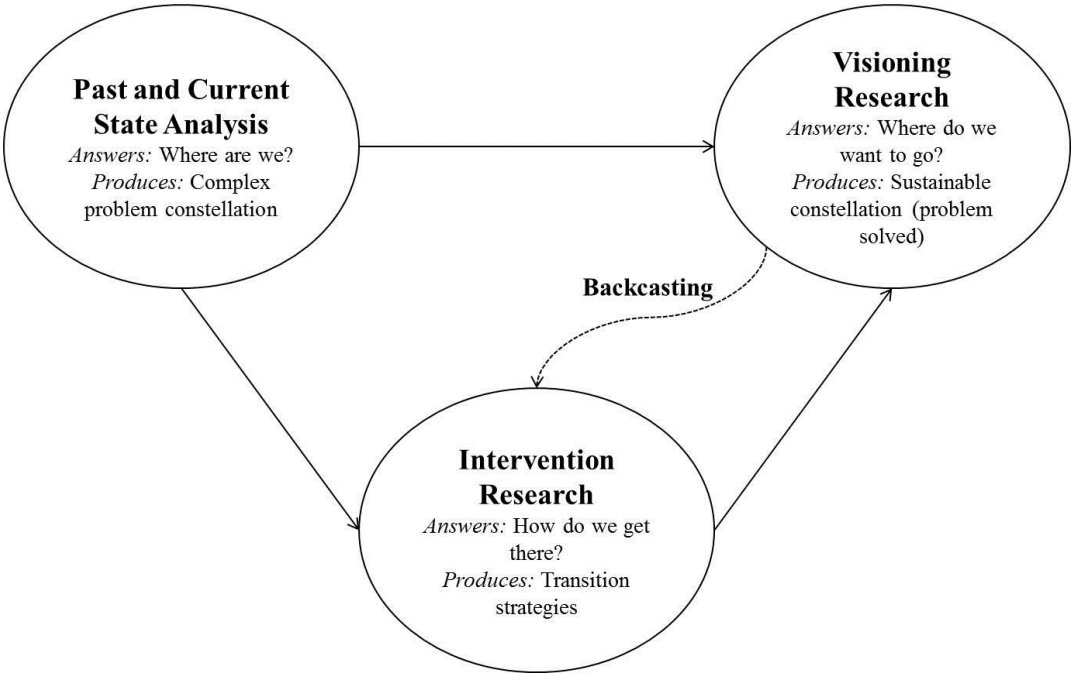


Figure 2.1 Adapted TSR Framework. (Remington-Doucette, 2013; Wiek, 2011)

2.3.1 Additional Frameworks

Two additional frameworks are used in a lesser capacity throughout this research. They are the Capabilities approach and the Transition Management Cycle (TMC). This study embeds both frameworks within the TSR framework so that the TSR framework may better address the guiding research questions posed for each chapter. The Capabilities approach is applied in Chapter 6, which corresponds with the backcasting step that connects the visioning research accomplished by this study with the intervention research. The aim of the approach is to assess the overall standard of well-being by specifying a manageable subset of functionings and capabilities. Concrete operationalization of the approach in the West Bank Case is somewhat general because the approach does not provide a formula for carrying out welfare measurements and

comparisons. A guideline for defining subsets is deliberately not available primarily because subsets vary through time and across spaces. Therefore, operationalization of the approach is pragmatic, meaning it is contingent on the nature of the case and available data. This study uses Nussbaum's (2011) list of ten capabilities central to human well-being to predict opportunity enabled by probable transition strategies. The predicted levels of associated opportunity are used as part of the transition strategy assessment tool presented in the same chapter.

The TMC (refer to Figure 7.1 for a graphic representation of the framework) is applied in Chapter 7, which corresponds with the intervention research component in the TSR framework. The TMC aims to provide a basis for managing transitions in an operational capacity (Loorbach, 2010). I intend for this research to have more than just theoretical value, so I apply the TMC to the study's intervention research to result in a useable guide for transition management actions. The study also adapts the TMC using deliverables from previous chapters (refer to Table 2.1) so that the normative framework is calibrated to apply specifically to the West Bank Case.

2.4 DATA COLLECTION METHODS

As is the case with most qualitative research, this study uses multiple sources of data. Data were compiled using four different methods, including: literature reviews, field observations, expert interviews, and group interviews. This study uses the acquired data to inform and manipulate steps included in the TSR and embedded frameworks as well as to answer the proposed research questions. The methods used to acquire each data source are discussed further in the following subsections.

2.4.1 Literature Review and Field Observations

Research questions concerned with the current state analysis for the West Bank Case are answered using the review of information and qualitative and quantitative data made available by other sources. Materials were found through the use of an academic journal database and official materials were made available to me by employees of the PA. Additional reviews of the literature also become relevant following the completion of all interview sessions to support comments and suggestions elicited by participants during the interview process.

I also informally recorded field observations during two separate trips to the West Bank in 2012 and 2013. The majority of my observational material was recorded during my longer visit, a consecutive two month stay in West Bank during the summer of 2013, when I interacted more intimately with the landscape. As an observer, I focused on taking unstructured notes (hand-written and digital), making voice recordings, and gathering mementos that could help me describe the characteristics of travel barriers and behaviors in the region. I also kept an informal travel journal that detailed my personal interaction with the landscape. This information was used to fill in many gaps throughout the research when no other supporting material was available.

2.4.2 Expert Interviews

Expert interviews were an integral part of this study because information gathered from my sample group of experts was used to address many of this study's research questions. Lindof (1995) talks about seven basic objectives of qualitative interviewing for which three are the primary reasons that interviewing was employed as a method in

this study. They include the abilities to: learn about information that would otherwise be unavailable, understand a social actor's perspective, and validate and commentate on data obtained from other sources.

For the purposes of this study, the term "expert" is loosely defined to mean stakeholders who hold working positions in fields that relate to transportation and development. The expertise of this sample population was crucial to discover informed opinions of discussed topics and to identify transition strategies for the West Bank Case. I settled on an additional criterion for probable participants that made it mandatory for expert interviewees to also be Palestinian residents who were working and living in the West Bank at the time of the interview. This was decided even though much of the development, or lack thereof, on the region's transportation system is conducted and controlled by foreign groups (i.e. Israel and other international groups). It is not unusual for international groups who plan and fund development projects for the West Bank to have knowledge gaps regarding fundamental information about the political and social situation in the region. As is the case, this study considered transportation field "experts" to be Palestinians who know about their region through lived and studied experience. Such candidates additionally have a personal stake in the topic because their own well-being is reliant upon the conditions of accessibility in the region.

Recruitment for this study's expert interviews was accomplished using snowball or chain sampling. This type of sampling is initiated by the researcher, who is responsible for approaching a prospective stakeholder to both participate in the interview and to make additional candidate referrals (Biernacki & Waldorf, 1981). To begin the

recruitment process, I took advantage of a personal acquaintance with a PA employee and an academic from Birzeit University in the West Bank. I approached both separately and asked them to prescribe probable interview candidates who fit my criteria to begin the chain sampling. All participating candidates consented to participate in the study after receiving an in-person, phone, or email description of the study and their prospective role.

Interview questions were organized into three main categories: (1) questions about my draft system map, (2) travel barrier classification questions, and (3) intervention/solution questions (refer to Appendix B for the full list of questions). Most questions were open-ended or semi-structured about specific aspects of the draft system map. I conducted all interviews in-person over a one month period from June to July in 2013. Interviews lasted for roughly 40 minutes each. During each interview session, I audio-recorded the proceedings in addition to taking hand-written notes to improve accuracy and allow for direct quoting. For this study, saturation occurred when no new major themes or perspectives emerged from successive interviews. Expert interviews reached saturation at a sample size of eight people.

2.4.3 Group Interviews

The use of group interviews in this study gives it a phenomenological concentration. Phenomenology incorporates a set of philosophical doctrines that originated in the 18th century and progressed to its modern meaning in the late 19th century through Edmund Husserl's philosophical system (Berrios, 1989). The strategy dictates that multiple individuals who experience an identified phenomenon should be

interviewed, which is an appropriate approach for this study since it seeks information from people who experience transportation barriers in the West Bank. Using group interview sessions to accomplish the phenomenological research provides added benefits that are not associated with individual interviews. First, group interview participants tend to be stimulated by others responses. The discussion atmosphere allows for participants to inspire others with their own responses, and it also allows for questions to be posed by more than just the facilitator, which ultimately may generate information that might not normally be divulged in a one-on-one setting. Additionally, the group atmosphere has the added benefit of luring participants who may be reluctant to participate individually (Lindlof, 1995).

For this study, the group interview sessions were cross-sectional, meaning data were collected at one point in time to display a snapshot of how conditions were at that moment and to reveal current interpretations and viewpoints. I facilitated all sessions in-person with the help of an Arabic translator and a note-taker who also understood Arabic. All sessions were audio recorded, and I used the recordings to transcribe the translator's version of the conversations. The final transcripts I used for coding also contained information provided by the note-taker that the translator did not relate verbally. Sampling for group interview participants was stratified into four groups based on major commuting stakeholders: female commuters, male commuters, student commuters, and taxi drivers. Stratification was necessary to ensure participant comfort during sessions. Recruitment was accomplished randomly but it was also based on the researcher's ability to acquire permission to access particular locations. Four participants made up the

female commuter group and all were recruited at their place of employment. The two participants in the male commuter group were also recruited at their place of employment. The student group had four participants who were recruited outside their university union center. Finally, the two participants in taxi driver group were recruited directly from their village center. The small size of all four groups enabled each participant to have ample time and opportunity to answer each question and respond to others' comments.

Outside of the group interviews, I had numerous informal conversations with Palestinian commuters during my field visits. Most of the information recorded during my small group interviews matched and covered all the topics I encountered throughout my more informal meetings, which I often documented throughout my field notes I noticed there to be a definite saturation of preferences for Palestinians. Although their experiences are vastly different, most want similar things when it comes to improving the transportation system. The differences occur among the differing types of commuters because they have different needs and desired locations to access. This difference was accounted for by making sure at least two commuter representatives were included in the group interviews.

Sessions were usually conducted the same day participants were recruited to avoid any scheduling conflicts. Each session lasted for roughly one hour. A series of open-ended questions were created to begin and guide the sessions (refer to Appendix C for the full list of questions); however, additional questions were added for each session to correspond with topics initiated by participants throughout the discussions. All

sessions had the opportunity to discuss two particular subjects in detail: (1) personal experiences with the transportation system in the West Bank, and (2) desired transportation system and capabilities improvements.

2.5 DATA ANALYSIS BY CHAPTER

The four sources of data described in the previous section were used for multiple purposes in multiple chapters. Each central chapter presents a deliverable that may be used outside of this research. The data obtained throughout this research played a vital role in the creation of each deliverable. Because each data set was used for multiple purposes (refer to Table 2.1), this section discusses the analysis procedures applied to the data by chapter.

Table 2.1

West Bank Case Analysis and Deliverables

Step in the TSR Framework	Chapter Number and Central Research Question	Data Collection Method Used in Analysis	Deliverable
Past and current state analysis	1. What characterizes the complex system propelling poor accessibility and well-being in the West Bank?	Literature review Field observations Expert interviews	Current state analysis of the West Bank transportation system
Visioning research	2. What is the future vision for the transportation system in the West Bank?	Group interviews	Stakeholder vision for the West Bank transportation system
Backcasting	3. How do conflict conditions affect probable transition strategies?	Literature review Field observations Expert interviews Group interviews	Attainability/Benefit Criteria for probable transition strategies
Intervention research	4. How may transition management for transportation development in the West Bank be guided?	Literature review Field observations Expert interviews Group interviews	Guide for transition management activities

2.5.1 Chapter 4, Current State Analysis

Analysis of data for Chapter 4 addressed information yielded by my literature review, field observations, and expert interviews. First, material gathered from the literature and field observations were treated using data reduction methods. Reduction occurs when data are sorted, categorized, prioritized, and interrelated according to emerging schemes of interpretation (Lindlof, 1995). Much of this process occurred prior to any interviewing session and guided the creation of the preliminary draft system map used during the expert interviews (see draft map in Appendix D). Beginning in late 2010 (a year and a half before interviews were conducted and six months before any field observations were taken), I searched and consulted information from published materials (including academic, statistical, and current event reports) to identify a list of possible drivers for the problem of poor accessibility and well-being in the West Bank. This process continued up until my second field visit in the summer of 2013, at which point I complied a complete list of system drivers to construct a draft system map. I combined information I found from published materials with my field observations to support the construction of the map. The draft focused only on identifying and organizing drivers into categories without defining influences among drivers. I used triangulation to check for validity regarding my own judgment on what should be included on the map. I consulted with two colleagues and the head of the National Spatial Plan office in the PA's Ministry of Planning. We discussed the drivers I included on the map and the terminology I used to depict them, and they in-turn offered improvement suggestions.

The final draft included edits made in accordance with reviewers' suggestions and approvals before it was used in any expert interview.

Transformation of the draft map into the final system map (Figure 4.9) presented in the chapter required the use of information garnered throughout the expert interviews in addition to additional reviews of literature material and field observations. First, participating experts were asked to comment on the validity and accuracy of the map. Their responses and suggestions were consolidated and applied to the final system map. Influences among drivers were defined using a casual chain analysis and recorded in Microsoft Excel to establish statistical summaries. Lastly, a second triangulation occurred when I presented the results of the causal chain analysis again to the head of the National Spatial Plan office to check for validity among the major relationships and trends depicted in the map.

2.5.2 Chapter 5, Visioning for Transportation in the West Bank

Analysis of data for Chapter 5 addressed information yielded by group interviews. Open coding of interview transcripts was accomplished using cutting and sorting procedures inside of Microsoft Excel. Coding was accomplished to sort participants' responses into themes that could be discussed in the chapter and later used to construct a future vision. For this study, repetitions made by single or multiple participants, notable similarities and differences among respondents' comments, and consultation using Wiek's and Iwaniec's (2013) sustainability visioning criteria were used to define themes present in the interviews (Ryan & Bernard, 2003). Direct quotes from the interview transcripts are provided for each identified theme. It is worthwhile to mention that

transcripts compile words spoken by participants who could respond in English and words spoken by the translator for participants who could not respond in English. As a result, some quotes are written using a first person tense while others are not.

2.5.3 Chapter 6, Transition Research for a Region in Conflict

Analysis of data for Chapter 6 addressed information yielded by all four data collection methods. Data analysis in the chapter helped me to create and define the Attainability/Benefit Criteria, which is a tool that may be used to assess the quality of probable transition strategies when the tool is included in the TSR framework. The current system map and vision presented in Chapters 4 and 5 respectively are embedded within the criteria as guiding tools for measurements of specified criterion. Also, rankings that interviewed experts gave in response to the current system and its functionings were compiled and used for the same purpose. As such, the data analysis procedures described in the previous subsections are also embedded within the chapter. Outside of that, additional reviews of the literature were accomplished to construct and define the criteria.

2.5.4 Chapter 7, Transition Management

Like Chapter 6, analysis of data for Chapter 7 also addressed information yielded by all four data collection methods. However, no additional data analysis took place in the chapter. Instead, the chapter focused on modifying the established TMC by describing how deliverables presented in the preceding chapters may be used to accomplish activities for transition management. As a result, the data analysis procedures described by the previous subsections are also embedded within this chapter.

CHAPTER 3

LITERATURE REVIEW

3.1 INTRODUCTION

Literature is important to this study in that it is used to inform how the research is approached and viewed. Three main branches of literature make up the foundation for which this research is based. They include: accessibility, capabilities, and sustainability. This chapter traces originating ideas from the literature's pioneering authors to present a detailed definition for each concept. Because this study is particularly interested in the shared space connecting ideas of accessibility, which is the dominant field, with capabilities and sustainability, this chapter also uses past literature to define the relationships and areas of agreement among all three concepts.

3.2 ACCESSIBILITY

Theories of accessibility developed from varying concepts and definitions that have been introduced and utilized by researchers over many decades. However, true modern transportation concepts of accessibility were defined when the use of automobiles became a dominant form of transportation during the mid-20th century. This was especially true in developed countries like the United States where in 1956 President Eisenhower passed the Interstate Highway Act, which effectively sanctioned the construction of over 41,000 miles of interstate highway (Weingroff, 1996). The most referenced definitions of accessibility were generated during this time period.

Multiple definitions of accessibility exist because the concept is operationalized in different ways. Geurs and van Wee (2004, pg. 128) highlight some early well known studies that defined accessibility as:

- "The potential of opportunities for interaction" (Hansen, 1959)
- "The ease with which any land-use activity can be reached from a location using a particular transport system" (Dalvi & Martin, 1976)
- "The benefits provided by a transportation/land-use system" (Ben-Akiva & Lerman, 1979)
- "The freedom of individuals to participate in activities in the environment" (Weibull, 1980)

Geurs and van Wee (2004) use early and current definitions for accessibility to divide the concept into four major components of emphasis along with four measures to apply to combinations of the components in practice. Their four accessibility components include: (1) *land-use*, which represents the quantity, quality, and demand for destinations; (2) *transportation*, or the available transport system; (3) *temporal*, which represents time-based constraints of opportunities; and (4) *individual*, which represents characteristic needs of individuals. Accessibility measures should ideally take all components into account. The accessibility measures identified by Geurs and van Wee (2004) include: (1) *infrastructure-based* measures to analyze the performance or service level of transport infrastructure, (2*) location-based* measures to analyze accessibility at locations on a macro-level scale, (3) *person-based* measures to analyze accessibility at

the individual level, and (4) *utility-based* measures to analyze the economic benefits that people attain from access to various activities.

3.2.1 Past Research in Accessibility

Past accessibility studies fall into thematic categories based on their examined relationships. These include studies that connect accessibility to land-use and built infrastructure, economic and social conditions, and equity levels. Past studies that incorporate a concept of accessibility under the first theme do so in order to examine the relationship between infrastructure, land-use changes, and accessibility (Geurs & van Wee, 2004; Fürst, et al., 2000; Handy, 2005). These studies focus on the ability of land-use and transportation systems to allow access to necessary activities like places of work and recreation to acquire economic and well-being benefits. The studies found levels of accessibility to affect populations by influencing chosen places of work, study, and leisure activity locations. The same studies concluded that increased accessibility would decrease the travel times and costs of attending such places.

Other accessibility research have focused on economic and social conditions and found that changes made to transportation systems and land-use, which cause changes in accessibility levels, may also influence populations economically and socially (Geurs & Van Eck, 2001). Economic changes are most significant in terms of gross domestic product (GDP), whilst social changes are best shown in terms of standard of living/quality of life, well-being, and welfare. Multiple studies also found a positive relationship between accessibility and productivity and economic development (Fürst, et al., 2000; Spiekermann & Wegener, 2006). Johansson and Klaesson (1995) and

Prud'homme and Lee (1999) explain this relationship by revealing that improved travel conditions give rise to improved labor markets and productivity.

Finally, some past studies have focused on the equity implications of accessibility levels. In such studies, equity is used to refer to fairness in the distribution of goods and services to demographically differing populations. Many studies have found a positive relationship between accessibility to opportunities and therefore, levels of equity (Wach & Kumagai, 1973; Domanski, 1979; Shen, 1998; Talen & Anselin, 1998; Schürmann, et al., 1997).

3.2.2 Planning for Accessibility Versus Mobility

Within the realm of urban transportation planning, approaches and subsequent policies are distinguishable by a maintained focus on either mobility or accessibility. Mobility and accessibility are disparate paradigms, and although the terms are sometimes used interchangeably, they fundamentally describe different frames of reference, require different measurements, and drive different development patterns.

A concentration on planning for mobility is the historically dominant paradigm as evidenced by the existent vehicular-dominant structures in most urban settings. The concept relates directly to one's ability to move. When defining mobility, Cervero (1996) uses the term "automobility" because the type of planning overwhelmingly concentrates on vehicular travel. The purpose of mobility planning is to facilitate movement, and the intention is to allow people the freedom to move. Statistically, mobility is often measured by vehicle miles travelled (VMT), passenger miles, traffic speed, vehicle occupancy, and/or vehicle ownership (Ross, 2000). Together, the

indicators help to uncover efficiencies of movement by vehicle. Mobility planning aims to maximize movement efficiencies. As such, congestion acts as the major threat to mobility efficiency. Mobility planners combat congestion threats by focusing on identifying and combating future traffic congestion problems. However, Cervero (1996) points out, that in practice, transport investments for mobility tend to be ad hoc and incremental, meaning they happen after congestion has occurred and do not improve the entire situation at once. Specific project planning approaches and policies used to improve mobility can all be described as "supply-side" mechanisms, meaning their goal is to increase the speed and ease of movement (Cervero, 1996). The construction of new and the expansion of existing vehicle roads and freeways are the most prevalent methods of mobility planning. In addition to road construction and expansion, supply-side planning also results in other congestion control and ease of travel mechanisms. These can include intelligent transportation systems, which give on-board travel information to efficiently plan trips; Transportation System Management features, which incorporate other constructed road features like one-way streets to control congestion; and large-scale public and private transport systems, which incorporate other modes of transportation like heavy rail to improve wide-ranging movement (Cervero, 1996). Mobility planning has also given rise to some negative consequences. Environmentally, increased road construction has resulted in the loss of natural bush lands, urban wetlands, and costal zones; it has increased greenhouse gas emissions, contributing to climate change and poorer air quality; and it has depleted non-renewable energy sources. Socially, mobility planning has contributed to urban sprawl and longer travel journeys; it contributes to a

significant number of road injuries and fatalities; and it has perpetuated inequality among transportation systems through the separation of people by class and race (Cervero, 1996; Ross, 2000). The negative consequences of traditional mobility planning approaches and policies have more presently diverted attention toward accessibility planning.

Planning for accessibility is a newer paradigm with characteristics that give the method an inherent ability to alleviate the mentioned problems associated with mobility planning. This is largely due to the fact that accessibility and mobility have two entirely different foci. Accessibility planning distinguishes transportation as a mechanism intended to enable activities that are completely separate from the act of traveling. Accessibility recognizes that the importance of travel does not rest within itself but rather in its ability to enable access to different places. With accessibility planning, the focus is on ensuring the connection of people to places or travel for a purpose (Cervero, 1996). Statistically, accessibility is more difficult to measure than mobility. The most obvious combinations of accessibility measurements, like perceived costs of travel per distance and level of comfort, are subjective. It is often argued that accessibility cannot be directly measured but rather quantified or indicated (Ross, 2000). Indicators, which communicate trends of events, are often used to uncover levels of accessibility by quantifying "ease of travel" (Ross, 2000). Utilized accessibility indicators are varied but are usually commonly concerned with the location of sites relative to one another (Pooler, 1995). For example, Wachs and Kumagai (1973) describe a specific type of accessibility indicator that is based upon opportunity to travel. Although opportunity to travel is also dependent upon many factors, a simplification of measurements can uncover more than

just the demand patterns yielded by traditional methods; it may uncover weaknesses in existing land-use and/or travel systems, which if addressed using access improvements through planning, may ultimately result in travel demand changes. Specific project planning approaches and policies used to improve accessibility tend to have more of a "demand management" emphasis, meaning their goal is to manage physical space and resources to better connect people to places of interest (Cervero, 1996). If accomplished, a focus on accessibility planning may actually reduce the need to travel. For example, land-use management planning, like increasing compact development and mixed use urban areas, brings a variety of services and required daily destinations closer together so that commuters may visit multiple types of places and satiate their needs within a smaller area. Other methods of accessibility planning seek to alter modes of transportation to make the act of traveling easier for various population demographics by strengthening current travel modes and providing alternatives to the automobile. Such methods include Transportation Demand Management (like ridesharing and guaranteed ride home programs) and community-scale public and non-motorized transport (like light rail transit and the construction of bicycle and pedestrian paths). Lastly, accessibility planning may also involve advances to telecommunication to virtually bring destinations directly to the individual and eliminate the need for travel altogether. Such methods include telecommuting and teleshopping (Cervero, 1996).

3.2.3 Accessibility and Well-being

Accessibility planning recognizes the critical relationship between people and places. The approach results in transportation plans that enable populations the ability,

means, and freedom to travel and thereby receive the benefits available at various destinations. In an effort to define the relationship between accessibility planning and acquired benefits (or well-being) it is useful to repeat how Puri (2007) describes the relationship of money to well-being: money is a *means* for purchasing some of the basics of well-being like nutrition, health, education, and security. Likewise, achieved accessibility is also a *means* of reaching destinations that affect well-being. The relationship is indirect. This is because well-being is a condition in abstraction from the utility it provides (Martens & Golub, 2012). Having roads (being mobile) is not a condition of well-being. The freedom to use roads to arrive at a required destination (accessibility) is also not a condition of well-being. Instead, well-being is really the benefit people receive after travel has occurred. The act of traveling was necessary to acquire positive conditions of well-being, but it is not itself a condition of well-being. People are not better off because they travel; they are better off because travel brings them to places where they can eat, receive healthcare, become educated, and be social. However, it is still appropriate to say that accessibility does in fact affect conditions of well-being. If places in cities are accessible, people are better off.

Studies show that accessibility planning may indirectly affect levels of well-being by better connecting people to places. Typically, accessible land-use management relates the strongest to well-being. Three concrete examples of this relationship include: (1) social injustice due to lacking access to restricted places and activities may be combated by bringing them closer and creating compact cities (Elias, 2011; Madanipour, 1998); (2) compact cities that are less auto-centric bring about added health benefits through

improved air quality, increased walkability, and reduced risk of automobile accidents (Southworth, 2005; Cervero, 1996); and (3) cities that do not proliferate sprawling, automobile centric development also do not threaten space for farmland, ecological reserves, and open spaces, which are important for economic opportunities and resource harvesting, community health, and happiness respectively (Coffin, 2007; Cervero, 1996).

3.3 CAPABILITIES

The Capabilities approach is a theoretical framework that has emerged within recent decades even though aspects of the approach are traceable to Aristotle, Adam Smith, and Karl Marx (Robeyns, 2011). Economist and philosopher Amartya Sen is commonly credited with pioneering the approach. The approach has since significantly developed through work accomplished by philosopher Martha Nussbaum, whose ideas conjunctively diverge and elaborate upon Sen's approach.

The Capabilities approach, as loosely defined by Sen, is a normative framework that may be used to evaluate individual well-being and social arrangements (Robeyns, 2003). It is not a well-defined theory. Instead, it functions more like a paradigm because of its broad ranging possible operations, which Robeyns (2003, pg. 8) lists as: "(1) a framework of thought for the evaluation of individual advantage and social arrangements; (2) a critique of other approaches to the evaluation of well-being and justice; and (3) a formula or algorithm to make interpersonal comparisons of welfare or well-being". The approach is used in many fields. Its prominent use is as a framework of thought for the assessment of individual advantage and social arrangements in development thinking, welfare economics, social policy, and political philosophy (Robeyns, 2003). As a

framework, the Capabilities approach ultimately guides research to focus on information needed to make judgments about individual well-being and social policies whilst influencing the rejection of information that acts as inadequate normative descriptions of well-being and social policies (like many monetary measurements). The approach accomplishes this task by: identifying social constraints that influence and restrict well-being; measuring poverty or inequality; acting as an alternative to traditional utilitarian cost-benefit analyses; contributing to efficiency evaluations; and serving as an element of a theory of justice (Robeyns, 2003).

The two major components of the Capabilities approach are functionings and capabilities, which are closely related but entirely distinct. Functionings are a person's achieved beings and actions, while capabilities are various combinations of functionings or a vector set of functionings a person can potentially achieve (Robeyns, 2003). Sen (1987, pg. 36) clarifies the difference with the statement, "A functioning is an achievement, whereas a capability is the ability to achieve." People may achieve the same functionings but have done so through a very different set of available capabilities. For example, a person who has poor nutrition due to famine is not the same as a person who has poor nutrition due to her choice to participate in a hunger-strike. Only the first person suffers from a capabilities disadvantage. Sen recognizes that factors other than capabilities interact to result in acquired functionings. These include: commodities, personal, social, and environmental factors, and choice (constrained or not). However, the capabilities approach is less concerned with the functionings a person has achieved

and more concerned with people's affective freedoms to be whom they want to be and do what they want to do (Robeyns, 2003).

Nussbaum's version of the approach advances Sen's original framework in a different, more distinct direction. Robeyns (2003) highlights four particular areas in which the versions differ. First, due to their differing intellectual backgrounds, the authors identified different goals to achieve with contributions to the approach. Nussbaum's perspective is shaped by a "moral-legal-political" philosophy. Her aim was to develop a partial theory of justice by assigning the responsibility of securing central capabilities to government bodies (Nussbaum, 2011). Alternately, Sen's version purposefully does not identify a clear aim. This is largely due to his work in social choice, which is a field that functions on formal, mathematical reasoning rather than focusing on empirical details. Sen's approach incorporates quantitative applications and measurements while Nussbaum's approach uses narrative approaches (Robeyns, 2003). Second, Nussbaum identifies a list of capabilities she finds central to human well-being. The list is often revised and currently includes ten capabilities: (1) life, (2) bodily health, (3) bodily integrity, (4) senses, imagination, and thought, (5) emotions, (6) practical reason, (7) affiliation, (8) other species, (9) play, and (10) control over one's environment (Nussbaum, 2011). Sen's version rejects the notion that a specified list of central capabilities exists. Third, Nussbaum envisions her work on the capabilities approach as an empowering tool that may provide citizens with an argument to demand rights from their government, whereas Sen's approach, which has a wider scope, does not focus on defining governmental demands (Robeyns, 2003). Lastly, Nussbaum's approach does

not favor the "agency-well-being" distinction (described in the following section) that Sen's advocates (Robeyns, 2003). To broadly summarize, Nussbaum uses the Capabilities approach as the foundation for a partial theory of justice whereas Sen's version is broader and more general.

3.3.1 Contributions to Development and Well-being

The Capabilities approach has contributed to the thinking of human development and well-being because both are dependent upon human capabilities. In an effort to make the contribution explicit, it is important to mention that the value of the Capabilities approach in conjunction with ideas of development and well-being exists at the analytical level (Robeyns, 2003). The approach is concerned with the means and ends of development and well-being, although it does not seek to define either. At the analytical level, the approach aims to define whether things have instrumental or intrinsic value to development and well-being (Robeyns, 2003). The approach discusses development and well-being in terms of people's capabilities to function. As previously mentioned, functionings and capabilities are achievements and the freedom to achieve respectively. Both are part of a development and well-being equation, but ultimate importance truly lies within an individual's freedom (capabilities) to do what they want to do. As such, the Capabilities approach works as a tool to assess development processes. Sen (2000) says freedom is central to the process of development for two reasons: (1) an evaluative reason whereby development progress should be assessed in terms of whether it has enhanced people's freedoms, and (2) an effectiveness reason whereby achieved development is found to be dependent on the free agency of people. In practice, the

Capabilities approach has ultimately contributed to development and well-being by evaluating policies according to their impact on people's capabilities.

3.3.2 Capabilities and Accessibility

The Capabilities approach can also be linked to concepts of mobility and accessibility. Capabilities, mobility, and accessibility are all concerned with freedoms. However, of the three, mobility is the only concept that assigns a freedom, the freedom to travel, with *intrinsic* value. Mobility focuses on the individual and their movement and gives importance to the act of traveling for traveling's sake (Ross, 2000). The view is subservient to accessibility, which focuses on traveling as a way to connect people to places and fittingly identifies the act of traveling as a derived demand, meaning people want to travel to get somewhere (Ross, 2000). Accessibility and the Capabilities approach both assign the freedom to travel with *instrumental* value; they agree that transportation contributes to the expansion of other freedoms that may be related or distinct. In addition, the Capabilities approach and concepts of accessibility both relate to opportunity. Rather than considering achieved functionings as the ultimate normative measure, the Capabilities approach is concerned with the capability or opportunity of a person to achieve a function as influenced by their own needs, desires, and choices (Robeyns, 2003). Similarly, accessibility takes the same idea and applies it to transportation, whereby a measure of good accessibility is the opportunity to travel by mode of choice to places of interest or necessity (Wachs & Kumagai, 1973). In this way, an achieved functioning is provided by access to a place, but the capability is the opportunity to get to that place with ease. The strong relation of the Capabilities

approach to the accessibility paradigm is the reason both frameworks are relevant to the West Bank Case.

3.4 DIMENSIONS OF SUSTAINABILITY

A great deal of development, whether that be physical or political remains to be determined, will be necessary to improve travel conditions in the West Bank. As they stand, the travel conditions in the region do not sufficiently accommodate the needs of current Palestinian residents. The situation is exacerbated when future generations and the possible return of Palestinian refugees are also considered since the current conditions already do not impart sufficient capabilities to existing residents and space is limited. The need for development in the region with respect to preservation and careful planning of its limited space renders a sustainability-centric consideration paramount.

The concept of sustainability is not new. The demand for raw materials and careful consideration for harvesting impacts on the environment have been witnessed throughout human history (Du Pisani, 2006). Present concepts of sustainability respond to evidence that current conditions and trends are not feasible in the long run (Gibson, 2006). Definitions for sustainability as a concept are variable and influenced by the place and time they consider. Sustainability thresholds themselves are also flexible and modified as new information is acquired and values change; sustainability characteristics that are valued at the present in a specific place may be less significant in different contexts or at different times (Saleh, 2009). Generally, the term refers to meeting present needs without exploiting natural systems so that future generations are not disadvantaged. Differing frameworks of sustainability also tend to share an aim to identify connections

between three primary pillars: environments, societies, and economies. Over time, characteristic sustainability concepts have broken off to form their own frames of assessment for more directly focused studies. Sustainable development is one of these concepts.

3.4.1 Development and Preservation

Concepts of sustainable development link mounting environmental problems with socio-economic issues so as to attain a healthy future for humanity (Hopwood, et al., 2005). This definition, however, is really an all-encompassing summary of a number of definitions for sustainable development. It represents a consensus of ideas for sustainable development from a variety of world organizations. Definitions for sustainable development differ according their combined focus on socio-economic and environmental issues. Those that cater toward socio-economic interests give more importance to human well-being and equality. On the other hand, those that cater toward environmental interests give more importance to environmental systems. True definitions for sustainable development adequately balance considerations for both socio-economic and environmental issues. Definitions for sustainable development also promote differing methods for development. These include: status-quo (changes can be achieved using present structures), reform (fundamental reform of existing structures is necessary to elicit change), and transformation methods (a radical transformation of existing structures is necessary to elicit appropriate change) (Hopwood, et al., 2005). The kind of definition most applicable to the West Bank Case is the one provided by the Board on Sustainable Development of the US National Academy of Sciences in 1999.

The definition is broken apart into three guiding questions: (1) what should be sustained and developed?, (2) what is the relationship between the two?, and (3) what is the time horizon for action and achievement? (Kates, et al., 2005). Answers to each question in relation the West Bank Case reveal that the situation is undesirable yet in dire need for sustainable development. There exists a large need for development, but conflict conditions complicate the time horizon for possible actions and successful implementations.

Actual sustainability development depends upon two seemingly contradictory factors: development and preservation. Transportation development is required in the West Bank to alleviate barriers to accessibility. For sustainable development to occur, transportation systems and policies need to accommodate the region's current and growing population and, at the same time, function to preserve environmental conditions and limited spaces, which significantly affects the future health and prosperity of the population. However, when it comes to transportation and accessibility, neither is specifically identified within sustainable development frameworks, which necessitates an additional branch of consideration to fully integrate the issue of accessibility in the West Bank with the concept of sustainable development.

3.4.2 Sustainable Transportation

There exists a branch of sustainability that focuses explicitly on transportation because the field is seen as an issue for sustainability (Banister 2008; Black, 2010; Litman, 1999). Like the definition for sustainable development, the concept of sustainable transportation has a variety of definitions that encompass many issues.

Sustainable transportation represents transportation and mobility systems that do not decline human, monetary, or natural capital (Black, 2010). The definition acknowledges the concept of maintaining certain levels of functioning. Because human, monetary, and natural capitals differ greatly from place to place, the level of what should or is capable of being maintained is also different. Consensus usually surmises that most areas, despite their current level of development, have not reached an appropriate level of sustainable transportation. For example, the United States, a "high-income country", consumes more fossil fuels than any other country in the world, which is largely telling of the country's current transportation status (Black, 2010). In a way, the conditions in the United States are comparable to the conditions in the West Bank based on their shared non-attainment of sustainable transportation systems but for different reasons.

The status of sustainable transportation in the United States and the West Bank are both considered poor for different reasons. This is because the concept of sustainable transportation is comprised of more than one dictating category. Black (2010) identifies these categories as: climate change, urban air quality, the finite nature of petroleum reserves, motor vehicle crashes and safety, congestion and sustainability. From these categorical representations of sustainable transportation, it is clear that while the US employs an unsustainable transportation system based on its contribution to climate change, poor air quality in big cities, and its reliance on non-renewable fuels. The West Bank on the other hand has an unsustainable transportation system because of high congestion problems and safety issues. The status of sustainability for transportation in both areas provides a static vantage point of transportation by its primary effect on

environment, with less consideration on its social effect. The transportation systems in the United States and the West Bank are entirely different, but the description of both as "unsustainable" does not relay this difference.

3.4.3 Sustainability and Capabilities

Approaches to sustainability and capabilities seek to identify specific indicators to display levels of attainment for sustainability (meeting present and future needs whilst preserving environments) and capabilities (abilities to achieve). Societal needs discussed by sustainability concepts include the same functionings the Capabilities approach seeks to achieve. As a result, criteria for assessment among both approaches are related. Gibson (2006) identifies eight central criteria for sustainability assessment. They include: (1) socio-ecological system integrity, (2) livelihood sufficiency and opportunity, (3) intragenerational equity, (4) intergenerational equity, (5) resource maintenance and efficiency, (6) socio-ecological civility and democratic governance, (7) precaution and adaptation, and (8) immediate and long term integration. When these criteria are compared to the ten central capabilities identified by Nussbaum (2011) (life, bodily health, bodily integrity, emotions, practical reason, affiliation, other species, play, control over one's environment, and senses, imagination, and thought), it is noticeable that Nussbaum's central capabilities may actually be categorized by Gibson's sustainability, assessment criteria. For example, Gibson (2006) describes the "livelihood sufficiency and opportunity" assessment as requiring people and communities to have enough to provide for decent lives, improve well-being, and opportunities to seek improvements without compromising future generations. The central capabilities of life, bodily health

and integrity, play, and control over one's environment all fall under the same requirement. Therefore, it is possible that aiming for increased levels of sustainability and capabilities may occur concurrently. Many capabilities, like accessibility, are associated with well-being. When acquired, certain capabilities may also improve the social sustainability of a region.

CHAPTER 4

CURRENT STATE ANALYSIS

4.1 INTRODUCTION

Travel accessibility in the West Bank is insufficient for Palestinian residents. Access to desired destinations is uncertain at any given time due to a variety of many physical and political conditions. The number of conditions that drive the problem of poor accessibility and the existent relationships between the conditions themselves makes for a complex problem. I aim to uncover strategies that may be presently implemented to ameliorate the experienced effect of poor accessibility. In order to do so, I must first understand how the problem persists, and this involves a systems approach. Systems thinking involves understanding that a problem is a "whole-system" problem, and that attempting to address issues individually is inadequate. It also "demands recognition of interrelatedness and complexity" (Dovers & Handmer, 1992, p. 274). With the West Bank Case, the conditions that drive the problem do so in varying intensities. They also affect one another so that when attention is paid specifically to a certain condition, the entire system may be altered in ways that are unpredictable if the system is undefined. It is no surprise then that analysis of the current state is achieved by defining the system.

Remington-Doucette (2013) discusses methods for current state analysis that combine those used in a variety of fields such as business, ecology, and urban planning. Of those she describes, my current state analysis uses a definition of system boundaries, an analysis of key stakeholders, the identification of direct and indirect drivers, and causal explanations for relationships among drivers to ultimately construct the system

analysis. The chapter culminates by presenting a system map for the problem of poor accessibility and well-being in the West Bank. Data used to analyze the system include an extensive review of published literature, responses from my interviews, and my own field observations. The most important aspects of the analysis are its highlighting of the drivers, direct and indirect, for the problem and portrayal of influences among the drivers. Identification of the system's drivers and the drivers' influences directly answers the central question I posed for this chapter: *What characterizes the complex system propelling the poor accessibility and well-being in the West Bank?* The analysis is also useful for discussions of effective solutions and used as a reference in later chapters.

4.2 DEFINING THE SYSTEM

Defining the system involves defining the boundaries, components, and interactions related to the problem (Remington-Doucette, 2013). It is important to recognize that a defined system is particular for a specific time, place, and context. As such, a defined system may not be easily transferred to describe others systems with differing parameters even if they address the same place (Remington-Doucette, 2013). The system this study considers is the West Bank Case. Temporally, the West Bank Case includes phenomena that have been in existence within the last four years. Specifically, data were gathered and generated beginning in 2011 and were analyzed from 2014 to 2015. Spatially, the study's system is housed primarily at the regional scale but acknowledges connectivity to problem drivers outside that scale as well. Lastly, the context of the system includes a social system and a problem system, which are further developed in the proceeding sections. Figure 4.1 depicts the system for this study.

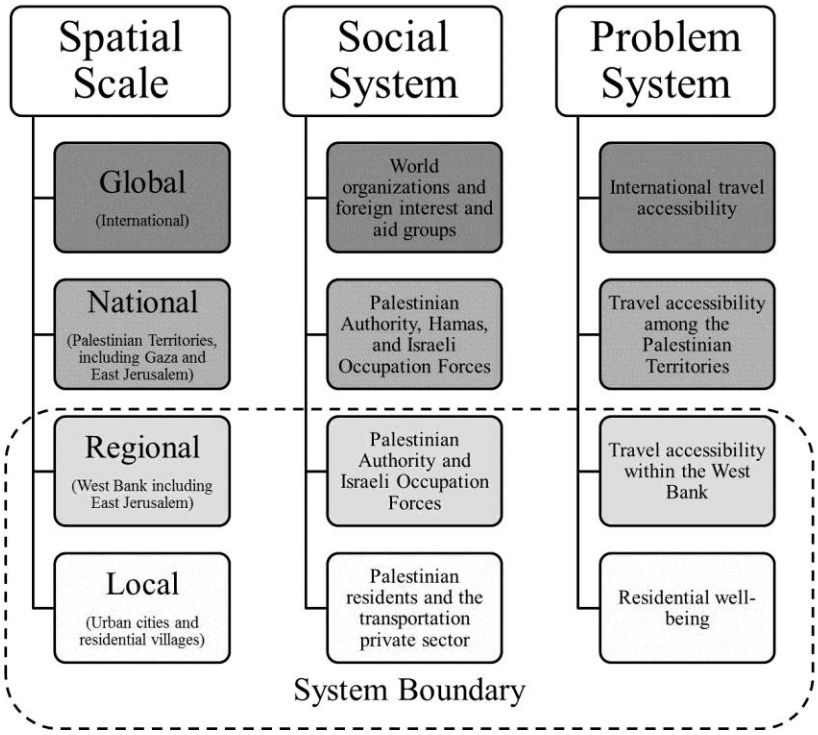


Figure 4.1 System Boundary. While the system is placed at the local and regional scales, it acknowledges connectivity to the national and global scales.

The boundaries for the study system are geographic. The West Bank, a 5,659 km^2 area encompassing the eastern portion of the Palestinian Territories under Israeli military occupation (Maoh & Isaac, 1999), is demarcated by borders commonly known as the Green Line or 1967 border, which are recognized by the UN. The study's central components and interactions exist inside these borders. The study considers the travel accessibility and well-being of Palestinian residents living inside the 1967 border, which includes Palestinians holding residence in East Jerusalem. In addition, the study recognizes the needs of Palestinian residents to access areas outside the borders. However, I do not focus on defining related components or interactions existing outside

the boundary. The influences of such interactions are insignificant by comparison to those inside the boundary.

Figure 4.2 The West Bank as Defined by the 1967 Border. Interior lines in the West Bank delineate PA election districts. Each district's central urban city is marked by name and location (CECP, 2006).

System components are the different parts that make up the system inside of the identified boundary (Remington-Doucette, 2013). I have already mentioned a few components, of which the most important is the area's Palestinian population. The Palestinian Central Bureau of Statistics (PCBS) reported the West Bank's Palestinian population as 2,719,112 people in 2013 (2014). Residents reside inside the major cities highlighted in Figure 4.2 or in the surrounding smaller villages. Another important component is the desired destination constellations (vectors of desired destinations, which vary by individual) of the Palestinian residents. Common desired destinations include places of work, education, healthcare services, shopping, and socializing. Destinations also vary by geographic location.

Interactions are processes by which system components interact with each other (Remington-Doucette, 2013). Palestinians living in the West Bank interact with their destinations by navigating through the transportation system that is available to them. The Palestinian transportation system is characterized by the regional terrain and topography, available infrastructure and transportation modes, and most significantly by the Israeli Occupation, which imposes physical and political restrictions in the system.

4.2.1 Stakeholder Analysis

The study's social system is concerned with stakeholders. Stakeholders in a system are people who affect or are directly affected by the problem (Remington-Doucette, 2013). The TSR framework builds upon traditional systems thinking methodology by paying special attention to people (Wiek, 2010). Analysis for stakeholders reveals how their actions are influenced by their values, beliefs, societal

norms, formal rules and regulations, and available resources and technology. The benefit of stakeholder analysis is that it can reveal stakeholder actions that are resulting in sustainable or unsustainable conditions (Remington-Doucette, 2013). It also helps to identify who is or will be negatively affected by the studied issue (Wiek, 2010). Generated descriptions of stakeholders may even become "problem entry points" for which interventions may be identified (Wiek, 2010, p. 4).

For this study, there are three main stakeholder categories: Palestinian, Israeli, and international/foreign (Table 4.1). Each category can be broken down into more specific stakeholder groups, which are described below. Furthermore, each category can also be characterized according to stakeholder type. I use six types to describe my identified stakeholders. The first three from Remington-Doucette include: (1) *primary* stakeholders "who strongly affect other stakeholders by their actions or are profoundly affected by the actions of other stakeholders", (2) *secondary* stakeholders "who indirectly affect other stakeholders or are only slightly affected by the actions of other stakeholders", and (3) *key* stakeholders "who can be primary or secondary stakeholders or neither, and who have the power to significantly influence or change a given situation" (2013, p. 109). The last three from Wiek include: (4) *affected* stakeholders "who are or will be negatively affected by the identified issues", (5) *causing* stakeholders "who are responsible for the actions and behavior in question", and finally (6) *benefiting* stakeholders "who are or will be benefitting from actions" (2010, p. 4). Stakeholders may fall into more than one of the six types.

Table 4.1

Summary of Stakeholder Related Responses During Expert Interviews

	Stakeholders	Should Be Involved in Solution Process n=8	High Influence on Problem (Causing) n=8	Most Likely to Change Actions n=8
Palestinian	PA	8	1	6
	General public	5	2	4
	Private sector	4	N/A	N/A
	Consultation experts	3	N/A	N/A
Israeli		1	8	0
International and foreign	Donors	3	N/A	N/A
	Other countries	2	N/A	N/A
	International organizations	2	N/A	N/A
	NGOs	2	N/A	N/A

Note. When it comes to identifying actions that lead to the problem of low accessibility and well-being, experts interviewed agreed that Israeli actions are the strongest and least likely to change. They also agree that the PA should be involved in the solutions process and is likely to change current undesirable actions.

I identified a preliminary set of stakeholders in each of the three main categories by incorporating them into interview questions and documents I used during my expert interviews. The stakeholders that appear on the final list, shown in the first column of Table 4.1, were those brought up by name within the context of system related discussions by one or more experts during their interview session. Table 4.1 also shows responses to three direct stakeholder-related questions, which I use to classify the stakeholders in the following paragraphs.

The Palestinian stakeholder group includes the PA (local and regional), the general public (West Bank residents), private sector (consumer businesses), and consult experts (engineering and academic professionals). All are *primary* stakeholders. They are all also *affected* stakeholders because problems of accessibility and well-being

described by the study are framed around the Palestinian population; and *benefiting* stakeholders because any actions made to improve the accessibility problem in the West Bank will benefit them indirectly at the very least since the region is comprised of mainly Palestinian residents. Three interviewed experts also identified the PA and general public as *causing* stakeholders, meaning their actions contribute to the problem because of enacted or lacking policies and travel behaviors respectively. Both may also be considered *key* stakeholders when it comes to solutions planning.

On a grand scale, the actions of Palestinian stakeholder that specifically relate to the field of transportation are largely framed by rules set forth by the Israeli military rule of the West Bank. Current travel functions and future development plans are all subject to changes in political conditions. Political conditions change frequently and have historically affected the travel landscape in the West Bank in both immediate (floating checkpoint placement) and drawn out ways (the construction of the Separation Wall inside the 1967 border). Palestinian travel is almost entirely coordinated by the PA, which plans and allocates funds for development. However, PA actions are also subject to interruptions due to the Occupation. Development opportunities are also economically limited. The World Bank (2014) reported the Palestinian Territories (including Gaza) to have a GDP of US$10.24 billion (or about US$2,400 per capita) in 2012. On a smaller scale, Palestinian residents commute to achieve desired functionings that are attained by reaching select destinations. Commuting needs vary among individual commuters but cultural norms draw shared commuting behaviors among demographics. For example,

women travel less in the evening. Palestinian travel behavior is also largely affected by occupation policies.

The Israeli stakeholder group refers to the Israel Occupation Force (IOF). The group is a *key* and *primary* stakeholder group that strongly affects the problem of accessibility in the West Bank and has the power to significantly influence conditions. Interviewed experts unanimously agreed that the actions of the IOF have a high influence on the problem, meaning the group is also a *causing* stakeholder. However, only one expert mentioned collaboration with Israel during solutions planning, which is related to the fact that none felt it likely for Israel to alter their current actions regarding accessibility conditions.

The IOF is under the Ministry of Defense in the Israeli government and holds military authority over the PA and the West Bank's Palestinian residents. The group's mission is concerned with Israeli sovereignty and particularly declares aims "to defend the territorial integrity of the State of Israel" and "protect the inhabitants of Israel" (IDF, 2014). As such, their actions are performed to benefit Israel (neither Palestine nor the West Bank is mentioned on the official IDF site). Restrictions placed on Palestinian movement are often employed for Israeli security purposes and for the benefit of Israeli settlements inside the West Bank. Resources that enable IOF actions are primarily monetary. Often recognized as one of the world's strongest militaries, the 2014 *Military Balance* reported that the Israeli defense budget stands at US$16.5 billion (IISS, 2014). As an occupying force, the IOF is obligated to rule in accordance with international law defined by the Geneva Conventions.

The international/foreign stakeholder group consists of monetary donors (mostly foreign), other countries (like neighboring Arab countries and those already participating in collaborative efforts in Palestine), international organizations (like the UN and the World Bank), and non-government organizations (NGOs). All stakeholders in the group are *secondary* stakeholders. Their roles within the problem system appear mostly in the solutions phase. The interviewed experts specified that stakeholders in the group should act as mediators for political improvements, facilitators for development projects, or donors of money, knowledge, and skilled professionals. Because the group is the most diverse of the three main stakeholder categories, their actions are subject to a diverse set of values, regulations, resources, and technologies that are hinted at in later chapters as specific international stakeholders are mentioned within the transformative framework. It is worthwhile to mention that all stakeholders in the international/foreign group do share a desire to provide aid and/or collaborate with Palestinians to seek improvements to accessibility issues.

4.3 IDENTIFY DRIVERS

Only after a specific system is defined may drivers be identified. Drivers are aspects of the system that push it toward or away from a sustainable state or prevent the system from changing (Remington-Doucette, 2013). Once identified, drivers can be further classified according to their influence. *Direct* drivers "clearly and unequivocally influence the behavior of a system", while *indirect* drivers "influence the behavior of a system in a more diffuse way by altering one or more direct drivers" (Remington-Doucette, 2013, p. 83). In a complex system, it is not unusual for direct drives to be

influenced by multiple indirect drivers at a time, which makes it difficult to define simple cause-effect relationships (Remington-Doucette, 2013).

Drivers for the travel accessibility problem in the West Bank were initially identified in 2011 by consulting information from published material. Following my expert interviews, identified drivers were amended to incorporate terminology used by interviewees and to make final additions to the driver list given the information they shared. I ultimately identified 71 drivers that influence the status of poor accessibility in the West Bank (refer to tables 4.2-6). The identified drivers fall into one of five, main, characteristic categories, which include: (1) Physical Characteristics, (2) Transportation Infrastructure, (3) Travel Behavior, (4) Policy—Israel Occupation Force, and (5) Policy—Palestinian National Authority. Categorization of drivers is useful to help identify specific conditions under which certain drivers are important, which is central to analysis in later chapters (Remington-Doucette, 2013). Furthermore, the drivers are classified as direct or indirect depending on their kind of impact on accessibility in the West Bank Case. Direct drivers directly influence accessibility and possibly other drivers, whereas indirect drivers influence accessibility by only affecting other drivers and system conditions.

4.3.1 Physical Characteristics

Drivers in the Physical Characteristics category are related to constructs of the built and natural West Bank environment that are not necessarily directly associated with transportation but still have a significant effect on accessibility. Each subcategory of drivers is described in the following paragraphs.

Table 4.2

Drivers Categorized as Physical Characteristics

Subcategory	Driver	Driver Classification
Land use	Natural terrain	Direct
	Palestinian built-up areas	Direct
	Israeli built-up areas	Direct
	Limited surface area	Indirect
Segmentation	Distance between built-up areas	Direct
	A, B, and C territory control distinctions	Indirect
City/village structure	Urban cities	Direct
	Villages/towns	Direct
	Refugee camps	Direct
	Industrial areas	Direct
Resources	Arable land	Indirect
	Forests and groves	Indirect
	Water	Indirect
Environmental	Climate	Indirect
	Population density	Indirect

Note. The main category includes five subcategories and 15 drivers. The table also summarizes driver classifications as direct or indirect.

Land use, or the management and modification of land, is a clear driver of accessibility because accessibility depends on the quality and type of existing or nonexistent human structures that enable people to maneuver around a region's natural landscape. Human land use in the West Bank is largely influenced by natural topography. The terrain in the West Bank is varied and mountainous. Cities throughout the region differ greatly in elevation; Nablus and Hebron are 600 m to 800 m above sea level while Jericho is 260 m below sea level. Steep mountain passes, ridges, and harsh desert regions form natural barriers separating cities that would otherwise be in close proximity (Maoh & Isaac, 1999). As a result, the region requires a circuitous system of access (Maoh & Isaac, 1999). Another feature of the natural topography is a significant

area of designated nature reserves. There are 36 nature reserves in the West Bank, and Palestine controls only 9% of them (ARIJ, 2005). Development in and around the reserves is restricted to protect the natural landscape. Since Israel controls the majority of the reserves, access for Palestinians through and around the reserves is neither a priority nor a guarantee.

The region's built-up areas and future development are dependent on the space available. Surface area is limited in the West Bank, which is a landlocked, 5,659 km^2 area (Maoh & Isaac, 1999). Limited space also means limited room for development, which may affect development for accessibility. Currently, the built-up areas in the West Bank are comprised of separate Palestinian and Israeli built-up areas. Palestinian built-up areas include cities, towns, and villages, and industrial and farming areas, which are included as drivers within the City/village structure subcategory. Israeli built-up areas include 125 settlements, about 100 military outposts, and additional military bases (refer to Figure 4.4) (B'Tselem, 2013).

Settlements are a type of Israeli structure located inside the West Bank that are a particular area of concern for accessibility. They are Israeli-only, city-like neighborhoods located inside the 1967 border and East Jerusalem, and they are illegal according to the International Court of Justice. Planning for settlement placement and construction in the West Bank began after the Six Day War in 1967 (Coffman et al., 2009). International Jews and Israelis were historically encouraged to relocate to settlements through a variety of benefits provided by the Israeli government that included: automatic citizenship status, grants to cover costs of moving to settlements,

permanent exemption from real estate and employers' taxes, loans for rent, utilities and purchasing apartments, and free education from kindergarten to university (ReMillard, 2009). By the end of 2011, 324,456 people inhabited West Bank settlements and 190,423 people lived in East Jerusalem settlements (B'Tselem, 2013). The only way a Palestinian may enter a settlement is to apply for and receive special, typically labor-related, permits. They are prohibited from driving their personal vehicles in settlements even with a work permit (MA'AN Development Center, 2011). In addition, thousands of acres around settlements are designated "buffer zones" and are closed to Palestinian entry and passage (Coffman et al., 2009). The combination of settlements and their buffer zones, outposts, military bases and their accompanying closed military areas further enclave Palestinians.

The Segmentation subcategory focuses on the drivers affecting the connectivity between Palestinian built-up areas and the barriers prohibiting improved connectivity. First of all, there exists a debilitating distance between Palestinian built-up areas (not because of actual distance but rather a lack of direct access) that is exacerbated by natural and Israeli built-up barriers. Development to lessen the "distance" is subject to the "A, B, and C" territorial, control distinctions designated during the Oslo Accords in the mid-1990s (Figure 4.3). The agreement placed roughly 60% of West Bank land into complete Israeli control (Area C). All Palestinian villages, farmland, and nature reserves in Area C that existed prior to the agreement may not develop without permission from the Israeli Civil Administration, which is hardly ever granted (UN OCHA, 2007). The result is a territorial fragmentation of the West Bank created by the Israeli closure and control system (MA'AN Development Center, 2008). The West Bank area is trisected into 3

cantons (Figure 4.4) and over 95 sub-cantons. Cantons and sub-cantons are surrounded by Israeli infrastructure like the Separation Wall, closed military zones, Israeli by-roads, and Israeli settlements (MA'AN Development Center, 2008). Three particular regions in the West Bank (East Jerusalem, the SeamZone, and the Jordan Valley) have been entirely cut off from the rest of the West Bank (MA'AN Development Center, 2008). Passage from canton to canton is uncertain and any given moment and constantly riddled with restrictions.

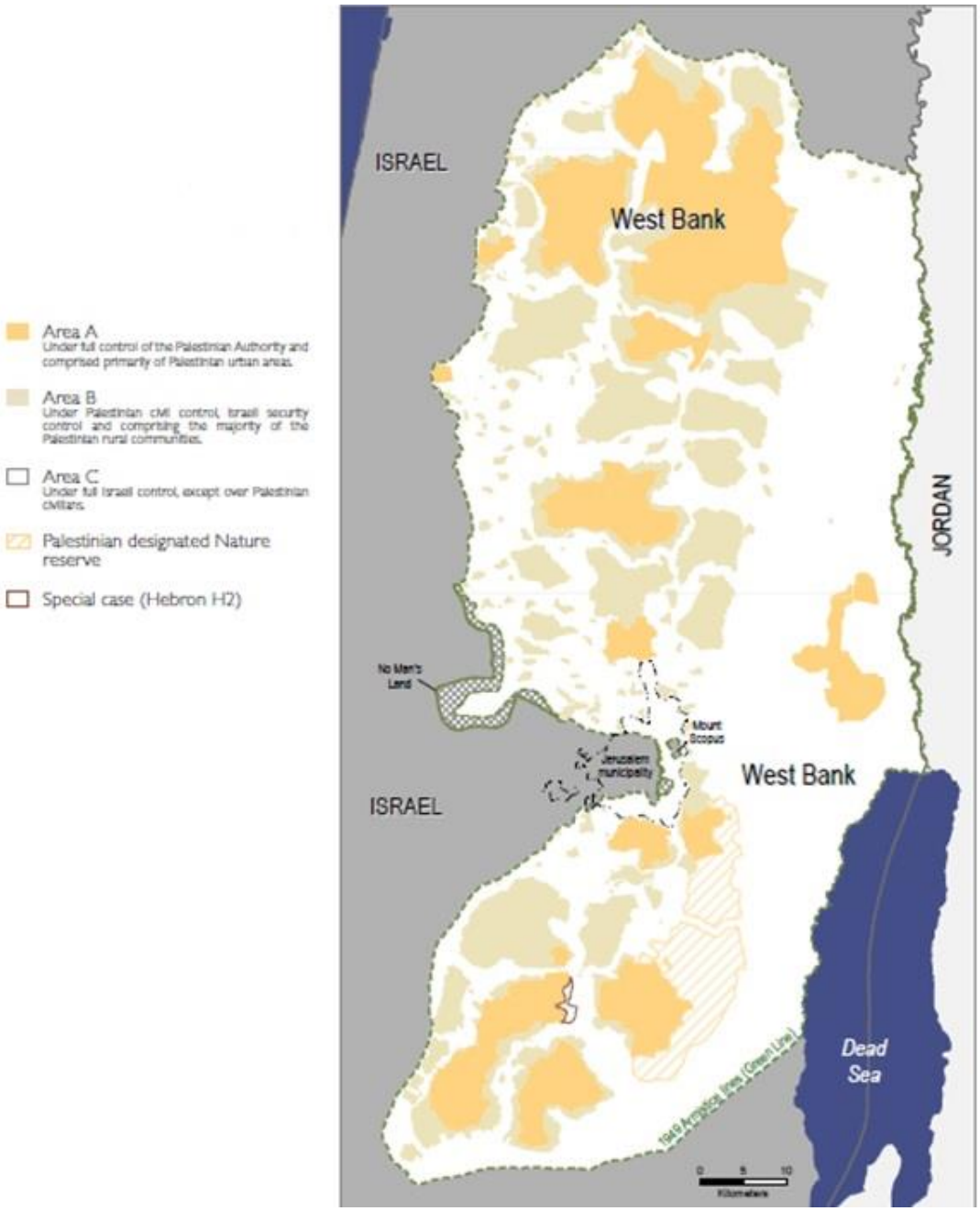


Figure 4.3 Geographical Demarcation of the West Bank under the Oslo Accords. About 40% of the West Bank is under Palestinian administrative jurisdiction (Areas A and B and the Palestinian designated nature reserve) and 60% is under Israeli Control (Area C and H2) (UN OCHA, 2007).

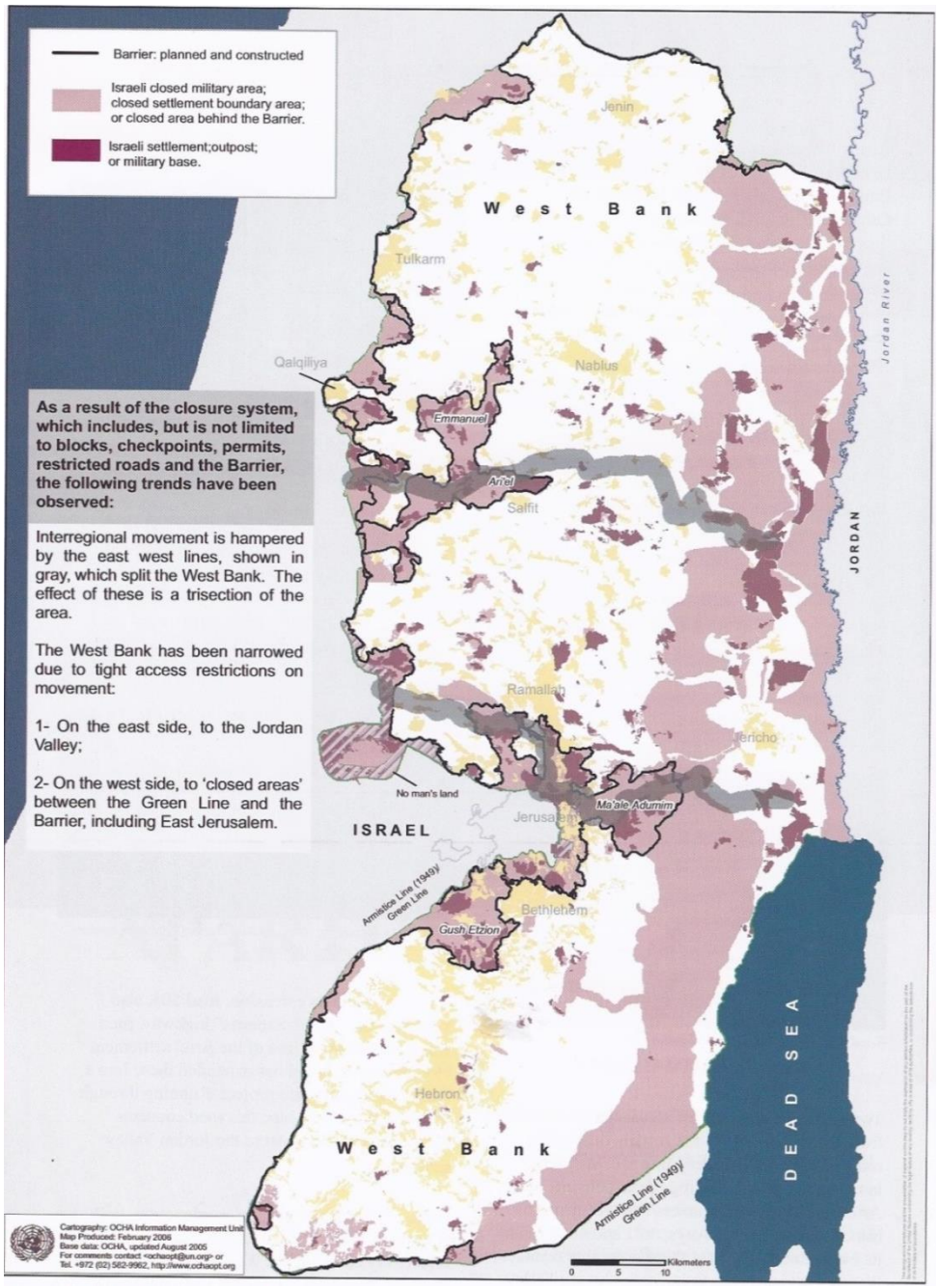


Figure 4.4 West Bank Trisection into Three Cantons. Access barriers have cut the West Bank into three larger sections denoted on the map by the thick gray lines. The map also shows Israeli built-up areas, which are colored dark pink, and closed Israeli areas, which are restricted to Palestinian movement and colored light pink on the map. The Separation Wall is designated by a thick black line. The light pink areas west of the wall are the SeamZone (MA'AN Development Center, 2008).

The structures that make up Palestinian built-up areas are relevant to accessibility because the availability of structures and their services dictates where Palestinians need to travel. Urban cities, which are generally the cities central to each West Bank district (Figure 4.2), are where most Palestinian amenities are located. This is because most of them are under full control of the PA (Area A). Density of structures and people living in the urban cities is higher. Additionally, there is a greater influx of commuters to the cities because of a higher number of employment opportunities, schools, and shopping and dining districts. In addition, municipality offices are located in the urban cities. On the other hand, villages and towns have lower structural and population densities. Towns and villages are generally residential and they depend on their connectivity to nearby farmlands and cities. A third kind of Palestinian built-up area that exists in the West Bank is refugee camps. There 754,411 registered refugees in the West Bank and a quarter of them live in 19 refugee camps within the 1967 border(UN RWA, 2014). The camps were created to accommodate Palestinian refugees expelled from their homes during the 1948 Arab-Israeli War. Some camps are in rural areas and others are next to villages and urban cities (UN RWA, 2014). Camps are characterized by high population densities and little available amenities. Lastly, there exists a number of industrial towns in the West Bank that lie adjacent to residential villages and cities where Palestinian goods, like stone and grain, are processed.

Resources are necessary to maintain well-being; therefore, access to them is imperative. Of the natural resources available in the West Bank, access is more closely an issue with three in particular: arable land, forests and groves, and water. When it

comes to the region's arable land, forests, and groves, movement restrictions and lacking infrastructure dictate farmers' abilities to reach their land and deliver their goods to domestic and foreign markets (MA'AN Development Center, 2011). Such restrictions have reduced the production and profit capacity of farmers. With herding, around 80% of grazing land in the West Bank is in the eastern Jordan Valley and nearly 100% of this land is located in Area C (MA'AN Development Center, 2011). Israel prohibits Palestinians from working three quarters of the land in the Jordan Valley (MA'AN Development Center, 2011). With agriculture, 12.4% of the West Bank population is separated from their arable land, which now exists in the SeamZone due to the Separation Wall (MA'AN Development Center, 2008). With trees and groves, olive trees have historically been a major source of livelihood for Palestinians. Millions of trees and thousands of acres of farmland in the Palestinian Territories have been destroyed since 1967. In the West Bank, nearly 465,000 olive trees were uprooted between 2000 and 2005 alone (Coffman et al., 2009).

Water in the West Bank, as a commodity for agricultural and residential use, is heavily monopolized by Israel. Palestinians lack accessibility to an appropriate amount of water. A 2011 report released by B'Tselem, an Israeli information center for human rights in the Occupied Territories, stated, "Israel has restricted Palestinian access to water sources such that, in some Palestinian villages, water consumption is minimal and comparable to that of disaster areas" (Lendman, 2013). In terms of infrastructure, since 1967 Israel has destroyed 140 Palestinian water pumps and reduced the number of operational wells from 774 to 328 by 2005 (MA'AN Development Center, 2011). Currently, about 49% of all Palestinians are not connected to any water network. Instead, they are forced

to rely on cisterns or water tanks for their water needs (MA'AN Development Center, 2011). Since 2000, the price of tanker water has increased exponentially, due in large part to the restrictions on movement that make communities hard to reach (MA'AN Development Center, 2011). Israel also controls water development in the West Bank and can veto any Palestinian request to drill wells or collect surface water. Construction of Palestinian water infrastructure as well as proper maintenance of existing networks is often neglected by Israel (Coffman et al., 2009). The effect of Israeli control over the West Bank water system and infrastructure is an increased Palestinian dependence on Israel and a denied sovereignty over a basic life necessity (Coffman et al., 2009).

The subcategory of Environmental drivers refers to drivers associated with surrounding system conditions that affect accessibility. The first Environmental driver is climate, or the status of atmospheric temperature and quality. The region is hot and primarily dry in the summer and cool and wet during its short winters (Maoh & Isaac, 1999). Although relatively mild, temperatures can be extreme in both the summer and winter months. With respect to air quality, current transportation infrastructure exacerbates air pollution in the West Bank. The prevalence of poor infrastructural quality and unpaved roads leads to greater concentrations of particulate matter in the air. Additionally, the widespread use of private vehicles, which are of older makes, negatively affects greenhouse gas emissions. These climatic factors affect how and when people in the West Bank choose to travel. It is undesirable to travel during extreme weather periods and storm events since they pose safety risks. Additionally, air pollution

poses risks to health. Poor weather conditions and air quality also discourage pedestrian travel, which also exaggerates a preference for the use of private vehicles.

Population density is also an Environmental driver that affects accessibility in the West Bank. This study looks particularly at densities since they tend to be positive drivers for accessibility; people who are regionally closer together have more infrastructure (to accommodate more people) and do not need to travel as far to reach desired destinations. PCBS last reported the West Bank's Palestinian population to be about 2.7 million people in 2013. Density throughout the region varies and is expectedly greater in the urban cities than in villages. For the future, Palestinian population density is expected to grow in response to the possible return of displaced refugees currently living outside the Territories, the natural population growth of current and displaced residents, and from internal immigration of Gaza residents to the West Bank (National Spatial Plan, 2013).

4.3.2 Transportation Infrastructure

Drivers in the Transportation Infrastructure category are related to differing modes of transportation and their associated features by which access is or is not achieved. Each subcategory of drivers is described in the following paragraphs.

Table 4.3

Drivers Categorized as Transportation Infrastructure

Subcategory	Driver	Driver Classification
Roads	Poor quality roads	Direct
	Outdated road layout	Direct
	Small road size	Direct
	Lacking travel-use mechanisms	Indirect
Taxi and taxi van	Tumultuous relationship with PA	Indirect
	Limited passenger capacity	Indirect
Mass transit	No public mass transit	Direct
	Private and public buses	Direct
Walking	Limited sidewalks	Direct
	Lack of sidewalk barriers	Indirect
Air	No functioning airports	Direct
Vehicles	Poor quality vehicles	Indirect
	Limited parking facilities	Indirect
	Freight travel	Indirect

Note. The main category includes six subcategories and 14 drivers. The table also summarizes driver classifications as direct or indirect.

The Palestinian road system is only partially capable of satisfying the accessibility needs of Palestinians. Development of road infrastructure is stunted because of political constraints imposed over the years (Al-Sahili & Abu-Eisheh, 2006). As a result, existent roads are of poor quality, outdated, small in size, and they lack appropriate travel fixtures. The West Bank contains approximately 2,248 km of paved (Al-Sahili & Abu-Eisheh, 2006) and roughly 1,800 km of unpaved roads (Maoh & Isaac, 1999). The quality of Palestinian roads in the West Bank is subject to normal wear and tear from use, the lacking financial and political ability of the PA to keep up with maintenance, and the direct and intentional damage inflicted by the IOF. Palestinian roads are riddled with uneven surfaces, pot holes, and cracks. In 2003, 50% of all roads were considered to

have pavement in “poor” condition; 26% were considered to have “fair” pavement, and only 24% had “good” pavement (Al-Sahili & Abu-Eisheh, 2006).

The layout of Palestinian roads is outdated. Significant construction of new Palestinian roads ceased in 1967 when the Israeli Occupation began. As a result, most roads were built to accommodate the automobiles, population, and needs existent prior to 1967. To put this into perspective, many were built in a time when the most popular mode of transportation was by donkey (Maoh & Isaac, 1999). As a result, many areas are not appropriately serviced by roads. Israeli travel restrictions further place stresses on the outdated layout. Canton fragmentation of the West Bank has further isolated residents from routes. Palestinians living in sub-cantons often only have between one and five connecting roads to other sub-cantons. Their routes become extremely circuitous as they are forced to drive through entire sub-cantons in order to reach a connecting road or destination (MA'AN Development Center, 2008). In addition, the layout of some roads is not suitable for modern travel patterns. Roads can be steep, which poses a problem for poor quality vehicles trying to scale inclines and for cars traveling at unchecked speeds. Roads also tightly wind around mountains and hills so that vehicles have reduced visibility coming around bends, which poses collision threats. Construction on Palestinian roads that has occurred after 1967 was sanctioned by Israel so that Israeli settlements and road networks could be avoided by Palestinian traffic (MA'AN Development Center, 2008). Therefore, new networks do little to overcome outdated layouts since they were not actually built to meet Palestinian travel needs.

Palestinian roads are also narrow. Main and regional roads are the widest and average between 10 m to 12 m across. Their widths are still much smaller than Israeli roads in the West Bank, which average 25 m to 30 m across. Local Palestinian roads are much smaller yet and are about 4 m to 8 m across. They fit single direction flows but are often used for two-way traffic (Maoh & Isaac, 1999). In many places, the roads are far too narrow to accommodate vehicular flow. For example, the Qalandiya checkpoint has a single lane in each direction and a flow of an estimated 28,000 cars per day. In a recent study conducted by USAID, it was concluded that six lanes (three in each direction) were needed to have a moderate flow through the area (PEPRI, 2012). Small roads, in addition to their poor quality and outdated layout, ultimately result in increased travel times due to the congestion they create.

The last driver in the Roads subcategory refers to the lack of travel-use mechanisms. Travel-use mechanisms refer to a variety of road accessories that are primarily absent from most Palestinian areas except some portions of urban cities. For example, road boundaries are often not designated. Traffic lane lines only exist on main and some regional roads. Physical boundaries that keep vehicles from veering off-road into ditches and steep cliffs, like road barrier walls, are mostly missing. Also, devices for road-use functioning are mostly absent. These include signs, like yield signs, and stop lights. There are also hardly any signs, even in urban cities, to differentiate roads by name, which presents directional challenges (Maoh & Isaac, 1999). Although it is custom for residents to stop and ask for verbal directions in most cities, wondering vehicles looking for access to unmarked places contribute to congestion conditions.

Lastly, the presence of speed calming devices, like speed humps, is limited. Furthermore, there are no speed signs posted on Palestinian roadways. The lack of travel-use mechanisms hinders traffic flow.

The remaining drivers relate to modes of transportation in the West Bank. Some modes are completely absent, like public mass and air transit. Plans to support mass transit development exist and are authored by domestic and foreign/international organizations. Plans for mode expansion vary by concentration. The popular Arc idea from the RAND Corporation proposes the construction of a high-speed interurban rail to link major cities throughout the Palestinian Territories (Suisman, 2005). Plans to expand and reinstate bus services also exist, like the bus line that previously served access to East Jerusalem. However, expansions of mass transit services that utilize existing road infrastructure, like one that concentrates of travel by bus, are limited by road quality and width. All mass transit plans are limited by Occupation policies, which have contributed to their slow progress in the pass. Currently, no internal airports are available for Palestinian travel. Infrastructure for air travel from the Palestinian Territories once existed but has since become unavailable due to IOF actions. The Yasser Arafat International Airport in Gaza stopped servicing travel in 2000 after its radar station and control tower were bombed, and the Kalandia Airport in Jerusalem was taken over by Israel after 1967 and has not serviced civilian traffic since 2000. Permission to build another airport in the West Bank has not been granted although plans for an airport exist. The absence of public mass and air transit service in the West Bank mean an absence of quick and affordable modes for regional and international travel for Palestinian residents.

The form of passenger transit that does exist in the region is by privately and publicly owned taxis and taxi vans. Passenger capacity with these vehicles is limited to roughly four for a four-door sedan and nine for a taxi van. Other than that, a limited number of private and public buses are available, mostly by special order for significant events. PCBS (2014) reported 8,090 passenger transport vehicles in operation (7,739 public vehicles and 351 private vehicles) and 8,497 people employed by transport services during 2013. Discrete unions exist for public taxi companies and taxi drivers. Historically, these unions and the transportation industry have had a tumultuous relationship with the PA, which complicates the ability of the passenger transport system to run as a coordinated, public enterprise. Disputes range over fees, taxes, fuel costs, public competition, and fickle requirements. The PA's inability to control the illegal operation of private taxi services further complicates proceedings with the public transport sector. Despite the limited passenger capacity per vehicle and complicated relationship between the industry and the government, the passenger transit system opens access by vehicle to many Palestinian areas in the West Bank. The system is also widely valued and used by residents.

Pedestrian traffic occurs in all built-up areas at varying densities. This is especially true of the urban cities, which tend to be walker-friendly in that they have an increased mix of land use and high building density. However, infrastructure to support pedestrian traffic is limited. Concrete or dirt sidewalk routes are often times incomplete or even absent, especially in villages. The Palestinian transportation system is auto-centric, which increases concern for pedestrian safety. Limited sidewalks mean

pedestrians will oftentimes walk on vehicle roads. There is a prominent absence of barriers that separate and protect pedestrians from vehicles except in some high traffic flow areas in urban cities. Poor pedestrian infrastructure limits access by discouraging the use of the mode.

When it comes to general vehicular transit, the quality of vehicles and lack of appropriate parking facilities contributes to diminished accessibility. The Palestinian vehicle fleet is relatively old. In 2010, the Ministry of Transport estimated that 68% of private vehicles in Palestine were 20-30 years old (11% were more than 20 years old) and 21% were more than 10 years old. Depreciated cars are more unreliable since they are susceptible to breakdowns on rough, steep West Bank roads. They also typically lack features like air conditioning, heating, airbags, and seatbelts, which contribute to poor ride quality and safety. Emissions are also a concern as older cars use outdated technology. In addition, many passenger transit vehicles use diesel power to cut fuel costs, which poses a detrimental environmental trade-off (Maoh & Isaac, 1999). Increased emissions deteriorate air quality, which creates an undesirable traveling atmosphere, especially for pedestrians. The available parking infrastructure also complicates vehicular travel. Not many designated parking structures exist in the West Bank, so their capacity is limited and only available is some urban cities. Roadside curbs in urban cities are also sometimes painted to designate appropriate parking behaviors (blue for paid parking and red to designate areas where parking is prohibited). Such infrastructure is absent in most villages and does not even exist throughout urban cities.

As a result, parking activities are disorganized and disruptive to traffic flows in all built-up areas.

Freight travel is the last Vehicle driver included in the category. Although freight vehicles do not require special transportation infrastructure, the larger size of the vehicles warrants accessibility issues. As already discussed, Palestinian roads are small and freight vehicles must share them with residential traffic. They move at a slower pace along the winding and sometimes steep roads, and they often plug traffic behind them for extended distances. In addition, freight access to some areas is restricted because vehicles cannot scale existing roads.

4.3.3 Travel Behavior

Drivers in the Travel Behavior category relate to common behaviors among Palestinian residents in the West Bank that are primarily negative influences on accessibility for the collective populous. Each subcategory of drivers is described in the following paragraphs.

Table 4.4

Drivers Categorized as Travel Behavior

Subcategory	Driver	Driver Classification
Undesirable activity	Parking in undesignated zones	Indirect
	Speeding	Indirect
	Overfilling cars	Indirect
	Reduced carpooling	Indirect
	Over-taking vehicles on two-way streets	Indirect
	Not wearing seatbelts	Indirect
	Jay walking	Indirect
	Walking in streets	Indirect
	Congestion	Indirect
	Participating in the automobile "black market"	Indirect
	Building against zoning rules	Indirect
Mode preference	Preference for private automobile use	Indirect
	Preference for private taxis over taxi vans	Indirect
Fears to travel	Safety concerns due to conflict	Indirect
	Safety concerns due to infrastructural quality	Indirect
	Safety concerns due to others' behavior	Indirect
Demographic restrictions	Restrictions by gender based on cultural norms	Direct
	Restrictions based on income	Direct

Note. The main category includes four subcategories and 18 drivers. The table also summarizes driver classifications as direct or indirect.

The drivers in the Undesirable Activity subcategory are all behaviors that indirectly influence poor accessibility conditions by increasing disorder. Many also influence congestion conditions on Palestinian roads. However, responsibility for congestion does not solely fall on individuals committing traffic violations and abuses; the physical limitations of the mediocre infrastructure also play a role. Costs of congestion are economic (lost time, fuel losses, and the depreciation of cars), psychosocial (travel stresses), and environmental (pollution and the associated health effects) (PEPRI, 2012). The behaviors described by the drivers in this subcategory run rampant primarily because of the inability of the Palestinian police to monitor behavior

and apply penalties, and because of a lack of behavior awareness among residents. Together, the described undesirable travel behaviors create what the PEPRI (2012) identifies as a "culture of traffic violations".

Parking in undesignated zones, speeding, overfilling cars, reduced carpooling, over-taking vehicles on two-way streets, and not wearing seatbelts are all behaviors committed by residents using private or public vehicles. Limited parking facilities elicit troublesome parking behaviors. In the absence of parking facilities, residents tend to resort to on-street or on-property parking. This leads to crowded streets and congestion, making it more difficult to pass and increasing travel times. With the absence of speed limit enforcement, drivers speed down roads at rates that cause for travel safety concerns in dense areas with foot traffic and along connecting roads that coil around hills and have steep shoulder banks. Vehicles themselves can either be over or under burdened by passenger capacity. Families who do not have enough vehicle capacity at their disposal tend to overfill vehicles beyond their available seating capacity so that destinations may be accessed by more members in one trip. The behavior poses safety concerns and reduces the efficiency of travel, especially in older vehicles, with the increase of cargo weight. On the other hand, with an increase in private vehicle ownership over the years, carpooling rates have declined. The decrease directly influences the number of vehicles on roads and further threatens congestion conditions, especially in urban cities. Because Palestinian roads are small, they leave little room for multiple flows of traffic. Residents also share the same small roads with large freight carriers. Drivers will oftentimes over-take slow moving vehicles on two-way streets to reduce travel times. However, because

traffic lanes are not designated on long stretches of road, passing vehicles that veer onto the wrong side pose collision threats. Lastly, Palestinians, even children, do not customarily wear seatbelts while in a moving vehicle. The neglect of seatbelt use has become a cultural norm, and many of the outdated cars in use do not even contain seatbelts for all passengers, posing yet another safety threat.

Pedestrian traffic can exacerbate congestion, especially in urban cities. The absence of sidewalks or sidewalk barriers in addition to crowded existing pedestrian infrastructure all lead to an overflow of pedestrians using roads. Additionally, jay walking to cross streets occurs because a lack of designated pedestrian crossing areas. Passing vehicles are forced to slow down or make room for pedestrians using roads, which leads to bottle necks in the traffic flow.

A joint Palestinian-Israeli automobile "black market" exists where cars are exchanged between the West Bank, Israel, and settlements by bypassing proper procedures and sometimes by theft. The process has occurred for decades and provides lucrative opportunities for thieves on both sides (Dellios, 2000). For West Bank residents, participation in the "black market" means vehicles can be acquired at cheaper prices. The practice procures a negative collective result as this means an increase in the number of unregistered, uninsured vehicles, and unlicensed drivers on Palestinian roads. It also increases the number of vehicles on the roads, and more often than not, "black market" vehicles are older models.

The last driver in the Undesirable Activity subcategory relates to the building of structures that go against zoning regulations. Development of built structures in Areas A

and B (Figure 4.3) are directed by the PA, whereas development in Area C is directed by the IOF. Palestinians build against plans created by the PA and the IOF for differing reasons. Mostly in villages and towns, some privately owned land is designated by the PA to remain open for public passage. Residents violate the zoning rules usually to expand their homes to accommodate growing families and small businesses. For Palestinians residing in Area C, it is nearly impossible to receive building permits from Israeli authorities, so many Palestinians build without them. Illegally built structures are built hastily and are often "inadequate, structurally unsound, and under constant threat of demolition" (MA'AN Development Center, 2011, pg. 14). These structures sometimes also block passage through areas. Strict zoning laws are difficult for residents to adhere to since land for personal development is limited. However, the behavior sometimes leads to impassable travel routes.

Travel mode preferences pose an indirect threat to accessibility in that there is a notable trend toward preferences that increase the number of vehicles on Palestinian roads, which in turn influences congestion conditions. In the absence of a mass transit system, there is an understandable preference for private automobile use. At the end of 2013, the total number of licensed vehicles in the West Bank was about 144,244 and private cars formed 74.1% of all licensed vehicles (PCBS, 2013). The draw for having a private vehicle, like in most other places, is the convenience to direct personal travel trips on one's own schedule. For this same reason, taxi use is preferable over riding in a taxi van. Taxi vans make multiple stops along routes to accommodate the needs of more

passengers. There is also the added risk for delays in taxi vans as searches performed at checkpoints last longer to search all passengers.

The drivers in the Fears to Travel subcategory relate to concerns for safety that come up during travel. Such concerns may actually make people choose not to travel or take alternate routes to avoid threats. This study identifies three threats that make Palestinians uncomfortable to travel. First, there are the threats associated with conflict conditions. When moving along roads and especially through checkpoints and border crossings, Palestinians risk harassment inflicted by IOF soldiers. Israeli settler behavior also affects travel around settlements. The UN reported 222 incidents of settler violence against Palestinians in the first half of 2008 and 291 incidents in 2007 (Greenberg, 2008). In 2012, settler attacks resulted in 91 Palestinian deaths and 234 reported cases of damage to Palestinian property (UN OCHA, 2012). Conflict threats are also distinct in land areas. Area C lands (Figure 4.3) are designated "free-fire zones" for IOF military (MA'AN Development Center, 2011). In addition, Israeli land mines cover over 50,000 acres throughout Area C (MA'AN Development Center, 2011). Second, poor transportation infrastructural quality poses a risk for accidents and injuries; so does the third threat, which is the unpredictability of others' behavior while traveling. There is a relatively high per capita incidence of road accidents in the West Bank. The region has an accident rate of about 2% of vehicles annually (Maoh & Isaac, 1999). In 2012, PCBS reported 7,824 registered road accidents that resulted in 7,753 casualties, a statistic that made up 1.8% of the total injured due to road accidents in the same year.

The final subcategory refers to unspoken restrictions to travel, which often limit the travel behavior of particular demographics. In the West Bank, it can be unacceptable, or socially frowned upon, for women to travel to or through certain areas. This is especially true in villages, where lifestyles are generally more conservative and traditional, and less so in urban cities. Travel at certain times of day, especially later in the evening, holds a similar stigma for women in the region. In addition, people at lower income levels experience restrictions because of an inconsistent ability to afford expenses related to travel. Car ownership and maintenance, fuel, and passenger transport fees comprise a significant portion of residents' annual income in the West Bank.

4.3.4 Israel Occupation Force Policy

Drivers in the Israel Occupation Force Policy category relate to measures or actions imposed by Israel on West Bank residents that impede access throughout the region. Each subcategory of drivers is described in the following paragraphs.

Table 4.5

Drivers Categorized as Israel Occupation Force Policy

Subcategory	Driver	Driver Classification
Border controls	Passport types and privileges	Direct
Physical road barriers	Road destruction	Direct
	Road blocks	Direct
	Separation Wall	Direct
	Temporary and permanent fences	Direct
Checkpoints	Permanent checkpoints	Direct
	Floating checkpoints	Direct
Travel restrictions	Difficulties with international travel	Direct
	Settler by-pass roads	Direct
	Curfews	Direct
	Restrictions imposed by age and gender	Direct
	Restrictions on freight travel	Direct
Overriding development controls	Interference with development	Indirect

Note. The main category includes five subcategories and 13 drivers. The table also summarizes driver classifications as direct or indirect.

The IOF controls movement of Palestinians across national and conflict created borders by using a complex system of identification cards and vehicle license plates. Israel controls the population registry and has issued identification cards to Palestinians since 1967. Issued cards designate major life capabilities that include where Palestinians can and cannot live, where they can and cannot access, and if they are allowed to vote in Israeli Parliament (Abunimah, 2014). Identification cards have a secondary purpose of informing IOF soldiers, mainly at checkpoints, of the holder's close family members, place of residence, occupation status, and a unique record number, which pulls up information like issued warnings and arrest warrants when plugged into a database. In 2011, 300,000 Palestinians had East Jerusalem identification cards, which also allows for access to most areas in Israel and the West Bank but may easily be revoked (Abunimah,

2014). Between 1967-2006, 8,269 (1,363 in 2006 alone) East Jerusalem identification cards were confiscated (PCBS, 2007) mostly because residents chose to live outside East Jerusalem or they married people who did not have an East Jerusalem identification card. Connectivity and collaboration between the West Bank and East Jerusalem is greatly weakened because of the hassle of going through checkpoints and because Palestinians holding East Jerusalem identification cards refrain from working in the West Bank for fear of losing their cards (PEPRI, 2012). In 2011, 2,300,000 Palestinians had a West Bank identification card, which bars them from going into Israel or East Jerusalem and only allows them to relocate to Areas A or B within the West Bank. Palestinians already residing in Area C, like the Jordan Valley and the SeamZone, are generally the only ones allowed in those regions. There are three other Palestinian identification cards that exist outside the boundary of this study. They include: Palestinians with Israeli citizen identification cards which is the only card that allows Palestinians to vote in the Israeli parliament (1,300,000 in 2011), those with Gaza Strip identification cards (1,600,000 in 2011), and those with exiled status who can no longer live in Israel or the Palestinian Territories (5,700,000 in 2011) (Abunimah, 2014). Similar distinctions with certain privileges are applied by the IOF to Palestinian vehicles as well. Palestinian vehicles have green or white license plates while Israeli vehicles have yellow license plates. Vehicles with Palestinian license plates and Palestinians pedestrians who are not residents of East Jerusalem have been barred access to East Jerusalem since 1991 (MA'AN Development Center, 2008). Palestinians with access into Israel and Jerusalem can have a yellow license plate on their vehicle but are still not permitted to use most

Israeli by-pass roads in the West Bank, which are heavily policed using systematic racial profiling by Israeli soldiers (MA'AN Development Center, 2008).

Drivers in the Physical Road Barriers subcategory have a direct influence on Palestinian residents' ability to access desired destinations mainly because they block or stifle the flow of movement through particular areas. An estimated 74% of all roads in the West Bank are inflicted by some type of obstacle (Palestine Monitor, 2009). The IOF blocks access to Palestinian roads by using physical obstructions like dirt embankments, concrete blocks, iron gates, and trenches. The number of obstructions at any given time depends on the political situation. At the end of 2012, UN OCHA reported an average of 532 physical obstructions every month (B'Tselem, 2014). Such obstructions prevent the crossing of all vehicles, even in emergency situations, and the movement of some pedestrians who have trouble getting by them due to their physical limitations (B'Tselem, 2014). Road destruction is similarly performed by the IOF to block access. As previously mentioned, roads used by Palestinians are of poor quality to begin with, but roads are further maimed by Israeli bulldozers. Trenches are dug into existing roads so as to block transportation by motorized vehicle. These physical barriers differ from checkpoints in that they are not patrolled by the Israeli military.

Another type of road barrier employed by the IOF is the use of fences along or through roads. Some constructed fences are erected temporarily to block access for a designated short period of time. The most damaging fences are those that remain permanently, like the fences that surround all settlements in the West Bank. The Separation Wall that follows inside the 1967 border is an example of a permanent fence

employed on the largest of geographical scales (Figure 4.4). Construction on the wall began in June 2002 and was mostly completed by 2005 although expansion of the wall has continued beyond that year (B'Tselem, 2012)**.** The wall is comprised mainly of multilayer fencing with barbed wire along the top. A significant portion of the wall is made up of concrete slabs that are 8 meters high. The route of the wall deviates significantly from the 1967 border and leads directly through portions of the West Bank in order to encircle border lying Israeli settlements (Watson, 2005). Only 13% of the wall's route follows the 1967 border (MA'AN Development Center, 2008). The result is a de-facto annexing of portions of West Bank territory to Israel and a subsequent bisection and surrounding of some Palestinian towns near the border. About 10.6% of the West Bank population is isolated by the wall. The area between the west side of the wall and the 1967 border is called the SeamZone. Approximately 38 Palestinian towns and villages exist in the SeamZone, which was declared a closed military zone since October 2003. (MA'AN Development Center, 2008). In total, 92 Palestinian communities (including those in East Jerusalem) are directly affected by the wall. Special permits issued by Israel's Civil Administration are required for Palestinians living beyond the wall, and they can only re-enter the West Bank via gates in the barrier (B'Tselem, 2012). As of July 2013, there were 73 agricultural gates along the wall to enable Palestinian farmers to access their farmlands on either side of the wall. As of February 2014 there were 32 checkpoints along the wall and access to villages on the west side of the wall is only granted to those holding special permits (B'Tselem, 2014). The effects described by all drivers in the Physical Road Barriers subcategory are

intended to eliminate access to particular regions or the use of roads leading to certain places, which usually means directing traffic to a particular road that may contain a checkpoint.

Checkpoints are passage and monitoring stations. They are manned by fully armed Israeli military soldiers or armed civilian guards employed by private, Israeli security companies under supervision of the Crossing Directorate of the Israeli Ministry of Defense (B'Tselem, 2014). Palestinians are routinely stopped at checkpoints to go through vehicle and body inspections and to present their permits and identification cards. The checkpoints create long delays and abusive and humiliating confrontations (Coffman et al., 2009). There are two types of checkpoints employed by the IOF in the West Bank: permanent checkpoints (depicted in Figure 4.5) and temporary "floating" or "flying" checkpoints. The physical structure and monitoring procedures for each checkpoint differs greatly from location to location. Floating checkpoints are constructed and demolished in a short period of time in accordance with up-to-the-hour events that may occur in their established locations. As a result, their boundaries are usually designated by a strategic set-up of barricades, which can easily be erected and taken down, to direct traffic through an inspection point. This type of checkpoint is mostly evident near small towns and cities that do not always have a heavy flow of traffic. The military erects hundreds of floating checkpoints along West Bank roads. In December 2013, there were 256 floating checkpoints. In 2011, there were as many as 495 floating checkpoints (B'Tselem, 2014). By contrast, permanent checkpoints are fixed in areas along borders into Israel and internally inside the West Bank. In February 2014, there

were 99 permanent checkpoints in the West Bank; 59 were internal checkpoints and 40 were the last inspection points before entering Israel (B'Tselem, 2014). These types of checkpoints display evidence of a permanent existence with structures that provide partial cover from weather elements, metal detectors, video surveillance, and revolving gates, which allow passage to one person at a time **(**Keshet, 2006). Two particular permanent and debilitating checkpoints are those that separate the three main cantons in the West Bank (Figure 4.4). The Za'tara checkpoint establishes a bottle neck in flow from the northern to the central cantons while the Container checkpoint controls movement between the southern and central Cantons (MA'AN Development Center, 2008). A third notable permanent checkpoint is the Qalandiya checkpoint, which is in the crucial corridor connecting Ramallah to the southern canton, Jerusalem, and the industrial area of Atarot (PEPRI, 2012). Recorded delays due to heavy traffic average about 3 hours at Qalandiya **(**Keshet, 2006). Conservative estimates indicate that 2% of the Palestinian Territory's GDP is lost because of time lost in traffic at the Qalandiya junction alone (PEPRI, 2012).

Figure 4.5 Permanent Checkpoints. The locations of permanent checkpoints are identified by red circles bisected in the center by a white line. (UN DPI, 2002)

There are five drivers in the Travel Restrictions subcategory, and they all relate to ways in which Palestinian access is restricted due to Israeli policies. The first diver refers to the difficulty Palestinians have with international travel due to IOF policies. Palestinian residents are not permitted to fly out of Israel's main airport in Tel Aviv, which is no more than 20 miles away from some of the West Bank's most populous cities like Nablus, Ramallah, and Jerusalem. Instead, international travel requires an entire day or longer to reach the international airport in Amman, Jordan. To get to the Jordan airport, Palestinians must pass through the Jordan Valley, which is in Area C and is heavily restricted, on their way to the Al Karama (Allenby) Bridge, the only crossing to Jordan available to Palestinians (Lendman, 2013). Going against the Oslo Agreement, Israel assumed complete operation of the bridge in 2001. Admittance to Jordan or back into the West Bank is precarious depending on conditions at the crossing and actions undertaken by Israeli staff during any given day (Kaplan, 2010). The added travel time and increased distance required to reach a usable airport makes international travel risky for Palestinian residents; it also increases the cost of travel.

The second driver in the Travel Restrictions subcategory refers to the inability of Palestinians to use the extensive network of settler by-pass roads (called "lateral roads" in the Oslo agreement) existent throughout the West Bank (Figure 4.5). The conversion of existing roads to by-pass roads and construction of new by-pass roads grew as new settlements were erected after 1967. The primary function of the by-pass roads is to connect Israeli settlements with road networks inside Israel. By-pass roads are planned for and maintained by the Israeli Ministry of Transport and Road Safety. The roads are

designed to accommodate modern vehicles and traffic; they can be up to 6 lanes wide (25-30 m across) (Maoh & Isaac, 1999). In addition, each by-pass road has a 50-75 m buffer zone on each side. As a result, for each 100 km of road, about 2,500 acres of West Bank land is confiscated. In 2008, an estimated 41,525 acres of Palestinian land had been confiscated in order to sustain the 1,661 km by-pass road network (MA'AN Development Center, 2008). Palestinians are deterred from using by-pass roads through a lack of exit and entry points from Palestinian communities, physical barriers blocking existing road access from Palestinian communities, checkpoints, and military orders forbidding Palestinians from being on the roads or in the areas surrounding the roads (MA'AN Development Center, 2008). Some roads are completely prohibited to Palestinian traffic; the IOF refers to these as "sterile" roads. Others are partially prohibited or restricted to Palestinians (MA'AN Development Center, 2008). An example is ancient Road 60, which runs north-south through major Palestinian cities including Jenin, Nablus, Salfit, Ramallah, and Jerusalem. Along the 163 km stretch of Road 60 available to Palestinian traffic, there are approximately 145 obstacles that include road blocks, gates, checkpoints, and earth mounds (MA'AN Development Center, 2008). When driving on by-pass roads, Palestinians are also subject to IOF traffic laws and can receive penalties for violating laws. The same is not true for Israeli registered vehicles using the Palestinian road network.

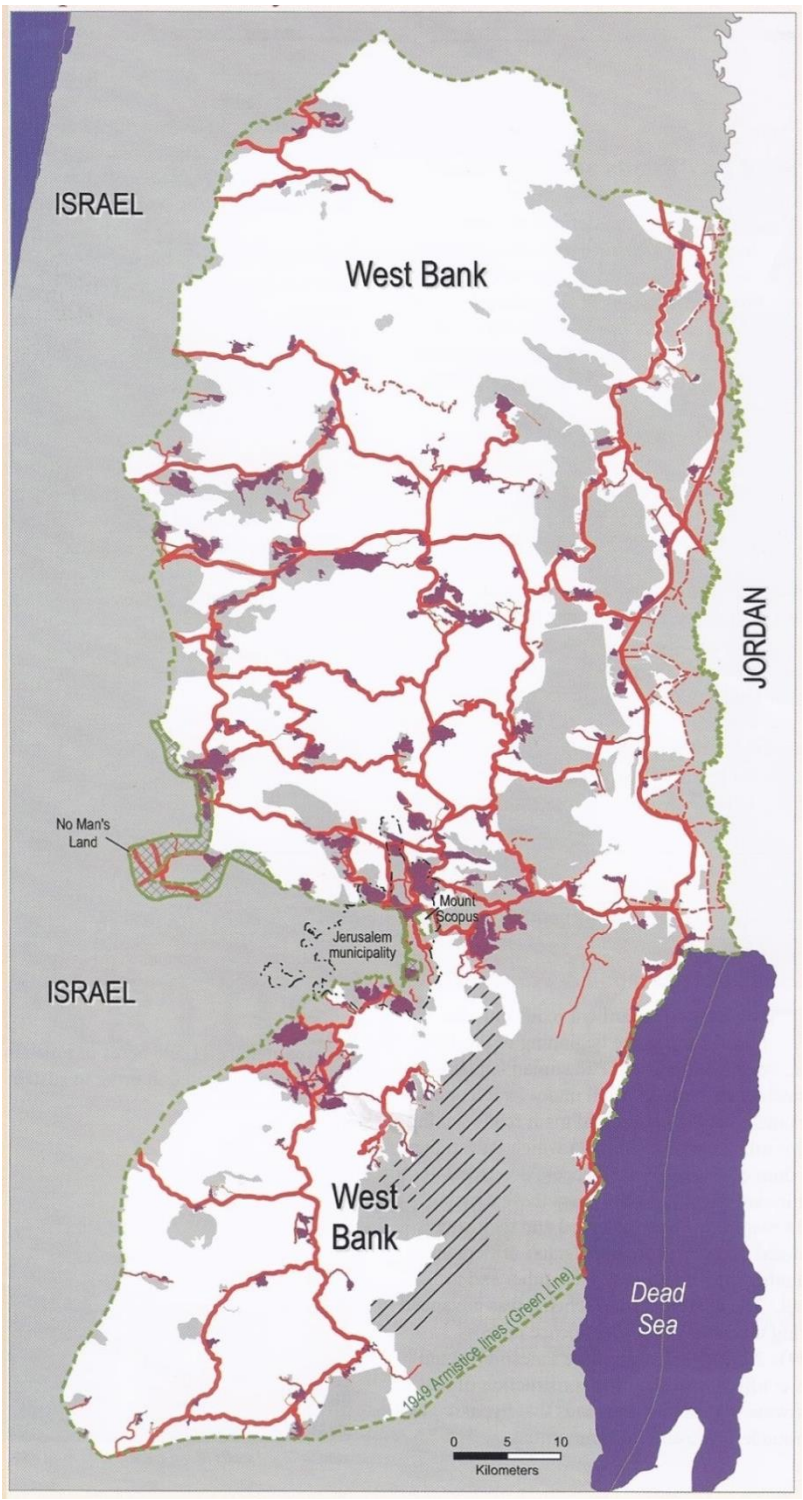


Figure 4.6 Israeli "By-Pass" Road Network. All roads shown on the map are part of the by-pass network (UN OCHA, 2007).

The third Travel Restrictions driver refers to the military curfews imposed on Palestinian cities and villages. Curfews prohibit Palestinians from leaving their city or village of residence for a proposed period of time (sometimes for many months) for any reason. Curfews seriously affect all aspects of daily life, including: loss of economic functioning and sources of income, malnutrition from not being able to replenish food supplies, stress due to confinement, as well as harms to education and healthcare due to blocked access (B'Tselem, 2011). IOF employs curfews for Israeli security purposes, and they often use them as punishment for bad behaviors like stone throwing or protesting. There is a lack of clarity regarding procedures for imposing and lifting curfews. As a result, residents often have to rely on word-of-mouth to know whether curfews are in effect (B'Tselem, 2011). Because the Israeli army enforces curfews using live gunfire and tear-gas, the lack of proper notifications have proven to be hazardous for Palestinians. In 2002, 19 Palestinians, mostly children, were killed from curfew enforcing actions by the Israeli military and dozens more were wounded (B'Tselem, 2011). In recent years, Israel has reduced its use of large scale curfews but still employs them on villages and cities during operations. Prolonged curfews constitute collective punishment, which is prohibited by international law (B'Tselem, 2011).

Harsh policy restrictions to access that are imposed by age and gender constitute the fourth Travel Restrictions driver. Access restrictions are strictest for Palestinian males under 50 years of age. Persons in this demographic are denied the ability to apply for temporary visitation permits to Jerusalem and other Arab populated regions in Israel like Acre and Nazareth. Their access through or to villages in Area C (Figure 4.3) is also

precarious at times. Checkpoint stops will often deter the population from entering Area C during fastidious times imposed by the Israeli military.

The final Travel Restrictions driver refers to IOF restrictions on Palestinian freight travel. The movement of goods from the West Bank to Israel is severely hindered, while Israeli imports move freely into the West Bank (MA'AN Development Center, 2012). Because Palestinian licensed vehicles cannot enter Israel, all Palestinian goods exported to Israel must be transferred from one truck to another at border checkpoints in a process called "Back to Back" (MA'AN Development Center, 2012). Road blocks on Palestinian roads also force drivers to transfer goods from a vehicle on one side of the roadblock to another on the other side (Coffman et al., 2009). The wait time for trucks at checkpoints can be up to 4 hours, not including the time it takes for inspection (of cargo truck, and person) and the transfer of goods to another vehicle (MA'AN Development Center, 2012). The prolonged journey that perishable food takes from field to market often renders a significant portion spoiled by the time it reaches the market. For non-perishable goods, prolonged journeys increase transportation costs, which reduce the competitiveness of Palestinian goods (MA'AN Development Center, 2008).

The last subcategory of drivers relates to Israeli interference of development for accessibility in the West Bank. Interference relates to the destruction of construction efforts as well as to the delay of projects seeking IOF approval. As a result, development, even development with foreign sponsors, can become immobilized

indefinitely while waiting for approval. Also, approved plans that successfully complete their construction phase are at risk of being destroyed during military campaigns.

4.3.5 Palestinian National Authority Policy

Drivers in the Palestinian National Authority Policy category relate directly to governorate actions that affect accessibility or they relate to characteristic qualities of the government's development plans for accessibility. Each subcategory of drivers is described in the following paragraphs.

Table 4.6

Drivers Categorized as Palestinian Nation Authority Policy

Subcategory	Driver	Driver Classification
Transportation policies and services	Private vehicle subsidies	Indirect
	High number of taxi permits	Indirect
	No coordination with taxis and taxi vans	Direct
	Travel rules are not enforced	Indirect
	Limited police jurisdiction	Indirect
	Residents are unaware of travel rules	Indirect
Planning projects	Future oriented	Indirect
	Foreign influence	Indirect
	Uncertainty	Indirect
	Limited resources and funds	Indirect
	Lacking collaboration between ministries	Indirect

Note. The main category includes two subcategories and 11 drivers. The table also summarizes driver classifications as direct or indirect.

Drivers in the Transportation Policies and Services subcategory refer to PA measures that mostly exacerbate conditions affecting accessibility. The first two drivers refer to the ability of the Ministry of Transport to supervise the registration and licensing of private and public vehicles (Ministry of Transport, 2010). Problems arise because the

department liberally issues out vehicle subsidies and permits for taxi public transport vehicles. Private vehicle subsidies perpetuate the preference for private vehicle use, which affects the number of vehicles on roads and congestion conditions. The issuing of excess taxi permits is a trend that began at the end of the second Intifada in 2005 when the Ministry of Transport regained the ability to issue permits after years of strict Israeli control. The department began to disregard their established formulas for estimating the total number of permits to issue annually to make up for longtime losses in the public transport sector (Al-Sahili & Abu-Eisheh, 2006). The resulting effect is high competition among taxi companies and a lack of coordination for service routes, which is highlighted driver in the same subcategory.

A high number of operating public taxis and taxi vans in addition to a significant private service transport fleet propagates an absence of coordination among transport service vehicles. The lack of strong centralized control for the public transport system by the PA means that transport service vehicles are free to operate on their own schedules and follow their own defined routes. The resulting effect for riders is a lack of availability and reliability. Most vehicles cease operation in the early evening, and arrival and departure times are inconsistent because of fluctuations in ridership and IOF travel barriers.

The remaining drivers in the Transportation Policies and Services subcategory occur because of the limited jurisdiction of the Palestinian Civil Police (PCP). PCP actions are subordinate to the IOF military rule. Areas that do not fall under PA jurisdiction are not patrolled by the PCP (Area C and also portions of Area B). PCP

presence in such areas is prohibited according to IOF policies (PEPRI, 2012). Roles of the PCP to maintain order and raise society awareness regarding crime are severely weakened as a result. For example, the PCP cannot guide behaviors of people driving vehicles with Israeli license plates even if they are Palestinian. Because Israelis are mostly barred from using Palestinian roads, almost all cars with Israeli license plates on Palestinian roads are driven by Palestinian residents. The PCP has no jurisdiction to issue penalties to vehicles registered with the Israeli Civil Administration. Therefore, the behavior of people in such vehicles goes completely unchecked.

Limited PCP jurisdiction leads to another identified driver, which is the incessant lack of enforcement of travel laws. Residents who violate travel laws rarely, if ever, are issued penalties by the PCP. For example, speed limits exist for most roadways in the West Bank: 90 km/h for main roads (mostly settler bypass roads), 60 km/h for regional roads linking West Bank governorates, 80 km/h for ring roads that circle around urban cities, and 50 km/h for local roads (about half of which are paved) (Ministry of Transport, 2010). However, speeding is not monitored (except on Israeli roads by the Israeli military), which provides no incentive to drive within speed limits. In addition to a lack of enforcement, poor travel behavior occurs because residents are unsure of behavior rules and recommendations, which is the final driver in the subcategory. Looking again at the problem of speeding vehicles, speed limits are not posted on road signs except on bypass roads where the Israeli Ministry of Transport and Road Safety has signs installed. Because drivers are hardly stopped for violations they are also unaware they are committing them. The combination of lack of enforcement for violations and residential

ignorance of rules perpetuates many of the undesirable travel behaviors discussed in the Travel Behavior category, including but not limited to: speeding, jay-walking, and parking in undesignated zones.

Drivers in the Planning Projects subcategory refer to characteristics of the PA structure involved in transport planning and characteristics of the planning projects themselves that impede the development process. First, existing planning projects are forced to plan for improvements given possible future conditions since present political circumstances under the Israeli Occupation are uncertain. For example, the Ministry of Planning has a team working to develop a National Spatial Plan for Palestine in 2025 and 2050. The aim of the plan is to provide a management scheme for national development and use of limited resources by the "anticipated" Palestinian State. The plan assumes the creation of an independent Palestinian country that has its capital located in East Jerusalem. It additionally assumes that Israeli infrastructure in the West Bank will be under Palestinian sovereignty and need to be revitalized for public benefit (National Spatial Plan, 2013). Strategic plans declared by the Ministry of Transport follow the same principles of achieved independence. Particular plans for transport projects that serve to strengthen connectivity between East Jerusalem, the Jordan Valley, and the Gaza Strip, which are all heavily controlled by Israel, are prioritized (Ministry of Transport, 2010). PA development is stifled by the IOF military rule, which has largely led to the current state of poor accessibility. Accessibility levels worsen with increased political turmoil. Many of the current barriers were more recently instated during the second Intifada, which began in 2000. Uncertainty surrounding fluctuating political conditions

forces development to look to possible future times that may or may not be realized. The resulting effect is that such projects may never be implemented regardless of their possible benefit to accessibility. Uncertainty and the characteristic future orientation of development projects are drivers that are inextricably linked.

Development plans that are oriented to present conditions are constrained by limited PA resources and funds. The Palestinian economy suffers from the conflict, and the needs for development overcome supplies available to meet them. In 2010, the Ministry of Transport outlined specific objectives that development projects should meet. They include: to change and develop current transport legislations; to promote Palestinian economy by supporting the delivery of services throughout Palestinian governorates; to enhance the performance of the transport sector; to strengthen the regional connection with neighboring countries; to enhance safety and security on the road network; and to encourage the private sector to contribute to and invest in transport sector activities. The majority of realized projects are oriented toward the rehabilitation of existing road networks. However, the long list of development objectives suggests that the needs of the transport network are greater than what has been invested, and that the number of rehabilitation projects is not sufficient to bring the network up to the desired level (Al-Sahili & Abu-Eisheh, 2006).

To alleviate resource deficiencies for development, the PA often looks to foreign sources of funding and aid. This leads to the next driver, which refers to the foreign influence on planning projects. Projects that are initiated or funded by foreign sources become dependent to those sources. Such dependence further weakens the ability of the

PA to guide projects. In addition, planning projects become influenced by foreign designs, which may or may not adhere to Palestinian conditions or desires.

The final driver in the Planning Projects subcategory refers to the dangers of the lack of collaboration between ministries in the PA. Currently, six ministries share responsibilities for the management and development of the Palestinian transport sector. They include: the Ministry of Transport, the Ministry of Public Works, the Ministry of Planning, the Ministry of Local Government, the Ministry of Agriculture, and the Ministry of Finance (Al-Sahili & Abu-Eisheh, 2006). The responsibility each ministry assumes within the transport sector (like planning, financing, budgeting, new construction, rehabilitation/maintenance, tendering/supervision, and administration) intersects multiple agencies and has resulted in duplicated efforts. Additionally, some roles are sometimes not carried out by any ministry (Al-Sahili & Abu-Eisheh, 2006). Lack of collaboration between ministry agencies has led to unclear role responsibilities.

4.4 CASUAL RELATIONSHIPS AMONG DRIVERS

Rather than assessing the problem's drivers discretely, this research is concerned with casual explanations for relationships among drivers, which is necessary for finding targeted solutions to complex problems (Remington-Doucette, 2013). As seen from the previous discussion, I identified many problem drivers that also interact with each other, which makes it difficult to determine simple cause-effect relationships. Casual chain analysis can be used to both trace complex cause-effect pathways and describe the relationship among interacting drivers (Remington-Doucette, 2013). The three aspects of casual chain analysis used by this research include: (1) determining the extent of impact

and current trends of drivers, (2) identifying specific conditions under which particular drivers are important, and (3) assessing causality (Remington-Doucette, 2013). The first two were respectively accomplished in the previous section through in-depth discussions of each driver and the categorization of drivers into like areas. For the third aspect, a qualitative approach was applied to establish casual causation, or the impact of drivers on other drivers.

The ultimate goal of the third aspect of casual chain analysis for this research was to be able to map connections between discrete drivers. The described connections reveal the direction of influence held among drivers (if one driver impacts the other or vice versa); and they also describe the effect of that relationship or whether the directional connection worsens, improves, or impedes change in the connected driver.

Maxwell (2004) presents three strategies for researchers to accomplish in order to make trustworthy casual relationships claims. All are qualitative forms of analysis. They include: (1) long-term researcher observation to obtain more and different kinds of data that is direct and less dependent on inference, (2) the compilation of "rich" data from outside sources to provide a full and revealing picture of what is going on and the processes involved, and (3) using narrative approaches to explain made connections (Maxwell, 2004). I followed Maxwell's strategies to identify and describe connections between drivers. Because the connections I identify were made using qualitative analysis, it is important to make clear that they reveal *physical* causation rather than *factual* causation. Normally identified using quantitative inference methods, factual causation finds certain drivers to be the cause of other drivers (Mohr, 1999). In a

complex system, like the one driving poor accessibility and well-being in the West Bank, it is less valuable to know what the beginning causes are and more valuable to understand how the system functions when changes occur. Therefore, physical causation is a better fit for this research because it identifies cause and effect as the relation between a force and a motion, respectively (Mohr, 1999). The connections I identified between drivers describe how certain drivers push other drivers in respect to the sustainable or desirable state, which would be increased accessibility and well-being. As a result, the constructed system map can then be used to predict how changes made to drivers will force the behaviors of other drivers.

4.4.1 Summary of Casual Relationships

I considered a total of 4,970 relationships, which are the influences excluding self-comparisons of each of the 71 drivers on all other drivers. Using observational field data, reviews of published information, and narrative information from expert interview sessions as guiding knowledge, I decided whether or not relationships existed among each pair of drivers. In this study, a relationship existed when one driver was determined to influence the behavior of another driver. For existing influences, I further determined if the influencing driver pushes the affected driver away from the sustainable state (negative influence), towards the sustainable state (positive influence), or if it has a non-directional influence (meaning it influences the other driver but in no discernable direction). The entire process was iterative; relationships were identified, defined, and reevaluated before I traveled to the West Bank, during my stay, and after I returned to complete my analysis. Each defined relationship is displayed in five tables (one for each

of the major driver categories) in Appendix E. Table 4.7 summarizes the tables in Appendix E and displays the number (out of a possible 70 influences for each type) and types of influence each driver was identified to have on all other drivers.

The average numbers for each type of influence are also reported in Table 4.7 and may be used to judge how strongly drivers influence the system. Drivers that inflict influences greater than the average may be considered stronger drivers. The average figures also characterize the kinds of influences occurring in the system. On average, drivers were identified to more negatively influence the behavior of other drivers than any other type of influence (positive or non-directional). However, it is not surprising that positive influences among drivers were so few considering the limiting characteristic for each driver to be considered in the system analysis was that it negatively affects levels of accessibility and well-being in the West Bank. In the rare cases where a driver would positively affect another driver, the occurrence was more than likely because the driver buffered the ability of the affected driver to negatively affect conditions in the system. For example, congestion conditions decrease the ability of commuters to speed along streets.

Table 4.7

The Number of Influences for Each Driver to All Other Drivers by Type

	Subcategory	Driver	Total Positive Influences	Total Negative Influences	Total Non-Directional Influences	Total Influences
Physical characteristics	Land use	Natural terrain	0	7	19	26
		Palestinian built-up areas	0	0	42	42
		Israeli built-up areas	0	37	7	44
	Segmentation	Limited surface area	1	5	15	21
		Distance between built-up areas	1	22	16	39
		A, B, and C territory control distinctions	0	29	12	41
	City/village structure	Urban cities	9	8	33	50
		Villages/towns	0	11	37	48
		Refugee camps	0	13	32	45
		Industrial areas	0	2	19	21
	Resource	Arable land	1	1	10	12
		Forests and groves	1	1	10	12
		Water	0	2	11	13
	Environmental	Climate	0	3	13	16
		Population density	0	7	22	29
Transportation infrastructure	Roads	Poor quality roads	4	24	4	32
		Outdated road layout	1	30	4	35
		Small road size	2	21	6	29
		Lacking travel-use mechanisms	0	23	5	28
	Taxi and taxi van	Tumultuous relationship with PA	0	1	11	12
		Limited passenger capacity	2	7	7	16
	Mass transit	No public mass transit	1	18	10	29
		Private and public buses	11	3	5	19
	Walking	Limited sidewalks	0	20	8	28
		Lack of sidewalk barriers	0	16	1	17
	Air	No functioning airports	0	9	6	15
	Vehicles	Poor quality vehicles	0	8	11	19
		Limited parking facilities	3	13	2	18
		Freight travel	8	5	7	20
Travel behavior	Undesirable activity	Parking in undesignated zones	2	15	6	23
		Speeding	2	7	19	28
		Overfilling cars	2	7	13	22
		Reduced carpooling	1	9	2	12
		Over-taking vehicles on two-way streets	0	3	9	12
		Not wearing seatbelts	1	5	5	11
		Jay walking	1	8	6	15
		Walking in streets	2	8	8	18
		Congestion	4	11	13	28
		Participating in the automobile “black market”	1	3	9	13
		Building against zoning rules	0	1	14	15
	Mode preference	Preference for private automobile use	3	8	15	26
		Preference for private taxis over taxi vans	0	4	8	12
	Fears to travel	Safety concerns due to conflict	0	10	14	24
		Safety concerns due to infrastructural quality	5	10	8	23
		Safety concerns due to others' behavior	6	9	6	21
	Demographic restrictions	Restrictions by gender based on cultural norms	0	5	5	10
		Restrictions based on income	1	12	5	18

Table 4.7 Continued

	Subcategory	Driver	Total Positive Influences	Total Negative Influences	Total Non-Directional Influences	Total Influences
Policy—Israel Occupation Force	Border controls	Passport types and privileges	0	19	8	27
	Physical road barriers	Road destruction	1	25	5	31
		Road blocks	1	23	3	27
		Separation Wall	0	29	7	36
		Temporary and permanent fences	0	24	7	31
	Checkpoints	Permanent checkpoints	1	35	5	41
		Floating checkpoints	1	24	7	32
	Travel restrictions	Difficulties with international travel	0	11	4	15
		Settler by-pass roads	1	24	8	33
		Curfews	0	12	7	19
		Restrictions imposed by age and gender	0	8	8	16
		Restrictions on freight travel	0	14	5	19
	Overriding development controls	Interference with development	0	32	11	43
Policy—Palestinian National Authority	Transportation policies and services	Private vehicle subsidies	1	1	11	13
		High number of taxi permits	0	2	10	12
		No coordination with taxis and taxi vans	0	10	10	20
		Travel rules are not enforced	0	11	17	28
		Limited police jurisdiction	2	11	9	22
		Residents are unaware of travel rules	0	9	14	23
	Planning projects	Future oriented	0	20	4	24
		Foreign influence	0	0	18	18
		Uncertainty	0	21	6	27
		Limited resources and funds	0	23	11	34
		Lacking collaboration between ministries	0	10	14	24
		Average	1.2	12.4	10.7	24.3

Note. The average number of influences for each type of influence is presented in the last row. Numbers highlighted in gray indicate drivers that rank highest in terms of the number of influences on the system (within the top nine drivers for positive influences, the top eleven drivers for negative influences, or the top ten drivers for non-directional influences).

Table 4.7 additionally highlights the top influencing drivers in the system. Figure 4.7 further presents the top influencing drivers in order of rank, where the higher ranked drivers have the most number of influences on other system drivers. Interestingly, the drivers that appear in the rankings for each type of influence mostly did not appear in more than one ranking list, with the exception of two drivers that appear on two of the lists: Urban Cities and Poor Quality Roads. This suggests that the strongest system drivers definitively influence the system in one way: positively, negatively, or non-

directionally. It is also noteworthy to mention that drivers in particular categories dominate every type of influence. The majority of ranked positive influence drivers come from the Transportation Infrastructure and Transportation Behavior categories; the majority of ranked negative influence drivers come from the Policy-IOF category; and the majority of ranked non-directional influence drivers come from the Physical Characteristics category. Ranking the drivers by order of influence is a useful method to determine some of the system's strongest intervention points since actions directed at those drivers may strongly precipitate across the entire system.

Positive Influences	**Negative Influences**	**Non-Directional Influences**
1. Private and public buses	1. Israeli built-up areas	1. Palestinian built-up areas
2. Urban cities	2. Permanent checkpoints	2. Villages/towns
3. Freight travel	3. Interference with development	3. Urban cities
4. Safety concerns due to others' behavior	4. Outdated road layout	4. Refugee camps
5. Safety concerns due to infrastructural quality	5. A, B, and C territory control distinctions	5. Population density
6. Congestion	6. Separation Wall	6. Industrial areas
Poor quality roads	7. Road destruction	Natural terrain
7. Limited parking facilities	8. Floating checkpoints	Overfilling cars
Preference for private automobile use	Poor quality roads	7. Foreign influence
	Settler by-pass roads	8. Travel rules are not enforced
	Temporary and permanent fences	

Figure 4.7 Rank of Drivers According to Their Influence on the System by Type

Lastly, I found it useful to generalize drivers by their main categories to summarize the relative aggregate strength they had on the system. This information is depicted in Figure 4.8. The figure operates under the assumption that the average behavior among the five major categories of drivers would be if each contributed to 20% of the influences on another category, regardless of the type of influence, in order to add up to 100% for all influences on a driver category. However, in a real-world setting, this

is rarely the case, so the drivers influence the system at varying strengths. The trends observable in Figure 4.8 are similar to the ones observed in the previous figure (Figure 4.7), which suggests that specific drivers behave similarly even when they are grouped into characteristic categories. The Policy-IOF category was responsible for the largest portion of negative influences on the system; the Transportation Infrastructure and Travel Behavior categories were responsible for the largest portion of positive influences on the system; and the Physical Characteristics category was responsible for the largest portion of non-directional influences on the system. Also like the previous figure, Figure 4.8 may be used to determine some of the system's strongest intervention points when drivers are considered generally or if more than one driver is addressed by a probable transition strategy.

Affected Driver Category		Affecting Driver Category: Negative Influence					Positive Influence					Non-Directional Influence				
		Physical Characteristics	Transportation Infrastructure	Travel Behavior	Policy--Israel Occupation Force	Policy--Palestinian National Authority	Physical Characteristics	Transportation Infrastructure	Travel Behavior	Policy--Israel Occupation Force	Policy--Palestinian National Authority	Physical Characteristics	Transportation Infrastructure	Travel Behavior	Policy--Israel Occupation Force	Policy--Palestinian National Authority
	Physical Characteristics	10	22	22	39	8	15	65	20	0	0	46	12	18	4	21
	Transportation Infrastructure	18	21	13	29	19	22	28	39	0	11	43	11	19	2	26
	Travel Behavior	18	28	17	18	19	7	34	44	12	2	38	10	35	10	7
	Policy--Israel Occupation Force	39	0	0	61	0	100	0	0	0	0	15	11	0	74	0
	Policy--Palestinian National Authority	26	23	3	36	13	50	0	50	0	0	35	16	24	2	23

Where, I (Influence) = % of influences on the category by influence type and category
A (Average) = 20%

Extremely High (I ≥ A, 25%)	
High (I ≈ A, 16%-24%)	
Low (I ≤ A, 15%)	
No Influence	

Figure 4.8 Strength of Average Aggregate Influences by Driver Category. The figure indicates the percentage of influence an affecting driver category inflicts on an affected driver category. Rows of each influence type add up to 100%. Cells filled with color are described by the key included in the figure and indicate the strength of influence for each driver category.

4.4.2 System Map

As a whole, the information displayed on the system map (Figure 4.9) is useful to summarize the influences defined in the influence charts (Appendix E) and provide insight into the functioning of the system. The system map pictorially represents three types of summative information regarding the identified influences among all system drivers. First, each major category of drivers is represented by a box whose size depicts the relative strength of influence the drivers in the category have on the entire system. The strength of the driver category is categorized by the sum of influences initiated for all drivers in the category. The greater the sum, the stronger the influence the category has on the entire system. The strongest category was the Physical Characteristics category (27% of all influences on the system were initiated by drivers in the category) and the weakest was the Policy-PA category (14% of total system influences were directed by drivers in the category).

Second, the pie charts located inside each category box comparatively display the influence of all categories on the corresponding category of drivers. The percentages represent the portion of the total sum of influences directed at a specific category by another category; these include influences within the category since drivers within a category influence one another. For the most part, only two categories are influenced predominately by a specific category. Influences on the Policy-IOF category are dominated by drivers in the same category; influences on the Policy-PA category are dominated by drivers in the Physical Characteristics category.

Third, the arrows indicate the greatest directional influence on each category according to the three types of influences: positive (green arrow), negative (red arrow), and non-directional (orange dashed arrow). Each category has three arrows directed to its depicted box to connect it to the category of drivers that had the greatest number of influences on it according to type of influence. There was one exception: there was a tie for the greatest number of positive influences directed at the Policy-PA category of drivers, so it has two green arrows directed toward its box. The arrows display some noteworthy trends. For example, the Policy-IOF category of drivers most negatively influences four out of the five driver categories. Also, the Travel Behavior category of divers most positively influences three out of the five driver categories.

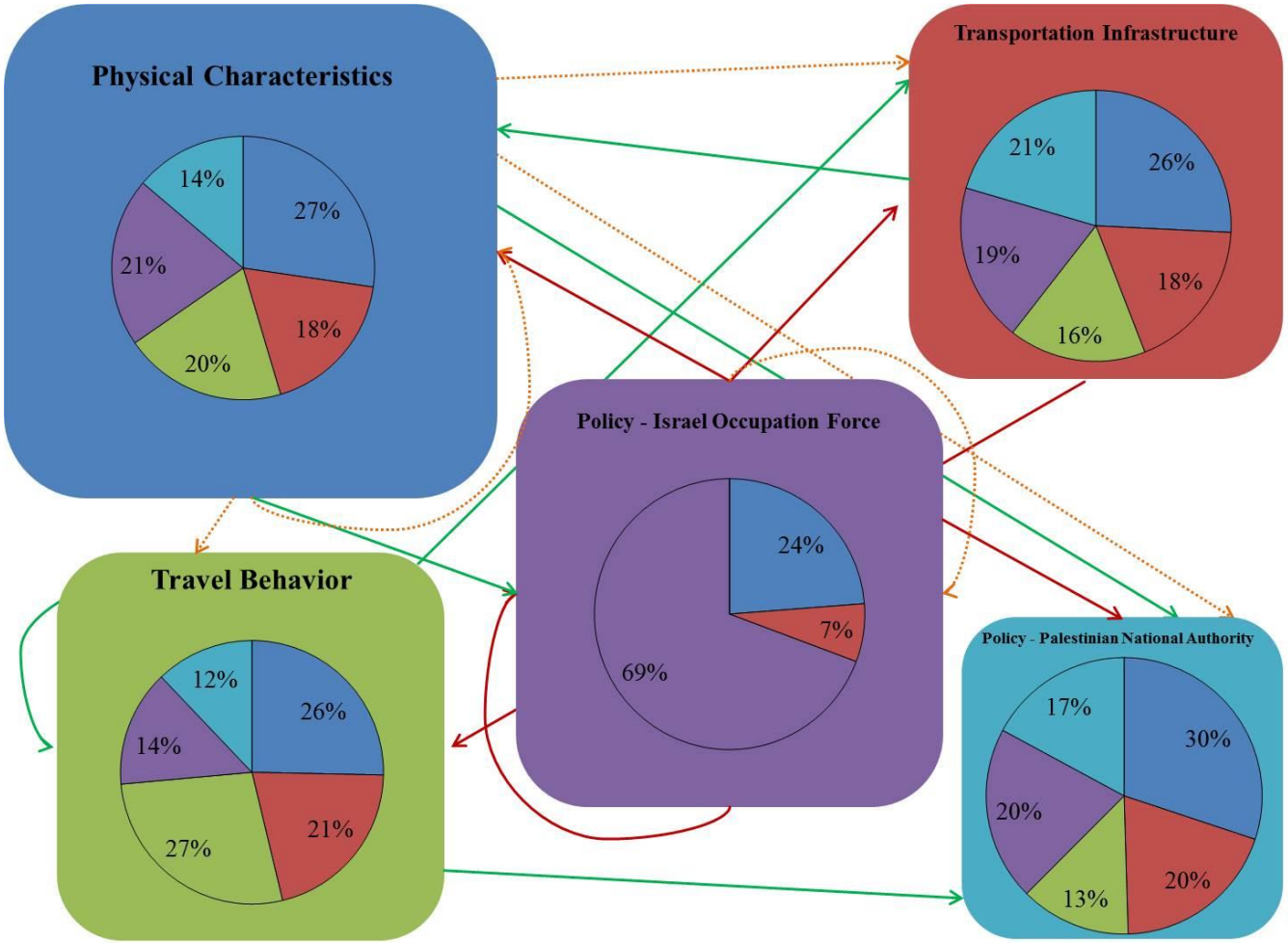


Figure 4. 9 System Map. The size of the box proportionally indicates the strength of influence the category of drivers has on the entire system. The pie charts inside each box indicate the percentage of influences directed on the category of driver by itself and other categories of drivers. The arrows indicate the directionality of greatest numbers of positive (green), negative (red), and non-directional (dashed orange) influences imposed on each category.

4.5 CONCLUSION

This chapter characterizes the current system of poor accessibility and well-being in the West Bank by defining the boundaries of the system, identifying key stakeholders, and defining problem drivers and their interactions. This study bounds the system at the regional level (West Bank and East Jerusalem), which includes the local level (urban cities and residential villages). The boundary defines a geographic limit for probable improvement efforts to aim to affect. The study additionally recognizes the system's connectivity to regions outside the boundary, especially when it comes to factors that perpetuate the problem. The stakeholder analysis resulted in the identification of three kinds of stakeholders that play a role in the current system: Palestinian, Israeli, and International. The bulk of the chapter focused on defining the 71 system drivers the study found to be the main factors perpetuating the status of poor accessibility and well-being in the West Bank. Casual chain analysis was used to identify relationships among the drivers and to create a system map that depicts elements of how the system functions.

There are multiple possible applications for the information presented in this chapter. Within the scope of this dissertation, the current state analysis is used in upcoming chapters to reference how conflict conditions may affect probable transition strategies and to help suggest how transition management for transportation development may be guided. Outside the dissertation, I hope the information may be used as a reference for other development endeavors. The system analysis may also be further developed to expand the detail of information included in the system. For example, the influences identified among the drivers can be further analyzed to determine causation.

CHAPTER 5

VISIONING FOR TRANSPORTATION IN THE WEST BANK

5.1 INTRODUCTION

A component of a successful sustainability transition includes defining specified roles for stakeholders who are affecting or being affected by the problem. Involving stakeholders throughout the process of generating solutions elicits multiple benefits, including: improved project designs due to the participatory nature of stakeholder inclusion; the avoidance of irrelevancy due to the researcher's limitation as an outside participant; an increased diversity of opinion; project buy-in for those involved in the process and the populations they represent; and a greater possibility for sustained, long-term benefits from implemented actions. For this study, stakeholders were involved in more than one role. I engaged a group of field-related experts and additional groups of general residents while conducting field research in the West Bank. Field experts and general residents maintained entirely different roles for the study. Chapter 4 presented how field experts contributed to current state definitions of the transportation problem in the West Bank. This chapter examines conversations held with the groups of general residents to identify the desired characteristics that development in the West Bank Case should enable. The process undertaken with the information provided by the residential stakeholders is called *visioning.*

The central question for the chapter asks to identify a vision for the transportation system in the West Bank. Wiek and Iwaniec (2013) define visioning as a process of creating a vision, which is a representation of a desirable future state. Visioning

considers the question, "Where do we want to go?" (Remington-Doucette, 2013, pg. 305). This study asked the same question of the residents representing different stakeholder groups in the region. As a result, the vision the chapter presents is shaped by the desired future state stakeholders expressed as their preference. Because stakeholder preferences are influenced by held values and beliefs, certain preferences may not necessarily align with sustainability principles. For this reason, the study uses the visioning quality criteria defined by Wiek and Iwaniec (2013) to assess revealed preferences for either inclusion or exclusion in the final vision.

Methods for visioning are at an early stage of development (Wiek, 2011). At the present time, there is not an agreed upon way for going about the visioning process (Remington-Doucette, 2013). The progression of information in this chapter goes through a process of visioning I felt necessary to define a cohesive vision using the information uncovered from group interviews with stakeholders. First, using narratives given by interview participants, I descriptively discuss individual interactions with the transportation system that help to characterize how the separate stakeholder groups use and are affected by the transportation system. I also use my own observations and outside sources to include a discussion on group values that may influence preferences made explicit during group interviews. Second, a discussion of rich interview narratives provides an idea of the major themes present throughout stakeholder responses to visioning inquiries. Discovered themes are areas of consensus among differing stakeholder groups. Next, the themes are assessed for quality to make sure they adhere to sustainability principles using Wiek's and Iwaniec's (2013) quality criteria. Themes that

meet the criteria are included in the study's rendered vision presented near the end of the chapter. The presented vision is a comprehensive demonstration of the range of opinion expressed for each theme included in the vision. Finally, the chapter ends with a discussion regarding how the vision may be useful in the West Bank Case. The discussion additionally alludes to how the vision is incorporated into upcoming chapters that aim to guide the discovery of possible sustainability transitions for accessibility in the West Bank.

5.2 DEFINING VISIONING STAKEHOLDER GROUPS

Different perspectives need to be mapped in order to describe a vision that coincides with a larger group (Wiek, 2011). For this study, the vision for the future of the West Bank transportation system represents the cumulative perspectives of those I identified to be a part of a major commuter group. I identified four commuter groups to represent the dominant and minority stakeholder visioning perspectives in the West Bank: (1) female commuters, (2) male commuters, (3) student commuters, and (4) taxi service drivers. Before discussing outcomes of the visioning process, I aim to clarify inherent differences and similarities among the groups. This information provides insight into possible motivations for visioning preferences expressed during the group interviews.

On a large scale, individuals commonly tend to value things like freedom, independence, equity, and a structured hierarchy (Remington-Doucette, 2013). However, defining values on a specific subject like transportation diversifies groups from one other. The commuter groups in this study undoubtedly value the ability to travel because doing

so allows them to reach desired destinations. Groups' values diverge when needs are considered. The commuter groups I identified interact with the transportation system differently based on differing needs and norms that dictate socially acceptable ways of using the system. An understanding of needs for various populations is central to sustainability considerations, which aim to ensure that need are met. I use themes uncovered from the first half of my group interviews, when participants relayed their experiences with the current transportation system, along with my own observations and other researched information to discuss the needs and social norms associated with each group's interaction with the West Bank transportation system.

In addition to needs and social norms held by the commuter groups, the challenges they experience while navigating the transportation system also shape their visioning preferences. Therefore, I also present a discussion of the challenges interview participants brought up during the group interviews. While transportation needs and norms differed among commuter groups, challenges associated with the use of the West Bank transportation system were interestingly shared across commuter groups.

In order to more accurately present interview narratives in this section and throughout this entire document, I directly quote my interview transcripts (italicized text). Keep in mind that quotes written in the first person tense represent words spoken directly by participants, and quotes written in the third person tense represent words spoken by a translator.

5.2.1 Female Commuters

Like most Middle Eastern societies, Palestinian society is patriarchal (Haj, 1992). As a result, societal norms contribute to a degree of gender inequality and the subordination of women in societal institutions and cultural practices. The rigidity of patriarchal constructs is stronger in the rural, agrarian regions of the West Bank, where the largest fraction of the population exists, than in the urban cities, which is filled with middle-class professionals (Haj, 1992). The patriarchal characterization of Palestinian society has a noticeable effect on female activities. Although on the rise over the last decade, female employment in the Palestinian Territories remains low. In 2013, only 17.1% of all adult females were part of the labor force; the male participation rate was four times higher during the same year (PCBS, 2013). Also in 2012, the average daily wage for women was 86.8% of men's average daily wage (PCBS, 2013). For women, power is acquired outside of employment through seniority and the valuation of maternal roles (Haj, 1992). Therefore, female activities are predominantly associated with household upkeep and child rearing. Patriarchal sentiments affect more than the roles available to women; social norms lend to the segregation of genders during social activities due to the influence of Islamic ideas and practices (Haj, 1992).

The women in my commuter group sample represented the small fraction of employed Palestinian women working in the less rigid, urban cities, although not all of them livid in their city of employment. As a result, their perspective may not be generalized across all female commuters, especially to those who do not hold employment. This was not by design but for convenience and comparative purposes. My

female and male commuter samples came from the same place of employment, a bank in Ramallah, where I was able to get supervisor permission to recruit participants and have an immediate place where the interview could occur to avoid scheduling complications. I also strategically aimed to not differentiate the female commuter group from the other three since all other participants held some sort of employment (the males were all employed by the aforementioned bank, the students were all full-time students at a local university, and the taxi service drivers were also all working at the time).

I began most of the group interviews by facilitating discussion on reasons for traveling in order to discover commuter needs for the transportation system. Upon asking the female participants why they needed to travel away from their homes, there was a resounding response and agreement that they need to travel for *"everything!"*. Their emphasis and agreement provided weight to the fact that they wanted me to know they have a commonly held need to travel away from their homes for most purposes. After prodding them to be specific, they together compiled a list of tasks that require the ability to travel in order to accomplish, which included: shopping, taking their children to school, seeing the doctor, visiting friends and family, going out with friends, and going to work. Three of the four women emphasized that most of their traveling is spent getting to and from work, which is characteristic of a sample of employed females. The daily travel to and from their work at the bank in Ramallah was the predominant travel time component for most participants whether or not they lived in the city. One woman pointed out that it takes her 45 minutes to an hour to travel one-way to work from a village located within the Ramallah district. Another woman said that she moved to

Ramallah with her family away from her ancestral village to avoid the daily trip to work; most weekends she makes the trip back to her family's village and stays at her mother-in-law's home for the duration of the weekend to avoid the 12 km drive back to her home in Ramallah.

I shifted the conversation to discuss their modes of transportation. All of them travel predominantly using their own private vehicle.

"99% of the time I use my own car."

"Me too."

Two participants specified that they carpool daily with their private vehicle along with their husbands and children to work and school respectively. For both participants, their husbands are in charge of driving their family vehicles, and it is additionally their responsibility to drop off and pick up their wives from work. Outside of private vehicle use, there is a common distaste among all the women in the group to use taxi services.

"I don't prefer to take the taxi."

"When we have to, we take a taxi."

They collectively told me scenarios when they would need to use a taxi, and most of the scenarios related to their dependence on their husbands to drive them or their dependence on one family vehicle. For example, one said she would need to use a taxi if her husband was sick or out of town and could not drive her. Another said she would need to use a taxi if she lent their car to a family member or if it was in the shop for repairs. Sometimes scheduling conflicts necessitate the use of a taxi. One participant said she uses a taxi when she wants to go home earlier than her husband.

The beginning interview discussion of reasons for travel and modes of travel helped shed light on travel experiences that the sample of women shares with other types of commuters and it additionally shows travel experiences that are definitive for the group. The need to travel to access a place of work is a need that crosses to both genders of employed persons. The status of employment in the West Bank has a considerable effect on socio-economic standing. It is not a surprise that my sample of women prefer to use their private vehicles for travel. Their financial status affords them the ability to own and maintain a private vehicle. The same preference is shared by their husbands and other persons of similar socio-economic standing. The definitive difference with female commuters that the sample showed was a dependence on a husband to travel. None of the participants claimed the ability to drive or said they held a driver's license.

A final descriptor of women as commuters I noticed was not something made explicit during my interview session with the group. As a woman myself, I acquired a sense of the travel behaviors expected of women while navigating through West Bank on my field visits since I was also expected to adhere to them. There are places women are expected not to access at all or during certain times of the day—mostly in the evening. For example, the village center in my father's village, called Kafr Malik, is a social gathering area for local men, and women are looked down upon for entering or passing by the area. It is also not acceptable that a woman travels alone, especially on foot. As a result, women will accomplish tasks, like grocery shopping, in groups of two or more. An exception to this rule is if a woman is traveling by taxi or taxi van to reach her desired destination. This social norm requires women to do a considerable amount of travel

coordination between others and their modes of transport. A discussion that only took place with my female commuter group was regarding coordination stresses.

"You always have to worry about if you can get home."

The female participants told me about how using a taxi service adds an additional burden because the service stops around 7:00 in the evening. If they miss catching the final taxis, they must wait for rides from family members and friends at a time of day they are not expected to be out and about.

5.2.2 Male Commuters

Palestine's patriarchal societal structures do not inconvenience travel for male residents as much as they do for the female residents. However, men are more exploited and oppressed by occupation related travel restrictions. Males aged 12 to 50 years-old face the strictest access restrictions imposed by the IOF. They are mostly prohibited from receiving temporary visitation permits to enter Jerusalem and Arab populated places in Israel like Acre by the Mediterranean Sea, which is a desirable vacation spot. Their access through or to villages located in Area C inside the West Bank is also precarious at any given time. In addition to stricter access restrictions, male Palestinians have historically faced a higher risk of incarceration by the Israeli military. Over 40% of the Palestinian male population has been imprisoned by Israel, most without charges, at some point in their lifetime (ReMillard, 2009). In March 2012, there were 4,900 Palestinian prisoners in Israeli jails, of which 95% were adult males (PCBS, 2013). As a result, increased interactions with Israeli soldiers, like at checkpoints, pose a greater risk for Palestinian men. Additionally, a 2011 report by the Palestinian Central Bureau of

Statistics (PCBS) found that male youth ages 18 to 29 were the most subjected to occupation and settler imposed violence. Conflict related risks weigh heavily on male's decisions to travel, especially for longer distances.

Like my female commuter group, the two participants in my male commuter group were both employed at a bank in Ramallah. The percentage of adult males who are employed in the Palestinian Territories is significantly higher than the percentage of employed females (69% in 2013 according to PCBS). As such, the experiences and preferences of the interview sample may be generalized across a larger fraction of the male population. However, like those of my female sample group, their perspectives may still not be generalized across all male commuters.

The beginning discussion with the male participants had a unique quality that led to each of the participants taking time to share stories about traveling to and from their villages every day; both did not reside in Ramallah. Prior to beginning the interview, I strategically prepared to avoid any tension my status as a foreign, female researcher could impose on the discussion by first describing my research topic and allowing my verbal presentation, which lasted less than a minute, to open the floor for the participants to make their own remarks. Because I told them that I was studying transportation in Palestine, they began the discussion by talking about their experiences of travel. For the rest of the opening discussion, the participants went back and forth relating lengthy travel experiences. Their stories were relayed fervently, and I sensed they really wanted me to learn about and record their experiences. One of the participants even offered to take me on a tour though his village so that I could see first-hand the difficult travel landscape he

described. I found it difficult to break the passionate narratives so that I could pose my first real question, which asked about their reasons for traveling to get a sense of their needs for the transportation system. Once I was able to pose the question, one participant tersely responded he travels mostly *"for work"*, the other agreed, and they went right back to discussing their villages for a few more minutes. Although the participants did not include any other travel destinations in the discussion, their prominent need to travel for work related purposes proportionately matches the same need expressed by the female commuters in the study. When employed, the need to travel for work dictates most of the travel time for Palestinian men and women alike.

I did not pose additional questions in the beginning conversation. However, the stories provided by both participants displayed three characteristic tendencies for male groups that are worthy of mentioning. First, according to a participant, despite the difficulties associated with having to travel to larger cities to reach work and other destinations,

> *"They would prefer to stay living in their villages 200% [of the time] if they could, rather than relocating to be closer to city centers."*

Family histories in Palestinian villages stretch across generations through paternal lines. Men value the ability to raise their families in the villages where they were born. As the same participant put it, *"it's their home and their joy"*. Second, one participant's story revealed the responsibility men must accept as the "head of the family" to ensure other family members' ability to travel. The man explained that he is from a *"special case"*

village near Jerusalem and the Separation Wall where the only Palestinians allowed admittance are those with official permission and those that reside in the village.

> *"It's as if you're traveling between international borders when you're going to his town from the same territory! It's easier to go to Jordan than the next town [over]!"*

As the head of the family, he explained it was his responsibility to apply to Israel for permission for each of his children to access and formally reside in the village after they were born. Otherwise, his children would be living in their village illegally, which poses significant risks. Lastly, both men spent some time telling specific stories about abuses they suffered at checkpoints by Israeli soldiers.

> *"One time he was stopped and delayed [at a checkpoint for] an hour by a soldier for no reason."*

> *"He was once stopped by soldiers from using the main road going to his village because of some construction. They made him go through three other towns to come from the other side, which took hours. But if they let him pass it would have only taken him five minutes."*

Both stories show examples of unprovoked abuses sustained by commuters from occupation forces. Male commuters experience such abuses on a more regular basis according to reports by the PCBS.

5.2.3 Student Commuters

The student commuter group refers to the demographic of students attending higher education institutions in the West Bank. I singled them out as a separate group

from the female and male commuters because they represent a type of adult commuter that frequents educational institutions, which are scattered throughout the West Bank with the majority located inside urban cities and larger villages. The majority of student commuters also do not own a private vehicle because they are not yet employed or responsible for dependents. In the West Bank, there are 34 institutions of higher education: nine universities, ten university colleges, and 15 intermediate community colleges (PCBS, 2014). Like most other places, Palestinian students choose to attend schools based on location, merit, and programs offered. Students' travel experiences are heavily influenced by the location of their institutions. Because all four of the participants in the student commuter group interview were students at Birzeit University (BZU), their experiences are indicative of what it is like to attend a university located in a small village (Birzeit) that is adjacent to an urban city (Ramallah). BZU is a prestigious school that holds the distinction of being the first institute of higher education in Palestine. There are currently around 10,000 undergraduate and graduate students enrolled, and although female enrollment is slightly higher, the gender breakdown of enrolled students is roughly the same (Birzeit University, 2014). All participants in the student commuter group interview were female, undergraduate students, who were attending classes as full-time students. Three of the four reside in small villages in the Ramallah district, with the exception of the fourth participant who resides in Jerusalem.

I opened the discussion with the same question I posed in the previous commuter group interviews (see Appendix C for the question guide I used to structure all group interview sessions): "For what reasons do you travel?" Like the previous commuter

groups, the student group had one need for travel that outweighed anything else they mentioned. However, instead of needing to access a workplace like the female and male groups, the students understandably travel mostly to get to their university, *"to study"*, as one participant put it. All four agreed they spend most of their travel time getting to and from the university. After I implored them to divulge more places they need to travel to on a regular basis, the group began a discussion on their need to access Ramallah. Although their university is not in Ramallah and no participant lived in Ramallah, all of them expressed a need to travel to Ramallah.

> *"[They need to go to Ramallah] to buy stuff they need, to get information for school, to attend the libraries, and go to the institutions [government ministries] to get information and data."*
>
> *"[They need to go to Ramallah to buy] clothing. They don't have clothing stores in town."*
>
> *"Anything they need to print [for school, they do in Ramallah]; [they buy] paper [and] office supplies [that] are not available in a small town."*
>
> *"There are a lot more things that are not available in the small towns—electronics, appliances…"*

Each participant contributed reasons to access Ramallah that the translator relayed into the above list. The students' list shows that they need to access Ramallah in order to obtain amenities that are especially needed for their academic livelihoods.

I transitioned the discussion to focus on their modes of transportation. What ensued was a lengthy and detailed account of what it is like for them to use taxi and bus

services. The conversation was spurred on by a flurry of comments made by each participant to comprise a complete picture of their experiences with the services. They all use taxis and taxi vans, which they call *"Fords"*, in some capacity. For most of them, the taxi vans are what they mostly use to get around. The student from Jerusalem was an exception; she uses a large capacity bus to get to Ramallah where she then boards a taxi van to access the university. Taxi vans in the West Bank service particular villages chosen by the drivers and run on schedules influenced mostly by peak travel times so that they can fill their vehicles as much as possible.

> *"There is no coordination between towns. [Schedules are] only according to the needs of the students in the town."*
>
> *"Students coordinate with bus drivers before the beginning of each school semester to cross check desired travel times. He gives [each student] a paper to write down their schedule."*
>
> *"Students make agreements with the Ford drivers to transport them from their towns to the university and back."*

Getting to the university requires considerable coordination of schedules among individual students, other students using the taxi vans at the same time from the same villages, and the taxi service drivers. Interview participants stressed that *"the [taxi service] situation for each town is unique."* However, all students' travel to and from the university occurs in similar fashions.

> *"[In the beginning of the day] they go from their towns to Birzeit, with stops along the way, and then [at the end of the day] from Birzeit to Ramallah and then*

back to their towns or directly back to their towns [from Birzeit]. Some towns have direct service to and from the university; other towns only access the university through Ramallah."

Villages that have one or more taxi vans transporting students to BZU will have vans that generally pick them up in shifts in the villages in the morning and then also in shifts at the university in the afternoon after classes are mostly over; the students described two to three pick-up times that were about an hour apart for both peak travel times. If a village's taxi van route passes BZU on the way to Ramallah, the driver will generally drop students directly off at the university; if not, the driver will drop students off at a taxi service hub in Ramallah whereby students coordinate with drivers taking students to the university from Ramallah. The reverse process occurs in the afternoon where students get a ride from the university to Ramallah and then catch their village van back home. Participants pointed out that *"not all towns are serviced by the Ford vans."* They explained that students who live in these towns must coordinate with vans whose routes pass their towns on the way to Birzeit or Ramallah.

I followed up the lengthy explanation by asking if the complicated coordination process ever leads to delays.

"Yes, all the time. It happened [to me] today!"

"Sometimes they are late and sometimes they miss classes altogether."

They explained that the entire process leads to a level of uncertainty because they become dependent on the taxi van drivers.

"I could be late because the driver over slept. Or the driver, who is also taking high school students to school, can be behind schedule and I have to pay the price."

"If I accidently missed a bus, I have to wait until the next driver comes, which could be an entire hour or two. [Or] sometimes the minute I arrive to the unofficial stop, a car appears immediately. It's all based on luck."

"Sometimes the driver has work elsewhere so he has to drop off the students at an alternate location and they have to find other taxis to continue their journey."

I then asked if they had access to any alternative modes of transportation, like carpooling with other family members, to avoid delay risks. They all replied that they did not.

"It's very hard because there are no other alternatives. A lot of their family doesn't own cars."

"Many times they [the family members] have to be in Ramallah to work and can't afford to be late themselves [by carpooling]. They sometimes drop them in Ramallah and then the students head to the university from there."

Complex coordination processes, subsequent delays, and few transportation alternatives are things most Palestinians using taxi vans experience. However, the daily experience of such situations is mostly characteristic of student commuters traveling to their institutions on a daily basis. Putting up with these travel challenges is a sacrifice Palestinian students must accept in order to earn a degree. The student from Jerusalem relayed a personal travel experience that she thought might make any other student quit.

"One time traveling back from school [through] the Qalandia checkpoint, it was particularly busy so she decided to take a different route to avoid the congestion. She took a private car [taxi] instead of the bus. While going around a different way, the car she was taking broke down in the middle of nowhere. It was cold and raining and she was scared. Thank goodness she was with a friend. The only way out? She had to walk all the way back to the checkpoint to catch another taxi, which is dangerous too. After all this, she got back to the checkpoint and had to wait there anyway. When they finally got home it was very late. Her family was so worried about her. She said if someone else had been in her situation they would probably never want to go back to the university again."

Travel challenges have a significant influence on schooling careers. All student participants agreed they chose to go to BZU in part because it was the closest university to their home village. One student admitted that she would have gone to An-Najah University in Nablus but the longer journey in a taxi van would have been much more difficult.

5.2.4 Taxi Service Drivers

The predominant and most times only form of public transportation within the West Bank comes in the form of public and private taxi services. Although there are multiple limitations to the service (the previous subsection displayed schedule coordination challenges), I found that Palestinians are generally proud of their taxi service system. In a private conversation I had with an employee in the PA Ministry of Planning, they said the Palestinian system works much better than other places in the

Middle East, like Egypt where the lack of coordination between service vehicles precipitates chaos and congestion on roadways. Because travel by taxi is such an integral part of Palestinian accessibility, I was keen to include taxi service drivers as a stakeholder group to participate in the visioning process. I was able to recruit two participants for the group interview. Like the majority of the industry, both were male. One worked for a private company and drove a taxi car; the other worked for a public company but did not specify the type of vehicle he drove. Both lived in and provided service out of a small village near Ramallah.

The beginning discussion with the taxi service drivers needed to proceed differently than my three previous group interviews because I was most curious about the travel needs for their profession, not for their personal lives. I focused the discussion on the challenges they experience as a result of their profession. I found that, while they share some challenges with other commuter groups (these are presented in the following subsection), there are a few challenges that are characteristic for persons of their profession. First, taxi service drivers are on the roads all the time, so their experience of travel related challenges is exaggerated.

> *"Passengers tell drivers, 'God help you, you have to spend so much time on the roads all day and every day.'—expressing sympathy that their job is to deal with the [travel] problems non-stop."*

Participants gave a specific example of their elevated challenges. They said that because they do more intercity travel than the average resident, they use more portions of Israeli

bypass roads that are open to Palestinian travel and are therefore more at risk for discriminatory stops by Israeli soldiers.

> *"The Israeli police—they stop all over and make people pull over. They fine the taxis for anything they have wrong. They do this just to punish Palestinians and make their life difficult, not for security or safety. [They act] on their whims."*
>
> *"[He] told a story about over taking 3 trucks on the way to Jenin. He got pulled over because one of his tires went over the line—500 shekels."*

One participant revealed an additional challenge characteristic only to taxi service drivers. He said that they are now experiencing safety threats because of gangster activity.

> *"Another threat, there are now [Palestinian] gangsters who murder cab drivers to get their cash. Now at night, the drivers will copy the IDs of passengers who they think are suspicious before they take them to their destinations. Sometimes, they [the drivers] don't pick up passengers because they are scared. This is a new phenomenon. People do this because of the poor economy."*

The final challenges the participants revealed all related to their frustrations with PA actions, which they feel significantly hinders their ability to run a successful business. For instance, they feel their stipulated fees are exorbitant in comparison to their fare prices.

> *"They have to pay the government 3,500 shekels a year to have a permit to drive, 2,000 plus [shekels] for insurance annually, [and] 6,000 [shekels] to operate—this doesn't include taxes"*

They told me a separate union exists for public and private taxi service drivers to protect them, but that their influence is weak. One participant described a large strike that took place at the end of the summer in 2012. The unions had asked the PA to be able to raise ridership fees because the price of gasoline had gone up significantly. The PA refused.

> *"There was no public transport for a while. The government sought out union heads and put them in jail. The companies then had to stop the strike and eat the cost of the increases. The union is weak because of this."*

Participants went on to describe other questionable government activity.

> *"[Drivers] bribe [government] people to pass their emissions tests, so vehicles with big problems are on the road. They [the drivers] do this because emissions tests can take multiple days (due to laziness of the system and employees) and the taxis can't afford the loss of time. They bribe them to save time. The outcome of this is that there are polluting vehicles on the street."*
>
> *"See how much the government is in the way of progress?"*

Not only were the participants critical about the PA's policies and behavior, they also felt slighted by the access privileges government employees receive to go around occupation related barriers.

> *"The employees of the ministry and the government get access to special roads [off limits to other Palestinian residents], which creates two society classes with road access [and without]. They don't [have to] go through Qalandia, they don't have the same delays, nor do they get discriminated against [by the IOF]."*

"Anything that is a taxi because it is public, they get no access anywhere. They don't receive any special treatment to gain access, even if there are special people in the car or if someone is dying, they [the IOF] still don't allow them to pass."

The participants felt that such privileges afforded to government employees make them unqualified to make transportation laws since they are not affected by the same commuter challenges as a normal Palestinian driver. As a result of all the frustrations they revealed, a participant concluded the discussion by saying, *"They don't trust the government."*

5.2.5 Shared Challenges with Travel Experiences

During all group interviews, I explicitly asked participants to tell me about the travel challenges they experience at some point during the beginning of the session. Although every discussion the question elicited revealed a detailed response, I found that additional challenges not mentioned during this portion of the interview permeated throughout other portions of the interview. This was especially true in the visioning portion of the session because many aspects of participants' visions for the future West Bank transportation system amended challenges they currently experience. As a result, I had to comb through the entire group interview transcripts to code for experienced challenges (example quotes for each code appear in Table 5.1).

I found that participants in each commuter group mentioned the same challenges. Very few challenges were only mentioned by one group. Some of these challenges were already discussed in the preceding subsections because they were characteristically inherent to a certain group (like the frustrations taxi services drivers have with PA

policies). Only two additional challenges were not mentioned elsewhere; two female commuters brought up that it is difficult to travel because many motorists do not heed travel rules, and one male commuter said walking is difficult because of concerns for safety. All other travel challenges mentioned by participants were shared among more than one commuter group and are summarized in Table 5.1. A few of the shared challenges were mentioned by at least one participant in every commuter group. These included: delays while traveling, lack of access to desired locations, checkpoints, and ID restrictions. Participants tended to share most of the travel challenges discussed during the interviews because most of the challenges associate with occupation related restrictions and the quality of the transportation infrastructure, which all types of commuters encounter.

Table 5.1

Travel Challenges Shared Among Commuter Groups

Experienced Travel Challenge	Example Quote from Group Interviews	Female Commuters	Male Commuters	Student Commuters	Taxi Service Drivers
Long travel times	"It sometimes takes [me] 40 minutes to travel 15 km!" --Male commuter	X	X	X	
Delays while traveling	"His route back and forth from Ramallah used to be 16 km [along the] original road, [it is] 32 km now. [He can make] five trips a day min and ten max because of delays." --Taxi service driver	X	X	X	X
Poor road quality	"The roads, they are very bad, especially for cars. They are narrow; there are many hills and ups and downs; they are broken." --Female commuter	X	X		X
Congestion	"All the traffic uses the same small road so there is a lot of congestion. Most of the northern and eastern roads to Ramallah converge to the same road." --Female commuter	X		X	
Poor taxi availability	"Students make agreements with the Ford drivers to transport them from their towns to the university and back. Not all towns are serviced by the Ford vans." --Student commuter	X		X	
Lack of access to desired locations	"She has places she wants to travel to that she can't readily access." --Female commuter	X	X	X	X
Checkpoints	"Checkpoints are an issue. If you're coming from Jerusalem, you have to go through Qalandia, which is difficult during the morning rush. She can be so early and still [be] made late by the checkpoint alone. Sometimes she moves to different cars to get through the checkpoint faster. She has to go to the checkpoint every day." --Student commuter	X	X	X	X
ID restrictions	"He lives in a special case village near Jerusalem and the [Separation] wall where people have to have clearance to enter the town through a checkpoint. You must be a resident of the town or be on a list to enter." --Male commuter	X	X	X	X
Road closures	"He was once stopped by soldiers from using the main road going to his village because of some construction. They made him go through three other towns to come from the other side, which took hours. But if they let him pass it would have only taken him five minutes." --Male commuter	X	X		

Note. An *X* denotes the challenge was mentioned by at least one participant during the group interviews.

5.3 VISIONING THEMES

The final aspect of the group interviews was dedicated to visioning. To preface the discussion, I began by broadly asking each commuter group what they would like to be able to do in the future that is currently difficult or unavailable. The question generally led the groups to begin discussing improved capabilities. I followed the question by specifically asking what they wanted from the West Bank transportation system in the future. The question influenced discussions to transition to a focus on desired improvements for the transportation system. In this section, I summarize all visioning responses, without exclusion, using descriptive themes, which appear as italicized headings. Some themes include a variety of visioning preferences from more than one commuter group and others only include preferences from a single commuter group.

It is worthy of mentioning that the visioning process was met with a degree of skepticism that was absent during the first portion of the group interviews when I asked the participants about their travel experiences. The skepticism came because participants were doubtful their preferences could plausibly be heeded given the harsh political climate in the West Bank. One female participant said, *"They don't talk about things that can't happen. They can only talk about things that they can affect."* When I posed the visioning question in the student commuter group, I had to give sample answers to get them to vision for a future outside of the occupation because their initial responses functioned inside the current occupation conditions, which I knew was not something they preferred. My examples were met with a flurry of laughter. With the taxi service

drivers, their visioning preferences focused a lot on improved relations with the PA, and they prefaced most of their desired changes with a negative sentiment because they felt that the government was too rigid to change. What I came to realize is that visioning means something different in developing regions, especially where there is conflict and unequal representation. The study's participants were skeptical about the visioning process because they do not hold significant governance power in the West Bank whose government system itself is subjugated by the IOF. They generally feel their opinions cannot affect conditions given that current transportation restrictions have run rampant since the second Intifada began at the turn of the 21st Century. Such sentiment permeated throughout the visioning conversations and kept discussions about preferences for the future brief.

Access to Desired Destinations Should Not be Limited by Occupation Related Restrictions. The desire to escape occupation related restrictions was the most pervasive theme throughout the visioning preferences for all commuter groups. Many preferences I placed in the other themes also require that current occupation restrictions recede. Occupation restrictions limit and in some cases prohibit Palestinians from traveling to places within the Occupied Territories, Israel, and even to other international locations. Multiple participants pointed out specific places they would like to visit but currently cannot in a reasonable fashion.

> *"They want to be able to explore their own country. They want to learn about their country. They don't know anything about Gaza—it's like you're talking about [a foreign place like] New York or Chicago in the U.S. People can't go to*

the sea and see it. This generation is not allowed to enter. They want to see it. Hebron, she has never seen it, only heard about it. Most of the people living in the middle of Palestine don't know about the North or the South. [They have never been to] Haifa and Yaffa."

–Student commuter

"To be able to know their country better by being able to visit it easier."

–Female commuter

"I want to drive my car to go see Haifa and Acre—to anyplace. We have such beautiful places here to see we don't need to travel to other countries to see beautiful things."

–Female commuter

"We want to travel between Palestine and Jordan more easily. Now it takes so many unnecessary hours, and for nothing! We have to wait so much during the whole journey, in lines, on the bus, wait and wait and wait. It's a useless process. You waste a lot of time and for nothing."

–Female commuter

"To be able to see friends. To see Jerusalem more than once without needing a permit. To see the Sea. I can be there in two hours, it's so close!"

–Female commuter

For some of these participants, the preference to visit places throughout Palestine and Israel is related to a desire to know the region through direct experience. For these preferences, access to a particular place was the main aspect of the preference. On the

other hand, some participants provided preferences that focused more on the exclusion of a certain IOF travel barrier in order to access an unspecified location. For these preferences, the exclusion of barriers, like checkpoints and road closures, are more important.

"To move between cities without checkpoints. Move freely. Of course they would like to move freely to any point in Palestine. But they cannot."

–Female commuter

"No more worrying about closed roads. He doesn't want to have to get a paper to enter certain places."

–Male commuter

"We want to be able to go anywhere in Palestine whenever we want. No checkpoints."

—Female commuter

The female commuter group was the only group to bring up healthcare services and how occupation related restrictions significantly hinder their access to such services.

"Better healthcare—I don't trust healthcare in Palestine. Thank goodness, we haven't needed major medical care. But if we did, we would have to go to the Jewish places. We would like to have those kinds of facilities here—honest workers, quality care, necessary supplies, clean buildings. There are many doctors in Israel who are Palestinian. They go there to work instead because they get paid better. They also don't have the same kinds of opportunities here. We lose our doctors because of this. It's also not easy for anyone to get healthcare in

Israeli hospitals. You need to get permission, which takes a lot of procedural steps. Also, it costs a lot of money to get permission, and also to go there and stay there while receiving care."

–Female commuter

"A friend had labor complications and the baby died because a checkpoint wouldn't let her through to the hospital to give birth to the baby."

–Female commuter

Following these stories, the female commuter group agreed that they would like better access to healthcare facilities in the West Bank and Israel. Poor access to healthcare in the West Bank is a well-documented issue. In March 2010, the Palestinian Red Crescent Society reported 112 deaths and 35 stillbirths as a result of stops at checkpoints by patients on their way to a healthcare facility.

Palestinians Should Have the Freedom to Move within the West Bank without Interference by the IOF. A male commuter referred to it as having *"travel independence".* The theme of this preference is also closely related to ending IOF travel restrictions but for the purpose of being able to move around freely rather than to access destinations. The preference illuminates a desire to improve mobility for its own sake.

"To get out of his town without getting stopped by soldiers asking where he is going. Freedom of travel in all of Palestine. No more getting stopped or being sent back because it's his country and his land."

–Male commuter

Female participants focused on the benefits improved mobility would give them, including shorter travel times, less energy expenditures, and travel certainty.

> *"Save travel time, and travel energy. You become very tired when you travel because it is so difficult."*
>
> *–Female commuter*
>
> *"Travel consistency. Sometimes they leave Ramallah at 10:00 pm and won't get home until 12:00 even when traveling short distances."*
>
> *–Female commuter*

Commuting throughout the West Bank is a draining process, which I am able to say from experience, because of a high degree of uncertainty. It is nearly impossible to predict travel times due to vacillating delays that are sometimes long and at other times shorter. Commuters also travel at the whims of the Israeli military, which may inexplicably block access to certain areas and routes. This all leads commuters to desire travel freedoms that enable travel efficiency and consistency.

Palestinians Should Not Have to Experience the Presence of the Israeli Military. This preference was made explicit by a male participant who said he wished to have *"no more contact with soldiers"* in the future. Life under constant military occupation is stressful. Military vehicles and personnel can enter all portions of the West Bank and Jerusalem, including private property. Interactions with soldiers are negative; Palestinians must heed to their orders or face consequences. The participant's comment was made after the male commuter group had discussed that they wanted to get rid of

checkpoints, which are mostly manned by Israeli soldiers. The possible withdrawal of checkpoints on roadways would also mean fewer interactions with soldiers.

Access to Desired Destinations Should Not be Limited by Travel Fears. The female commuter group discussed a preference to not have fears influence their decision to travel. The preference relates to ridding the landscape from aspects that make travelers fearful.

"To be free from travel fears, to be secure."

–Female commuter

"Her friend was getting married in Nablus but she decided not to go because the city is in proximity to too many settlements and it has so many checkpoints to pass. And at night it's more dangerous, and she didn't want to take a risk of getting stopped and wasting her time and effort, even getting attacked by settlers."

–Female commuter

During the visioning discussion, the only aspects that female participants mentioned made them fearful to travel were associated with the occupation (possible attacks by settlers and facing checkpoints). However, other travel fears were made explicit during earlier portions of the interview sessions. A male participant spoke about being afraid to walk because of reckless drivers, and the taxi service drivers discussed their fears about being harassed by Arab gangsters while on the job.

The Israeli Occupation of Palestine Should End. While most preferences that related to lessening interference by the Israeli military hinted at an end to the occupation,

participants still made it explicit that they preferred the Israeli Occupation of Palestine to cease, understandably so.

> *"The end of the occupation. He doesn't believe any change will happen if they live under occupation. Other people and countries came to help build better roads but the Israelis stopped them from building the roads for the people."*
>
> *–Male commuter*
>
> *"We want more freedom."*
>
> *–Female commuter*

The preference to end the occupation was discussed for differing purposes in the two commuter groups. The male participant made clear that he felt an end to the occupation is needed before any other changes can be made, whereas the female participant expressed a desire for more freedom, which comes with an end to the occupation.

Employment Opportunities Should Not be Limited by Geographic Location. Employment opportunities, especially for specialized jobs, are mainly centralized in urban cities and sometimes larger villages. Currently, people must choose jobs based on locality because traveling is strenuous on a daily basis, especially if one must move through a designated Area C. Most decide against making difficult travel journeys when choosing jobs. Participants expressed a desire to acquire employment opportunities that are not hindered by their location in the future.

> *"She wants to go into accounting because there are a lot of job opportunities in Palestine. If she can't get that, she will go into financing because there are opportunities there too. Her dream is to be able to find a job in Ramallah. She*

knows accounting is available in Ramallah. If she finds work outside Ramallah, it will be hard to commute to. If she finds a job in Nablus, she will have to turn it down because it's so hard to get to and back every day. Too many checkpoints to go through."

–Student commuter

"The same thing is true for the student from Jerusalem. If she gets a job in Ramallah, she will have to turn it down. She does the travel every day now [to Birzeit] because she has to get her education, but she doesn't want to keep doing it in the future."

–Student commuter

The best options for work are in Ramallah. They like working in Ramallah because it is a city hub, they are comfortable there and would like to keep working there in the future."

–Female commuter

Student participants shared their current struggle to find jobs that they will be able to commute to on a regular basis. Within the same context, the male commuter group expressed a desire to freely choose where to live without sacrificing access to their places of employment

"To be able to stay living in their villages and have access to all the amenities of the bigger cities."

–Male commuter

"Connect work with places of residence."

–Male commuter

Palestinians who do not live in the urban cities live in the villages where their families come from for many generations back. They value maintaining residence in the same villages. However, high unemployment rates in the West Bank force people to leave their places of residence to seek employment elsewhere. The male commuters expressed that they want to be able to stay in their villages and still have access to work and amenities. One participant suggested that connecting employment opportunities with places of residence might allow for their preference to be realized.

Access to Desired Destinations Should Not be Limited by Travel Affordability. The theme of travel affordability as a preference is one that was brought up by the student commuter group. They expressed that their current inability to afford travel, because of low paying or lacking employment, blocks their access to desired locations that are mostly far from their place of residence. Increased travel distances mean greater travel service fees and more fuel consumption.

> *"Affordable transportation—They don't currently make enough money to travel far to other locations. Their income is so little, they can barely afford to go to Ramallah and it is the closest city. The cost of travel is so high. Ramallah is the only option they can afford. Nablus is too expensive [for example]."*
>
> *–Student commuter*
>
> *"They also need support to travel their country, financially and geographically. They want to have travel camps that take them to other parts of Palestine. There*

is no coordinated transportation for people to sightsee other parts of Palestine. There is no one pushing for people to get together and go to other places."

–Student commuter

Related to a previously mentioned preference to be able to visit all of Palestine free of occupation restrictions, a student commuter added to the discussion by also saying she would like to receive support to travel and know her country. The program she describes above would be similar to those offered in Israel to young Jewish people. As a young student with little resources, she would need more than the absence of the occupation to fully realize her preference to experience places in Palestine.

Travel Service Employees Need to Earn a Living Wage. A financially related preference was also expressed by the taxi service drivers. The participants spent some time going back and forth describing how their profession has declined over time along with their salaries. They said they would prefer to have more income to allow them to cover more life expenses in the future.

"Drivers are no longer making as much money and one of their major problems is their income."

"He wants a house and to be able to eat and dress up—he wants to be able to afford it. It's funny how the basic needs become your dreams."

"Drivers want the government to help them with prices of gas. They want support from the government."

"I wish one day to go back to when the taxi drivers were respected—they were like doctors, they dressed up to drive around. Now people don't respect them.

They were once nice to them, these days they look at them like trash. Before you had to have minimum high school education and you had to take two years of classes about manners [to become a taxi driver]. These days, there are no requirements and low people can take these jobs too."

The taxi service driver group became nostalgic as they reminisced about the days of the past, which is when they felt their profession was more revered. They connected their decline in status with their unsatisfactory income. They also briefly mentioned that assistance from the government in the form of gas subsidies would help their situation.

Transportation Infrastructure in the West Bank Must be Improved. Participants discussed multiple improvements they desired to be made to their transportation infrastructure. Most preferences related to improved road quality.

"The roads are terrible. They want them to be much better. The roads are not evolved. Even inside Ramallah the roads are in bad shape. [They are] outdated and unpleasant to travel on."

–Male commuter

"Better roads—the roads are broken and have holes."

–Female commuter

"Separate routes for truck and private travel. All vehicles share roads: big rigs, buses, big cars, and all cars. They want more roads for separating the cars."

–Female commuter

"One person suggested that Ramallah should have private cars in its streets, only public, to ease congestion and improve safety because the roads are so small."

–Female commuter

"They want a highway to get to places like Nablus and other far away cities in a shorter amount of time."

–Female commuter

Many of the expressed preferences for road improvements were justified by a desire to reach places more efficiently. Repairing poor quality roads, separating traffic to allow for smaller vehicles to avoid slow moving, larger vehicles, and adding roads in the form of highways to link cities are all actions participants suggested to meet travel efficiency needs.

Travel Services in the West Bank Must be Improved. Discussions of improved transportation infrastructure were closely followed by needed improvements for the travel service system offered in the West Bank. Participants discussed improvements they wanted for the existing system and also additions to the system that would truly make it function as a mass transit service.

"Mass transit services that come on a consistent schedule. Now, the Ford buses don't travel until they are full of people, so people sometimes sit waiting for a long time."

—Female commuter

"Mass transit that is provided by the government so that it becomes a guaranteed public service. Now the mass transit is private and the workers work for themselves so that sometimes the riders luck out of good service."

–Female commuter

"People are worried to travel late into the evening because the Fords stop running at a certain time, around 7:00 pm. They worry about not being able to get home if they miss the service. They always have to hurry to get to the buses on time. Prices for traveling at night also go way up. They don't want to have to work around the transportation. [They want] public transportation that works for us and not for the private companies. In the U.S., buses travel with or without passengers. The schedule is fixed."

–Female commuter

"More mode choice to additional travel alternatives if one is down. They want more than one way of getting between the main roads and villages. They want alternatives."

–Male commuter

The preference for improved travel services is coupled with a desire to escape the uncertainty and inefficiency of the current services. Participants brought up that a lack of scheduling and centralization by the government hurts riders because they have no other travel alternatives.

Palestine Needs an Airport. One female participant brought up a preference to have an airport located within Palestine's borders so that Palestinians could avoid traveling to use Jordan's airport in Amman for their international travel needs in the future. She said the addition would save Palestinians time, expenses, and energy.

"We want an airport in Palestine. We can save money because we won't need to go through Jordan. When you go through Jordan, you have to leave one day before your trip and then stay in a hotel. You will also save a lot of energy."

–Female commuter

Palestinians Need More Domestic Destinations for Entertainment. The final preference theme relates to a comment made by a single female participant who said that she would prefer to have more things to do in the West Bank in the future. Destinations for entertainment including places like restaurants, shopping districts, performance halls, and congregation areas mostly only exist in the urban cities. Palestinians must travel distances and cross travel barriers to get to them, which makes access to them a nuisance. Although, the female participant particularly complained that the number of entertainment opportunities were currently too low.

"Life here is also boring, there is nothing to do. We need more places here for entertainment."

–Female commuter

Her concern about increased entertainment opportunities relates to a desire to increase Palestinian well-being by promoting more recreational opportunities.

5.4 QUALITY ASSESSMENT

Other than beginning the visioning discussions with each commuter group using the same open-ended questions about future capabilities and transportation preferences, I did little else to influence the direction of the visioning process. My intention was to interfere as little as possible so that participants felt confident to reveal honest

preferences without fear of judgment. As a result, the identified visioning preferences I summarized in the previous section are representative of participant's values based on their own experiences. Some preferences are shared across commuter groups, while others are not; some portray broad goals, while others are more specific; and some preferences relate to capabilities that are not enabled through accessibility related improvements. The unrestricted quality of this method necessitates follow-up evaluation to ensure that responses meet sustainability criteria to fit within the framework of the study. To evaluate the visioning preferences of study participants, I translate a set of ten sustainability quality criteria identified by Wiek and Iwaniec (2013) to take into account this study's central concepts, which include: accessibility, capabilities, and well-being.

Table 5.2 summarizes all features of the ten quality criteria, including those synthesized from Wiek and Iwaniec's publication and those iterated to recognize the study's subject area. The West Bank transportation system vision this chapter ultimately synthesizes from stakeholder preferences meets all quality criteria.

Table 5.2

Sustainability Quality Criteria for Visions

Quality Criterion		Synthesized Features from Wiek and Iwaniec (2013, pg. 500)	Iterative Features to Match Study Topic
Normative quality	Visionary	Desirable future state with elements of utopian thought, far-sightedness, and holistic perspective	Describes a desirable future state for Palestinians living in the West Bank that may begin within the next few years or following decades; excludes narratives of past grievances
	Sustainable	In compliance with sustainability principles	In compliance with Gibson's (2006) sustainability assessment criteria; promotes immediate and long-term development that provides equitable opportunities
Construct quality	Systemic	Holistic representation; linkages between vision elements	Preferences relating to individual parts of the desirable future state maintain connectivity with other stakeholder preferences
	Coherent	Composed of compatible goals that are free of irreconcilable contradictions	N/A
	Plausible	Evidence-based	Preferences are plausible if they benefit Palestinians in the West Bank without being detrimental to other populations
	Tangible	Composed of articulated and detailed goals	N/A
Transformational quality	Relevant	Composed of salient goals that focus on people, their roles, and responsibilities	Relates to the population's accessibility, capabilities, and/or well-being
	Nuanced	Detailed priorities to reveal desirability	The vision is presented in such a way that reflects value-laden measures for preferences
	Motivational	Inspire and motivate towards the envisioned change	N/A
	Shared	Display a critical degree of convergence, agreement, and support by relevant stakeholders	All stakeholders' preferences are represented in the vision; preferences shared by more than one stakeholder have a stronger influence on the vision

Note. Synthesized features are taken verbatim from Wiek and Iwaniec (2013). Iterative features are additional features relating to the quality criteria that the vision for the transportation system in the West Bank must also include. Not all criteria require iterative features added to the synthesized features.

5.4 WEST BANK TRANSPORTATION SYSTEM VISION

Shared stakeholder vision comprised of qualitative, long-range goals to be met by the West Bank transportation system

I. Functional and Efficient Access to Desired Destinations

The ability of all Palestinian residents, regardless of age or gender, to timely reach destinations of their choosing domestically within the Palestinian Territories (includes Gaza and East Jerusalem) and internationally (i.e. Israel and Jordan) under universally accepted travel requirements.

1. Sanction the removal of Israeli travel barriers, physical and legal, because they make access difficult by inducing travel fears, extending travel times, and barring access to destinations.
2. Ensure that income levels do not dictate access.
3. Secure the individual freedom to choose places to access and participate in associated activities including places of residence, employment, healthcare services, and educational institutions.

II. Sufficient Travel Services

Services that support domestic and international travel in a reliable and timely fashion.

1. Establish taxi service schedules so departure and arrival times are certain.
2. Provide continual service to allow for travel outside peak hours and days.
3. Build an international airport within the West Bank to facilitate international travel and tourism.

III. Quality Transportation Infrastructure

Infrastructure that supports all available modes of transportation and commuter flows.

1. Repair and maintain existing infrastructure to decrease travel hazards.
2. Expand existing road network to meet heavier traffic flows, provide quicker access to urban cities, and introduce infrastructure to places where it is lacking.

Figure 5.1 Stakeholder Vision for the West Bank Transportation System

Stakeholder visioning preferences, which were presented in Section 5.3, were evaluated using the quality criteria (Table 5.2) as a guide for inclusion in the final vision. Preferences were only included in the vision (Figure 5.1) if they increased or maintained the quality of the entire vision. As a result, some preferences were combined with others into summarizing statements, and others were excluded altogether. The final stakeholder vision for the West Bank transportation system is comprised of three main qualitative goals: to achieve (1) functional and efficient access to desired destinations, (2) sufficient travel services, and (3) quality transportation infrastructure. Each qualitative goal is supplemented by two or three action proposals to meet specific desired outcomes discussed by the stakeholder groups.

The vision meets the normative quality criteria by presenting goals that are visionary and sustainable. All three goals necessitate the lessening of occupation related barriers or extensive internal planning for development, which require time. While aspects of each goal may be achieved in the more immediate future, like the repair of existing roads, full realization of all goals requires long-term action and political shifts. In fact, a shift in political circumstances is a limiting factor to aspects of all three goals and may make the timeline for goal attainment relatively uncertain. Even so, the goals represent an ideal vision for the future since the current political situation is universally undesirable for Palestinians. The goals and associating actions also comply with sustainability principles. They promote sufficient opportunity for quality livelihoods and intra- and intergenerational equity; they also plan for immediate and long-term integration of development practices for sustainable outcomes (Gibson, 2006). The first

vision goal of "functional access to desired destinations" is further bolstered by the following two goals, and when achieved, they all offer West Bank residents the opportunity to access destinations in order to lead fulfilling lives.

In order to meet the construct quality criteria, some stakeholder preferences needed to be excluded. For example, in order to maintain a systemic quality, I did not include a preference described by a female commuter to increase recreational opportunities in the West Bank because the preference did not relate to any other discussed preferences. As previously mentioned, the three included vision goals relate to one another (providing sufficient travel services and quality transportation infrastructure increases functional access to destinations), which makes for a holistic and systemic representation of a desired future state. To maintain coherence, I excluded a preference discussed by the taxi service drivers to increase their income through possible increases in ridership fees because doing so directly conflicts with the included action to "ensure that income levels do not dictate access". Everything included in the vision does not promote conflicting ideas. The two other construct quality criteria, plausibility and tangibility, were maintained without necessary exclusions. Although they were not all included for other reasons, every preference revealed during the group interviews represented reasonable goals given current circumstances

The final criteria, the transformational quality criteria, were maintained mostly by how I presented the final vision. Most revealed preferences were relevant to the topics of accessibility, capabilities, or well-being. However, I excluded a few because their relevance was loosely related. For example, the taxi service drivers discussed how they

would like their profession to garner the same laudable reverence it did in the past, which would then influence other career benefits to increase their well-being. However, because the connection to well-being was not direct, I excluded the preference from the vision. Nuances are reflected in the vision by the order of appearance for each listed goal and action. The first goal, "functional access to desired destinations", was discussed first and usually for a large chunk of time by all stakeholders during the group interviews. I could tell that they deeply desired changes to occur in order to reach the goal. Shared preferences also factored into how I listed the goals and their associating actions. The more shared a preference was among stakeholders, the higher its placement in the vision. Lastly, I consider the vision to be motivational in that it discusses actions that may lead to proposed goals. The vision is a positive projection of the future in the West Bank for when the proposed goals have been met. I further discuss uses of the vision in the following section.

5.6 USING THE VISION

Visions may be used for development in many ways that are often inclusive. According to Wiek, "sustainability visions are key components of transformational sustainability research because they provide guidance and orientation for actions, policies, and investments" (2011, pg. 7). Similarly, Remington-Doucette (2013) said visions may be used to motivate and inspire transitions, guide and direct change, and promote long-term thinking. In this research, the stakeholder vision for the West Bank transportation system is operationalized using the three qualitative goals it presents. Specifically, the qualitative goals presented in the vision represent targets to attain using

intentional actions that are identified in upcoming chapters. Such an approach is known as "backcasting". Backcasting is achieved by generating a desirable future and then looking backwards to strategize possible pathways to achieve that future, beginning in the present time (Vergragt & Quist, 2011). The method is oriented to use visioning since visioning synthesizes desirable future states. Outside this research, the vision is useful to suggest and support new intervention points and transition strategies that are capable of attaining the goals it identifies.

5.7 CONCLUSION

When I decided to interview Palestinian commuters in addition to field experts, the decision was made in an effort to give a bigger group of stakeholders the ability to influence the usable deliverables my research aimed to create. With visioning, the inclusion of stakeholder opinions allowed stakeholders the ability to choose their future goals rather than allowing me to impose goals. This chapter presents a future vision for the transportation system in the West Bank, and that vision is entirely influenced by the voices of a sample of Palestinian residents. Although the participating sample was small, an important take away is that they illuminated experiences and desires for improvement that most Palestinians can relate to and that many outsiders can understand and accept.

If the presented vision becomes a reference for future planning in the West Bank, this study's method for stakeholder engagement may become an example of successful governance from the bottom up. I briefly mentioned in this chapter that I met some cynicism from my commuter groups when I first asked them to envision a future for the West Bank. The reaction was in response to a commonly held understanding that the

political powers most responsible for their situation care little about their preferences. In the developing world, visions present goals that meet strong challenges. Such challenges may be even more pronounced in regions with conflict. In a place like the West Bank that is currently occupied by a foreign nation, residents are aware that they do not have significant governance power. An interesting exploration for future studies would be to consider and describe how resident awareness of the limited influence they have on a situation affects the visioning process. I am unable to determine if the desires expressed during my group interviews were entirely honest or if they were constrained by predisposed notions of what is and is not possible in the West Bank Case.

CHAPTER 6

TRANSITION RESEARCH FOR A REGION IN CONFLICT

6.1 INTRODUCTION

Sustainability transitions represent "a profound change in the way an existing socio-ecological system functions to meet the needs of society [and] promote healthy ecosystems, human well-being, and viable economies" (Remington-Doucette, 2013, pg. 332). Transition research aims to identify strategies that result in the kind of transition the previous definition identifies. However, the existence of conflict in a region necessitates a different approach to transition research. Transition research in regions riddled with conflict must take into account that conditions threaten development strategies in multiple ways. As a direct threat to transitions, conflict destroys human lives, capital, infrastructure, and surrounding environments (Kates & Parris, 2003). Conflict also acts as an indirect threat to transitions by "diverting needed productive resources, increasing exploitation of natural resources, and encouraging 'fortress worlds,' where personal security dominates concerns for common good" (Kates & Parris, 2003, pg. 8062). Collier et al. (2003) more succinctly describes the effect conflict has on situations by depicting conflict as "development in reverse" because it leads to widespread economic and social disaster. For these reasons, transition research aiming to create development strategies "should look different in countries facing a high risk of conflict, where the problems and priorities are distinctive" (Collier et al., 2003, pg. 6).

The existing conflict in the West Bank due to the Israeli Occupation complicates transition research such that traditional approaches need amending. Current conflict

conditions impede development strategies to an extent that an optimal transition may be partially or entirely blocked from happening. Much has been published on how to accomplish sustainability transitions (Grin, Rotmans, & Schot, 2010; Kates & Parris, 2003; Smith & Stirling, 2008; Wiek, 2011). Since little exists on how to accomplish sustainability transitions in conflict zones, this research looks to existing methods as a stepping stone to uncover when to deviate in order to account for the conflict conditions in this study's region. Wiek (2011, pg. 7) highlights research on strategies, action programs, implementation, potential barriers, critical success factors, and critical alliances to accomplish transition research for sustainability. I consider most of these relevant to the transition research needed for my study. However, particular emphasis is placed on potential barriers because conflict conditions give barriers a particularly strong influence on transition strategies. In order to understand barriers, Kates and Parris (2003) suggest research on long-term global and regional trends since they affect transitions to sustainability by either making them more feasible or difficult to attain. Since my research is concerned with a particular place, my assessment focuses on trends that are most relevant to the West Bank, which are those on a more regional level. A focus on trends gives transition research the ability to use development to accelerate trends that favor a transition and slow trends that impede a transition (Kates & Parris, 2003). Traditional transition research also discusses the importance of including local populations in assessments to identify ways they can contribute to altering their situation (Kates & Parris, 2003). Again, this goal is altered by conflict since it requires engagement with populations who are not used to working together to cooperate in order

to determine strategies and proceed with action. Collier et al. (2003) point out that cooperation for development between multiple actors in conflict zones has not been common practice.

This study has two distinct goals to accomplish through transition (or intervention) research: to identify and discuss types of transitions that may (1) be presently initiated given current conflict conditions and (2) lead to gains in accessibility and well-being. Neither of the two goals is entirely achievable using traditional transition research frameworks because they do not attest for conflict conditions. The central question guiding this chapter asks how conflict conditions affect probable transition strategies. To answer this question, I combine empirical information I gathered from my field research, including discussions with my sample of experts and field observations, with information gathered from the literature to describe how specific transitions issues should be assessed based on conditions in the West Bank. The assessment lends to the construction of the Attainability/Benefit Criteria (ABC), which address the lack of consideration for conflict in the transition research framework (TSR) so that it may specifically apply to the West Bank Case.

6.2 ATTAINABILITY/BENEFIT CRITERIA FOR TRANSITION STRATEGIES

In response to the need to apply transition research to the West Bank whilst taking the area's conflict condition into consideration, I determined and defined the ABC. The criteria represent specified areas of assessment to consider for any probable transition strategy aimed at achieving gains in accessibility and well-being. They are meant to be used in conjunction with traditional assessment for transition research. The criteria aid in

determining whether a probable transition strategy is both attainable, given the current state, and provides an expected benefit.

The ABC, summarized in Table 6.1, are region and type specific, meaning they are only applicable for assessment on probable transition strategies relating to transportation development that aims to improve accessibility and well-being in the West Bank. The chosen criteria represent traditional areas of assessment for transition research, including: barriers, assets, implementation phase considerations, and strategic planning. The current state analysis and vision presented in previous chapters along with additional information gathered from expert interviews, observations, and other literature are referenced to define the criteria to match the West Bank Case. The ABC include six distinct criterion: (1) conflict barriers, (2) available assets, (3) cost, (4) influence on the system, (5) demonstrated need, and (6) gains in accessibility and well-being. The first three criteria assess the attainability of probable transition strategies whereas the final three criteria assess the expected benefit of probable transition strategies. Given the current conflict conditions, the attainability criteria are weighted more heavily because a transition strategy that is assessed poorly in those areas may not come to fruition. However, this might not always be the case, especially if conflict conditions improve in the future. This section describes each criterion and its associated qualitative measures in detail.

Table 6.1

Attainability/Benefit Criteria

	Criteria	Description	Qualitative Measures
Attainability criteria	Conflict barriers	Political and/or institutional barriers associated with the Israeli Occupation that may slow or block the implementation of transition strategies	Using IAF's (2014) "aspirational futures" approach to scenarios, determine the extent to which barriers will allow for successful implementation.
	Available assets	Aspects of a transition strategy that promote a transition; physical assets include resources, technology, and expertise; abstract assets include time, capability, and the use of methods that are tested and proven effective	Physical assets are assessed by their presence and expected effect on the transition; abstract assets are assessed according to expert rankings for manageability and intervention preference.
	Cost	The monetary value and resources needed to implement a transition strategy; also includes the availability for international or domestic funding opportunities to assist implementation	Cost and resources are determined by comparative levels as being low or high. Funding availability is determined by the level of funding already granted or by the probability of funding to be expected.
Benefit criteria	Influence on the system	The scope of a transition strategy's influence on the system of drivers perpetuating poor accessibility and well-being in the West Bank	If transition strategies address general drivers that have a higher influence ranking according to expert opinion, then they are expected to have a larger influence on the system; using the influence grids from Chapter 4, a more in-depth analysis may be gained by looking at the subcategory of driver a strategy addresses and considering the number and kinds of influences related to the driver.
	Demonstrated need	A transition strategy supports regional development goals by meeting the needs of the local population.	The transition strategy addresses one or more of the qualitative goals presented in the future vision from Chapter 5; strategies that more strongly address needs receive priority.
	Gains in accessibility and well-being	A transition strategy supports gains in regional accessibility and well-being.	Predicted gains in accessibility should be descriptively provided using Geurs and van Wee's (2004) categories for accessibility measures; predicted gains in well-being should be descriptively provided according to opportunity (Nussbaum's central capabilities) and achievement (Human Development Index); strategies that support greater gains in accessibility and well-being receive priority.

6.2.1 Conflict Barriers

Barrier assessment is possibly the most important criteria to consider in regions of conflict. Barriers are the "road blocks" to accomplishing action. They are at the heart of the challenges faced during a transition (Remington-Doucette, 2013). Barriers are specific to the implementation phases of transition strategies. Strong barriers may stop implementation right from the beginning, but even weaker barriers have significant influences and may hinder implementation later on in the process (Remington-Doucette, 2013). Multiple types of barriers exist. Remington-Doucette (2013, pg. 369) discusses technical (e.g., infrastructure, buildings, equipment), natural (e.g., resources, weather), human (e.g., skills, knowledge, capabilities, labor), financial (e.g., money, property), cultural, political, and institutional barriers. Although additional kinds of barriers are represented in other ABC criteria (like cost), barriers related to conflict require particular attention because of their dominant effect on the transportation system and past and future interventions in the West Bank.

Interviewed experts often commented on the difficulty associated with conflict barriers.

"[The conflict is] a constraint; whatever solution we can come up with, the Occupation can make it inefficient."

–Expert #2

"No other issue is on the same level in terms of its threat to Palestine. Palestinians can't change policy made by Israel."

–Expert #3

"I don't think this situation can be determined or understood without associating it with the political context. They used to identify occupation as controlling roads and borders, which translates to controlling movement of people inside the areas."

–Expert #4

Experts #2 and #3 expressed the strength of general conflict related barriers by saying the conflict is capable of making development become ineffective and that the conflict affords Palestinians little influence on Israeli policy respectively. Meanwhile, Expert #4 links occupation policy directly to transportation by saying the intention of an occupation is to control by restricting movement, which makes occupation a strong barrier particularly for transportation development.

According to Kates and Parris (2003), trends associated with peace and security are of particular interest to sustainability transitions. Trends associated with increases in conflict or oppositely, trends associated with conflict reduction should be examined. Accessibility in the West Bank severely declined during the second Intifada at the turn of the 21st Century, which was a period of heightened conflict between Palestinians and Israelis. Many transportation grievances existent today, like the widespread use of internal checkpoints, can be traced to that period of time. The West Bank transportation system is inextricably linked to the conflict. While this research does not focus on further examining and defining the link between political conditions and the transportation system in the West Bank, it must account for the relationship to make transition research applicable for the case.

Conflict barriers can be considered political and institutional. Their existence slows trends in transportation development at varying degrees, which should be determined when choosing to implement strategies. A helpful qualitative measure of the expected effect for identified conflict barriers is the use of scenario construction. IAF's (2014, pg. 6) "aspirational futures" approach to scenario construction (Figure 6.1) helps to clarify where trends may take a system and what success might look like. The approach displays the range of achievable success given the expected challenges in a scenario. According to the approach, there are three possible outcomes. The most likely outcome is the "zone of conventional expectation" where challenges are experienced and met so that plans for intervention are sufficiently successful. The more positive but less likely outcome is the "zone of high aspiration" where challenges are either few or easy to overcome so that a surprising level of success is achieved. On the opposite spectrum is the "zone of growing desperation", which represents an outcome where challenges overtake achieved success of the intervention. As part of the ABC, the approach is useful as a qualitative measure for conflict barriers. After defining conflict barriers associated with a transition strategy, it should be determined whether or not the barriers are capable of barring the success of implementation. Conflict barriers that allow for levels of success are considered more presently attainable.

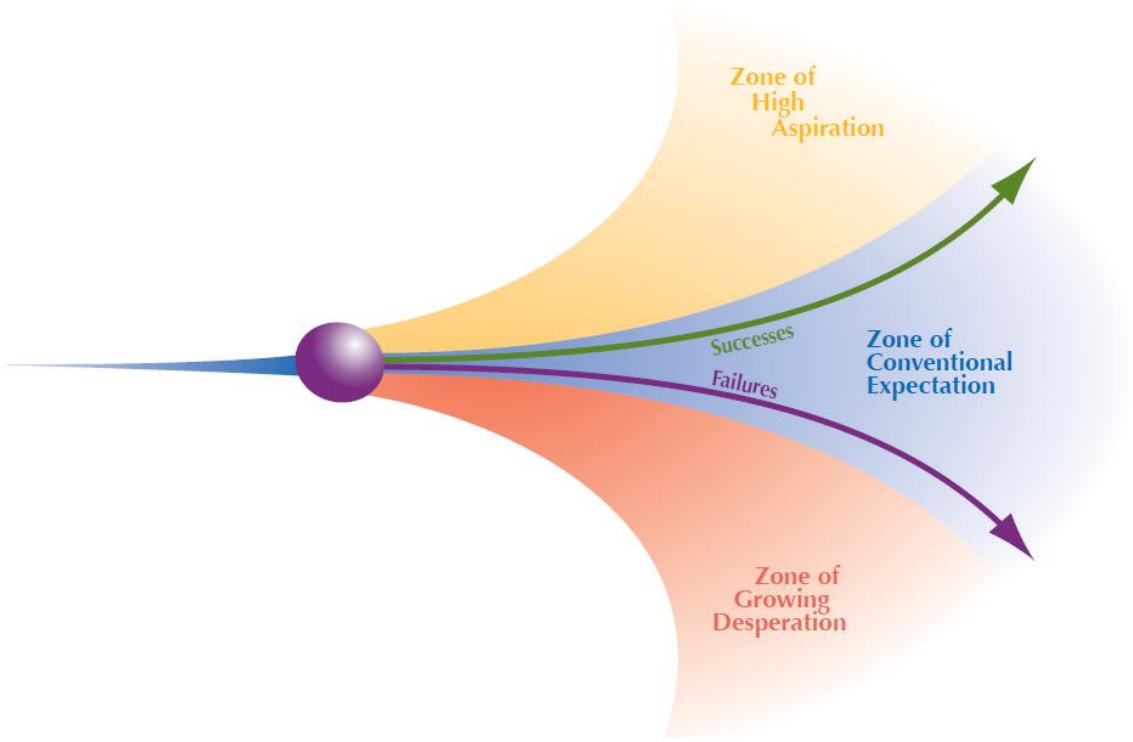


Figure 6.1 Aspirational Futures Approach (IAF, 2014)

To demonstrate how such an assessment may occur, many existent transportation transition strategies fall within the range of "conventional expectation" or "growing desperation" because of conflict barriers. For example, Expert #3 discussed the status of water and air travel for Palestinians:

> *"Infrastructure with air and water are very much restricted because of the Israelis. We have an airport in Gaza and Qalandia, we can't use either. They started to build a sea port in Gaza in partnership with the Netherlands but it was damaged."*

He describes how efforts to develop travel by water and air were thwarted by Israel through the damage of infrastructure or through political restrictions. Further

consideration for increased development in these areas would have to take into account that added infrastructure may become intentionally damaged, causing the failure of the strategy, or the use of the infrastructure may become limited due to political restrictions, which delays the success of the strategy. The same expert brought up another instance where the success of a strategy was delayed due to conflict barriers.

> *"The Netherlands funded a project to install scanners on trucks as they travel to be cleared quicker [at checkpoints]. Israel initially agreed on the concept but prolonged approval. They are reluctant to accept it. There was a bid and an awarding of the bid to supply the project but Israel said to stop and wait until the end of the next year, because they claimed they could not give an answer until then. The project is now left up in the air."*

The conflict barrier for the freight scanner project was that it required Israeli approval, which has still not been granted. At the time of this writing, the barrier is still delaying the success of the project. Transition strategies that require considerably less cooperation with Israeli forces are more attainable, which Expert #6 reiterates with additional examples:

> *"The first two [roads and transportation infrastructure] we can solve if we have good ideas and the last [checkpoints], I give it to God to solve."*

Expert #6 displays a degree of exasperation when considering the possibility of removing checkpoints, which have a high association to the Occupation and conflict. Expert #2 also echoed exasperation over what Palestinians are actually capable of doing to make their transportation situation better.

"Problems of travel between cities and out of the country [are] beyond whatever engineering solutions we could provide. On top of that, whatever we could put could be rendered useless."

6.2.2 Available Assets

Assets are the "beneficial and valuable aspects of a system that already exist and can be used to 'get things done' in ways that promote the desired transition" (Remington-Doucette, 2013, pg. 369). Like barriers, multiple types of assets exist, including but not limited to the same categories presented for barriers in the previous subsection. The evaluation or assets associated with a transition strategy allows for an understanding of existing aspects of a system that could be used to promote a desired transition (Remington-Doucette, 2013). Instead of blocking or delaying success like barriers do, assets have a catalytic effect. Their presence has a positive reinforcing effect on transition strategies.

The kinds of assets the ABC are concerned with are those that can make transition strategies aimed at improving accessibility and well-being in the West Bank more attainable. Such kinds of assets may be categorized as *physical* or *abstract*. Physical assets that may increase the success of transition strategies include things like available resources, technology, and expertise. Just as for barriers, cost is a physical asset that is excluded. Cost makes up its own ABC category and is explained in the following subsection. Physical assets are qualitatively measureable by their presence in a transition strategy. However, different kinds of physical assets do not affect a strategy in the same magnitude. For example, resources are more important for road repair or development

while expertise is more important for planning; and more of a type of asset might not necessarily mean that there is an equal increase in its catalytic effect. The expected effect of an asset should be fully understood and defined for a probable transition strategy.

In addition to physical assets, there are abstract assets available for transition strategies in the West Bank Case that are measured differently from physical assets. Abstract assets include transition strategies that employ methods that have already been tested or proven to be effective. Time is another abstract asset. A transition strategy that does not take long to implement allows for benefits to be more timely realized. To qualitatively measure abstract assets, the ABC employs a ranking system (Table 6.2) based on the opinions of the experts interviewed for the study. During my expert interviews I asked experts to list system drivers they found to be separately the most manageable and their preferred point of intervention. Experts determined the manageability of drivers based on the time needed to complete projects and the capabilities of Palestinian stakeholders to direct projects, as these comments display:

"Travel behavior is under our jurisdiction and it has the lowest turnaround of time to benefit"

–Expert #1

"We have some control of travel within cities. The problems we do have within cities are because of poor planning or operations. There is a serious problem with regulations and the enforcement of the regulations that have nothing to do with the Israelis."

–Expert #2

"Policy can easily be changed by the government, and it can facilitate the other aspects. On the individual level, it's the behavior, although they are linked together. You can affect the accessibility issue by dealing with these sub issues."

–Expert #3

"The government has to be responsible for initiating action. We have a structure already that is set up to facilitate the necessary actions that need to take place. We have a Ministry of Transportation."

–Expert #6

The driver that experts determined to be the most manageable was PA policy and its associated sub-drivers (refer to Chapter 4 for the complete list of drivers). Travel behavior and transportation infrastructure drivers were ranked closely after PA policy. When it came to discussing preferred intervention points, experts chose intervention points based on their knowledge of current efforts to improve accessibility and well-being through transportation development. Some of the efforts they discussed were well underway to achieving their established goals while others already had the support necessary to continue along the projects. The experts' ranking for preferred intervention points gives an idea of which areas to focus transition strategies on based on the clout of projects currently underway.

Table 6.2

Manageability and Intervention Rank

Rank	Most Manageable Driver	# Times Mentioned n = 8	Rank	Preferred Intervention Point	# Times Mentioned n = 8
1	Policy - Palestinian National Authority	6	1	Transportation Infrastructure	19
2	Travel Behavior	4	2	Policy - Palestinian National Authority	10
3	Transportation Infrastructure	3	3	Travel Behavior	4
4	Physical Characteristics	1	3	Policy - Israel Occupation Force	4
			5	Physical Characteristics	2

Note. Driver rank is based on the number of times the driver was mentioned by interviewed experts in each category. Although eight experts were interviewed, each was permitted to list an unlimited number of drivers for each category based on his/her own opinions and experiences.

The ranking scheme may be used to assess the abstract assets associated with probable transition strategies because those that address drivers in the higher ranked categories may benefit from qualities gained by their associated abstract assets (expedited time and sufficient capability for action for manageable drivers; tested and proven effective for preferred intervention point drivers).

6.2.3 Cost

The cost for implementation and maintenance of transition strategies is important to consider in the West Bank, which is why it appears as a separate criteria. As previously mentioned in Chapter 4, development plans that are oriented to present conditions are constrained by limited PA resources and funds.

> *"Everything in Palestine is dependent on funding issues. We may have plans, but we need the money to implement them."*
>
> *–Expert #6*
>
> *"[…] funding for development in the public sector—I put this as a problem for the PA and its policies. It's also a problem for the [development of] travel infrastructure."*
>
> *–Expert #7*

Monetary and resource deficiencies are perpetuated by conflict conditions. In 2013, the UN reported the State of Palestine (the figure includes the Gaza Strip) to have a GDP of $10.3 billion, which makes the territory rank near the bottom fourth of reported countries between the figures for the African countries of the Republic of Mali and Chad respectively (UNSD, 2014). Because the region's economic capability is so low, cost is a

limiting factor for transition implementation. Cost levels of probable transition strategies, whether they are "low" or "high", should be determined to assess the attainability of the strategies. Costs are considered "low" if they are comparatively smaller than those of other strategies.

The cost criterion also takes sources of funding into account. To alleviate resource and monetary deficiencies, the PA often looks to foreign sources of funding and aid to complete projects initiated domestically and internationally. Measures of expected costs and probabilities for funding must both be considered to give an appropriate sense of whether transition strategies that are implementable. Low cost implementations may be preferred; however, strategies that have a higher cost but a good chance to receive funding may also be viable.

6.2.4 Influence on the System

The first of three ABC that may be used to assess the benefit expected through transition strategy implementation relates to how the strategy influences the system driving conditions of poor accessibility and well-being in the West Bank. Transition strategies generally aim to address one or more drivers to the problem at a time. Strategies with larger scopes will address a greater number of drivers or a selected set of drivers that influence the system strongly. Drivers that strongly influence the system directly or indirectly affect many other drivers in the system. Understanding which driver is targeted by a probable transition strategy and how actions made to alter that driver may cause cascading effects throughout the system are important considerations for systems thinking and sustainability research (Grunwald, 2004; Meadows, 2008;

Wheeler, 2014). Determining the influence of a transition strategy on the system may aid in strategic planning for desired outcomes.

There are two ways to qualitatively assess how transition strategies targeting certain drivers in the West Bank Case affect the entire system. Both ways use empirical information acquired by research from this study and require the identification of the driver/s the proposed transition strategy targets. Like the ranking system used to assess assets, the first method suggests an analysis based on a ranking system of expert opinions regarding driver influences. During interviews with my expert sample, I asked them to rank the strongest and next strongest driver in the entire system of poor accessibility and well-being in the West Bank using the major driver categories I defined on my draft system map (Appendix D). Experts mostly reached agreeable consensus for each category, naming drivers associated with IOF policies as the strongest and those associated with transportation infrastructure as the next strongest drivers in the system. With this ranking scheme, if the probable transition strategy addresses IOF policies or transportation infrastructure, the strategy may be expected to have considerable influence on the system. On the other hand, Figure 4.8, which depicts the strength of influence that the fiver major categories of drivers have on the system, may be used for the same purpose except that it is based on casual relationships rather than expert opinion.

Table 6.3

Rank of Driver Influence to the System

Rank	Strongest Driver in the System	# Times Mentioned n = 8	Rank	Next Strongest Driver in the System	# Times Mentioned n = 8
1	Policy - Israel Occupation Force	8	1	Transportation Infrastructure	6
2	Transportation Infrastructure	1	2	Physical Characteristics	2
			2	Travel Behavior	2
			2	Policy - Palestinian National Authority	2

Note. Driver rank is based on the number of times the driver was mentioned by interviewed experts in each category. Although eight experts were interviewed, each was permitted to list an unlimited number of drivers for each category based on his/her own opinions and experiences.

The first method may be used if only general information about the drivers a transition strategy affects is known. However, the second method increases the depth of analysis from the first method because it addresses driver influences on a more refined scale by assessing driver subcategories. The second method of assessment uses the driver influences defined at the subcategory level in the influence charts developed in Chapter 4 and shown in Appendix E. Using this method, the influence of a driver on the system may be assessed given the number of influences the driver has on other drivers in the system. A greater number of influences means that the driver has a stronger influence on the system. The charts may additionally help to assess how interventions may affect the system. Improving a driver that has a negative influence on another driver may also improve the other driver and so forth.

Ideally, the use of either of the two qualitative methods to understand the influence of probable transition strategies helps to define the scope of a strategy. Some strategies may have the ability to affect more or less than their original intent in both positive and negative ways. Defining the expected influence enables other strategic considerations to be made before and during implementation procedures.

6.2.5 Demonstrated Need

An important measure for any probable transition strategy is to determine if the strategy supports regional development goals by meeting the needs of the local population. Needs are contextually significant, and they exist for a variety of reasons in any given region. It may be that a physical or institutional gap exists in a service, which would dictate a need that specifically addressed filling the gap (Xiong, 2013). It may

also be that a probable transition strategy tackles a particularly strong intervention point within a system, which may lead to significant strides within system deficiencies (Xiong, 2013). In any case, sustainable development dictates that goals and targets created to address needs collectively map the sustainability values of a region (Wiek, Withycombe, & Redman, 2011). In a conflict setting, it is especially important that goals consider multiple viewpoints (Kurtz, 2008).

Although many formally recognized development goals for the transportation system in the West Bank exist (e.g. RAND Corporation and USAID transportation sector development goals), I consult the vision goals I presented in Chapter 5 to suggest a way to measure the demonstrated need of probable transition strategies because the goals specifically address desired improvements for accessibility and well-being in the West Bank and they were compiled using input from multiple, commuter, stakeholder group representatives. The vision presented in Chapter 5 offers three main qualitative goals for transportation development to achieve: (1) functional and efficient access to desired destinations, (2) sufficient travel services, and (3) quality transportation infrastructure. Probable transition strategies should address one or more of the goals in order to argue that they demonstrate consideration for a specified need. Probable transition strategies that strongly address an identified need may be considered to be higher priority than strategies that do not as strongly address an identified need.

6.2.6 Gains in Accessibility and Well-being

The final criterion relates to the expected gains in accessibility and well-being that implementation of probable transition strategies may contribute. This criterion is

particularly relevant to this study because it focus on accessibility, which is transportation for a purpose, rather than mobility. Kates and Parris (2003) imbed characteristics of accessibility and specifically include well-being within the ten classes of trends they suggest should be monitored to perform an impact-based assessment for sustainability transitions. Transition strategies that fail to recognize the connection between transportation development and expanding capabilities do not meet study requirements to provide the intended benefit of improving accessibility to affect human well-being. Like the previous criterion, which discusses the extent to which probable transition strategies meet demonstrated needs, strategies that are expected to provide greater gains in accessibility and well-being should receive priority consideration for implementation.

Concepts of accessibility and well-being are often times mentioned congruently because access to destinations that provide benefit enable increases in well-being. However, a large body of discrete literature exists for qualitative measures for each topic. To help determine expected gains in accessibility, this study consults the four accessibility measures identified by Geurs and van Wee (2004). They include: (1) *infrastructure-based* measures to analyze the performance or service level of transport infrastructure, (2*) location-based* measures to analyze accessibility at locations on a macro-level scale, (3) *person-based* measures to analyze accessibility at the individual level, and (4) *utility-based* measures to analyze the economic benefits that people attain from access to various activities (Geurs and van Wee, 2004). Expected gains in accessibility should be expressed descriptively as estimates for each measure where appropriate. To help determine gains in well-being, this study consults two sources: one

that concentrates on measurements for capabilities and another that concentrates specifically on achieved well-being measurements; this is because the kinds of transition strategies this study considers particularly affect opportunities for capabilities rather than well-being directly, although improved well-being is the ultimate goal. Improvements in well-being are the intended side effect of increased capabilities through access. Therefore, a measure of both opportunity and achieved well-being are pertinent. To assess capabilities, this study consults Nussbaum's (2011) list of ten capabilities central to human well-being, which includes life, bodily health, bodily integrity, thought, emotions, practical reason, affiliation, other species, play, and control over one's environment. To assess well-being, this study consults the Human Development Index, which reports a summary of average achievement in key dimensions of human development (UNDP, 2014). Like the assessment for accessibility, expected gains in capabilities and well-being should be expressed descriptively as estimates for measures that are appropriate to the transition strategy being assessed. It is worthwhile to mention that descriptive measures that determine gains in accessibility and well-being are often directly proportional. Therefore, gains in accessibility may support a claim for expected gains in well-being or vice versa.

6.3 APPLYING THE CRITERIA

The ABC cover a diverse range of requirements. The challenge for probable transition strategies in the West Bank Case is to adhere to all ABC. In reality, it is likely that previous strategies that were successfully implemented for the West Bank Case did not meet all or even the majority of the criteria. As a result, the ABC should not be

utilized as a method for ruling out the use of a probable transition strategy. Instead, the set of criteria should be used to distinguish weak aspects of a strategy so that they can be further developed or changed. The intended purpose of using the criteria is to best ensure that transition strategies are successful in achieving goals deemed appropriate given the harsh political climate of the West Bank.

Another consideration for application of the criteria is that they should be weighted differently. Given the current status of conflict in the region, the "attainability" criteria are more important than the "benefit" criteria when it comes to predicting if probable transition strategies are capable of being successfully implemented. The conflict conditions in the West Bank create barriers and also affect available assets and cost capabilities. Such drivers are not always directly controlled by Palestinians, which makes them extremely difficult to overcome. It is further arguable that of the three "attainability" criteria, the Conflict Barriers criterion should have the most weight since they are completely controlled by Israeli influence, which can be unpredictable and impenetrable by Palestinian actions. On the other hand, deficiencies in assets and costs because of the conflict may be overcome through alternative avenues, although the availability of alternative avenues is not a guarantee. Nevertheless, the "attainability" criteria have to be viewed as limiting factors when considering probable transition strategies. Conflict conditions make it so that the "attainability" criteria need to be met in order to proceed with implementation.

6.4 CONCLUSION

In order to understand how conflict conditions persistent in the West Bank affect development aimed at increasing accessibility and well-being, my approach focused on differentiating between the features of probable transition strategies that make them more or less successful given the current state. This approach led to the creation of the ABC, which may be used to assess probable transition strategies based on their attainability and expected benefit. Measures for the criteria are qualitative, and they reference published information and empirical information garnered through my interviews with area experts and Palestinian commuters. Although it is not necessary for probable transition strategies to meet all ABC, the criteria may be used to assess whether or not strategies may be successfully implemented. It is important to point out that the ABC are only relevant to transition strategies that address the West Bank Case and may not be transferable to development projects outside the transportation sector and in other areas of conflict. There is still a need to further understand how transition research may accommodate conflict ridden areas in a more general manner.

CHAPTER 7

TRANSITION MANAGEMENT

7.1 INTRODUCTION

There exists no shortage of available strategies for transportation related transitions in the West Bank. This research is not concerned with adding new strategies to the discussion. Because detailed levels of review of strategies that assess the possibility of successful implementation and acceptable returns on investment are largely absent, this research is more concerned with the review and adjustment of existing strategies to meet certain gains in accessibility and well-being. The current lack of review for strategies has led to a large portion of existing strategies that are either never fully implemented or they are implemented without providing significant gains in accessibility. In an effort to address this deficiency, my research culminates with an examination of how the tools presented in previous chapters may be used to lead to and provide for better transition management.

In the West Bank Case, a transition is both desired and needed. Recall from Chapter 6 that I employed Remington-Doucette's (2013) definition for sustainability transitions to mean "profound changes in the way an existing socio-ecological system functions to meet the needs of society in ways that promote healthy ecosystems, human well-being, and viable economies" (pg. 332). Succinctly, transitions are processes that result in structural changes in societal systems (Loorbach, 2010). In the West Bank Case, the societal system in question is the transportation system. In order to achieve a transition, existing system structures, or regimes, are put under pressure by changes in

society and/or applied innovations (Loorbach, 2010). When a transition occurs, existing regimes shift to new regimes (Remington-Doucette, 2013). Regime shifts result in changes to the fundamental interactions among system components and the internal feedback structures. In turn, new regimes have different capacities to support societal needs after a shift has occurred (Remington-Doucette, 2013). For the West Bank Case, a regime shift in the transportation system may improve well-being by supporting better access. The focus of this research is to enable stakeholders to better guide strategies to accomplish the desired transition.

The central question for this chapter asks how the tools produced throughout this research may be used to better guide transition management for transportation development in the West Bank. The chapter does not seek to give a definitive answer to the question. Rather I aim to discuss possible ways to use the research's main deliverables (the system analysis, future vision, and the ABC) as tools for transition management. To do so, I present Loorbach's and Rotmans' (2006) TMC as a normative framework to guide transition management. I then discuss how each research deliverable may directly or indirectly affect tasks to make transition management more applicable to the West Bank Case. Lastly, I briefly and loosely operationalize my approach on select transition strategies brought up by participants of my expert interviews so that I may initiate a discussion on how the new approaches to transition management may have a lasting and desirable impact on the region.

7.2 TRANSITION MANAGEMENT FRAMEWORK

The TMC is a framework that fits within the TSR framework, which is the comprehensive framework this research employs (refer to Figure 7.2). Although multiple frameworks for transition management exist (the multi-level model by Rip and Kemp, 1998; the multiphase or S-curve model by Rotmans, Kemp, and van Asselt, 2001), a considerable benefit of the TMC is that it depicts no fixed sequence of steps for transition management (Loorbach, 2010). Instead of suggesting a sequential order for activities, the framework only demonstrates that activities should connect (Loorbach, 2010). This quality makes the framework an appropriate base for transition management to apply to the West Bank Case because transitions will likely vacillate between areas of progress because of the instability in the region.

The TMC was created to translate abstract, transition research tenets into a guide for the practical management of governance activities aiming to lead to a transition (Loorbach, 2010). The framework focuses on governance rather than centralized government to account for a growing global trend of policies that develop from the interaction of a more diverse group of societal actors (Loorbach, 2010). Imbedded in the framework are four different types of governance activities relevant to transitions: (1) strategic, (2), tactical, (3) operational, and (4) reflexive. Each activity type accomplishes different goals and can be summarized as follows:

> [Strategic activities] structure the problem in question, develop a long-term sustainability vision and establish and organize the transition arena. [Tactical activities] develop future images, a transition agenda and derive the necessary transition paths. [Operational activities] establish and carry out transition experiments and mobilize the resulting transition networks. [Reflexive

> activities] monitor, evaluate, and learn lessons from the transition experiments and, based on these, make adjustments in the vision, agenda, and coalitions (Loorbach, 2010, pg. 172).

The types of activities are further differentiable by scope and time scale. Strategic activities are the most abstract since they address the entire societal system, like the well-being of all Palestinian residents, in order to change cultures. The time scale for strategic activities is also the longest. Tactical activities are on a slightly smaller level. They address institutions and regimes in order to change structures. For the West Bank Case, the regime in question is the transportation system. The time scale for tactical activities is halfway between strategic and operational activities, which generally take the least amount of time to complete. Operational activities focus on concrete projects to change practices (Loorbach, 2010). Unlike the previous three activities, reflexive activities are ongoing. All types of governance activities are connected. They must all be accomplished in order to realize a transition. However, situations may necessitate that some activities should be repeated or restructured and repeated, which is why the TMC framework represents the relation between activities as being non-directional and cyclical.

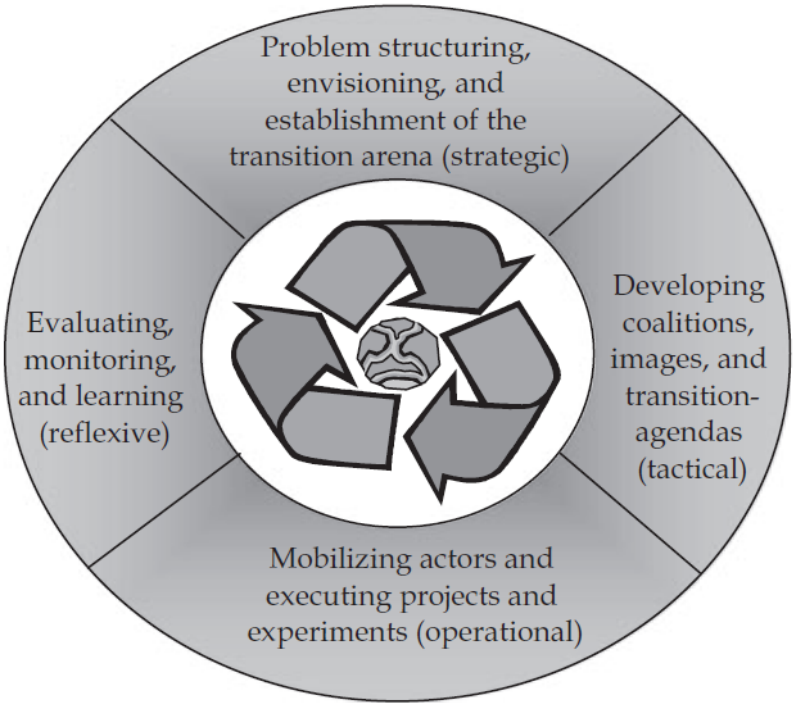


Figure 7.1 The Transition Management Cycle (Loorbach, 2010)

Better methods for transition management are sorely needed in the West Bank Case. The TMC provides a robust base to guide future transition management, but it is incomplete as a normative framework. Loorbach (2010, pg. 171) states that the framework necessitates the development of "systemic instruments" to influence the different activities. Such instruments need to be designed based on the different types of activities included in the framework. They also need to be based on the region in questions and individuals involved in the activities (Loorbach, 2010). The system analysis, vision, and the ABC are capable instruments (or tools) to insert into the transition management framework to delineate characteristic influences specific to the West Bank Case.

7.3 SYSTEM ANALYSIS, VISION, AND TRANSITION STRATEGY CRITERIA AS TOOLS FOR TRANSITION MANAGEMENT

This research led to the construction of three distinct planning tools for transportation development in the West Bank. A current state analysis of the system perpetuating poor accessibility and well-being in the West Bank was presented in Chapter 4; a stakeholder vision for the future of the West Bank transportation system was presented in Chapter 5; and the ABC for transition strategies were defined in Chapter 6. Each tool has the capacity to guide actions for transportation development so that they may be more successfully implemented and result in desired outcomes. In addition to describing how each tool was created using empirical and researched information, I discussed how the tools were applicable to aiding actions for development initiatives. I also revealed the normative value of primary tools like the system analysis and vison by discussing how they influenced the creation of the ABC, a secondary tool. Largely absent from the discussion is how the tools fit into a formal transition management structure. Although the application for each tool in future development endeavors may be vast, I aim to stress their importance for transition strategies.

More so than development strategies, transitions are particularly focused at guiding present-day systems toward more desirable and sustainable futures while avoiding plausible undesirable futures (Remington-Doucette, 2013). As I mentioned in the previous section, the research tools may be embedded within the TMC. The TMC itself is embedded within the larger research framework employed by this study, the TSR framework. The benefit of embedding the research tools into the TMC is that they help

to operationalize the types of activities associated with transition management to the West Bank Case. I had also hoped to make the research tools accessible to a general audience concerned with transportation transitions in the West Bank. Governance structures at all scales, from community to international levels, will be responsible for initiating and carrying out various transitions in the West Bank. Embedding the tools into the framework maintains the innate quality of the original framework, which is to guide transition management. Visualizing where the tools fall within the framework (Figure 7.3) helps the user anticipate and plan for activities associated in each step. A detailed description of how the tools may be used to accomplish transition management activities is addressed in the following subsections.

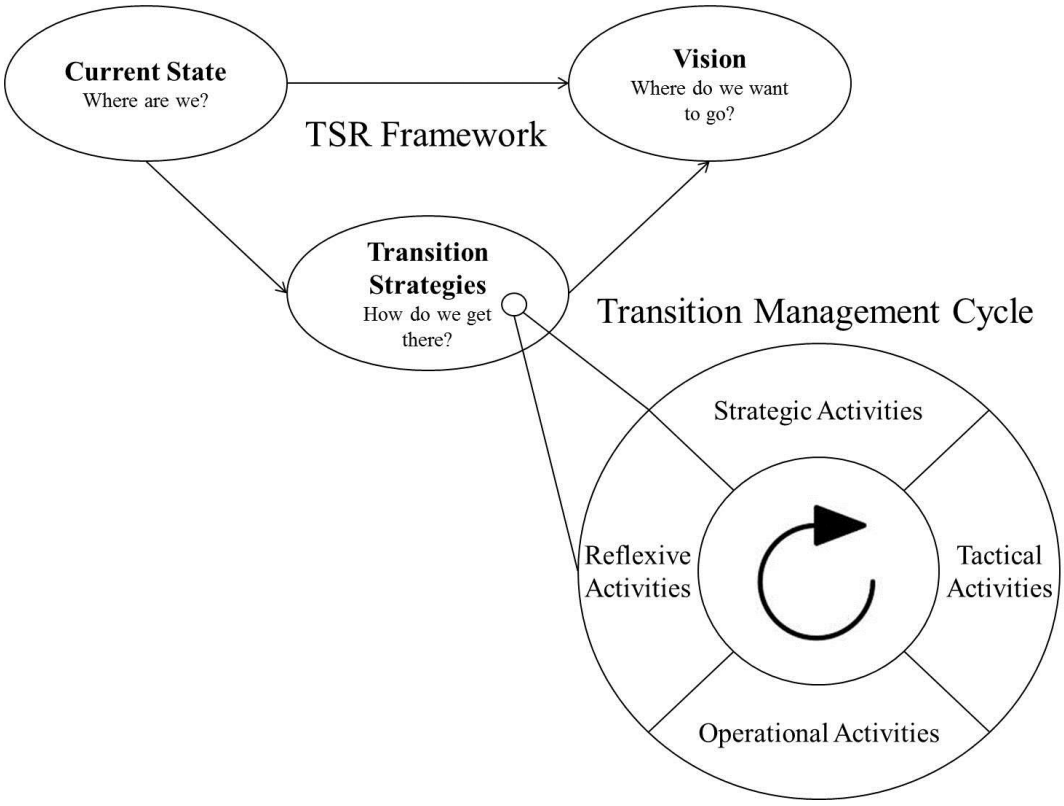


Figure 7.2 Transition Management Cycle Embedded Within Transition Strategies. The TMC is embedded within the Transition Strategies component of the TSR framework. The TMC may be used to help guide answers to the question, "How do we get there?" (Remington-Doucette, 2013; Loorbach, 2010)

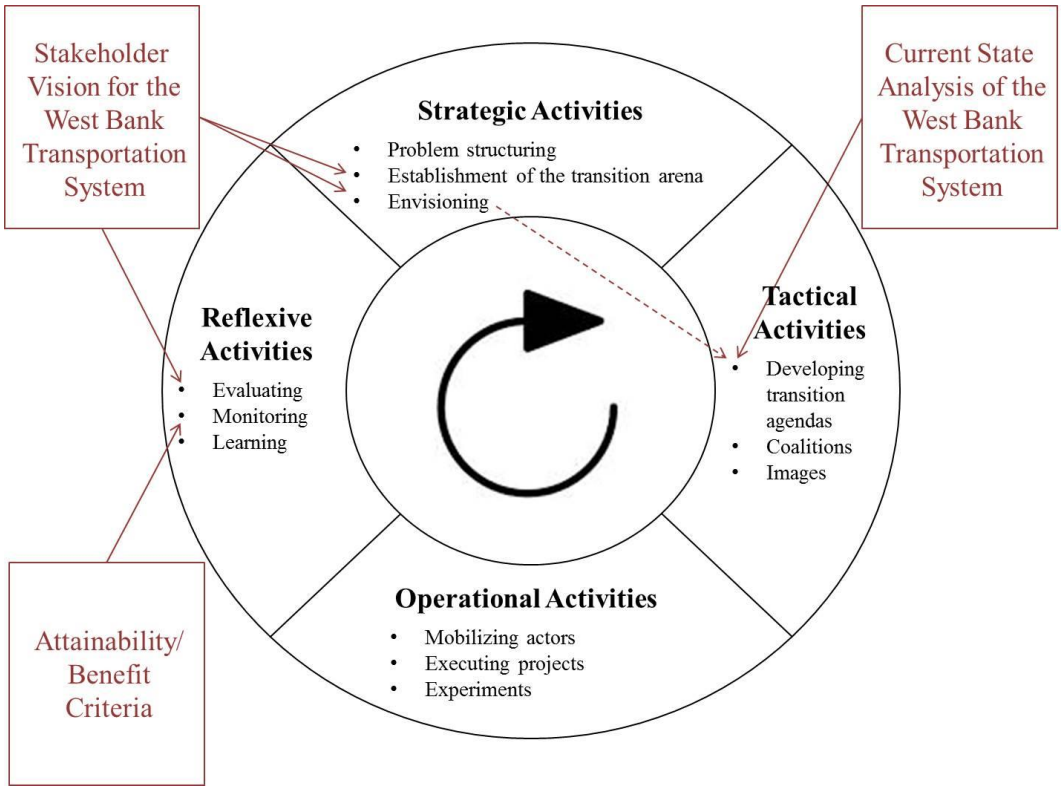


Figure 7.3 Research Tools Influencing Activities for Transition Management. Solid arrows linking the research tools to the transition management activities represent a direct influence. The only indirect influence is represented by a dashed arrow and depicts an indirect influence of the stakeholder vision on the development of transition agendas. (Loorbach, 2010)

7.3.1 Strategic Activities Aided by Future Visioning

The Stakeholder Vision for the West Bank Transportation System presented in Chapter 5 already accomplishes a few tasks strategic activities aim to achieve. With strategic activities, we aim to formulate long-term goals and identify collective goals and norm settings (Loorbach, 2010). The vision presents multiple long-term goals for three different normative needs for accessibility that include functional and efficient access to desired destinations, sufficient travel services, and quality infrastructure. These goals

may be immediately adopted to initiate transition paths and draw up transition agendas, which in turn establishes a connection between strategic activities and tactical activities (Loorbach, 2010). Used in this way, the stakeholder vision may significantly expedite the strategic phase of transition management. Alternatively, instead of immediately adopting the goals presented in the vision, the methods I used to develop the vision may be followed to establish a more rigorous vision. The fact that the vision represents ideas of persons from different backgrounds and various perceptions of the problem makes the vision strong. However, the vision I presented came as a result of my personal efforts to recruit participants in a limited amount of time and space. My efforts may be replicated by a larger management group for a larger and more representative sample to create a more detailed vision that would be useful for the same goal related tasks.

It was often lamented during multiple informal discussions with members of the most formal transportation governance structures, which were inside the PA ministry offices, that they did not have a document detailing stakeholder preferences for development with which to share to the multitude of foreign groups initiating transportation development projects within the West Bank. As a result, such projects were often directed toward efforts deemed most appropriate by foreign interests. The vision this research presents may be used to share with any parties aiming to participate in management for transitions in the West Bank and provide such parties with an idea of the goals transitions should aim to achieve based on user preferences. So in addition to providing goals for transition management to aim to achieve, the vision may also be used to establish a more informed transition arena.

7.3.2 Tactical Activities Aided by System Analysis

Tactical activities aim to define the transition agenda, which includes a number of joint objectives, action points, projects, and instruments to realize the objectives (Loorbach, 2010). In order to accomplish these objectives, tactical activities identify patterns and structures, such as rules and regulations, institutions, organizations, networks, infrastructure, and routines of the dominant regime and the societal sub-system in question (Loorbach, 2010, pg. 169). Similar to the strategic activities, this research has already accomplished a significant portion of tasks related to tactical activities for transition management with the current system analysis for the status of transportation in the West Bank. The system analysis looks to structural, societal, and governance characteristics to identify direct and indirect drivers to the problem of poor accessibility and well-being and further describes how the drivers influence each other. As a result, the system analysis can be used to understand how changes made to drivers will influence the behaviors of other drivers. As a result, the current system analysis can be used to support the inclusion of projects that are rooted at particular intervention points identified by those participating in the transition arena. Intervention points have powerful transformative potential (Remington-Doucette, 2013). Their potential for influence is so strong that a small strategic action taken at one intervention point in the system may lead to an overall system transition (Remington-Doucette, 2013). The system analysis identifies the strength of drivers' effects on the overall system. Stronger transition potential is to be expected if strategies address drivers that have a greater influence on the

system, which is discernable by using the system analysis to look at the number of and kinds of influences drivers have on the entire system.

7.3.3 Reflexive Activities Aided by Transition Strategy Criteria and Future Visioning

More so than the other types of activities included in the TMC, reflexive activities are entirely ongoing and should be incorporated into and repeated at every stage of transition management. Loorbach (2010) highlights the same quality, saying "continuous monitoring is a vital part of the search and learning process of transitions" (pg. 177). Continuous monitoring necessitates the monitoring of both the ongoing process of transition management and the outcomes of the process. However, the monitoring and evaluation of transition management and the transition process respectively are entirely distinguishable (Loorbach, 2010). For this reason, two research tools are embedded within reflexive activities for separate purposes.

The monitoring of transition management involves ensuring that transition arena actors are performing their agreed upon responsibilities and that the transition agenda continues to adhere to agreed-upon actions and goals (Loorbach, 2010). The ABC, defined in Chapter 6, offer a diverse range of qualitative requirements for transition strategies to meet to be considered attainable and able to achieve an appropriate benefit. The criteria may be used to shape strategies in earlier stages, but they may also be used as ongoing measurements to distinguish weak aspects of strategies so that they can be further developed or changed during the process. Accomplishing an ongoing monitor and adjustment of transition management better ensures that the process does not reach completion without contributing its expected transition.

On the other hand, the evaluation of transition processes involves distinguishing the rate of progress and physical changes made to the system (Loorbach, 2010). Evaluating the transition process is more quantitative in nature. It is generally helpful to identify quantitative targets for transition strategies to meet once a transition has begun. Quantitative targets are measured by indicators and are able to depict whether or not a system is moving toward or away from an identified goal (Parris & Kates, 2003). Because the Stakeholder Vision for the West Bank Transportation System presented in Chapter 5 already presented a detailed list of goals for transitions to meet, it may be used to guide the identification of quantitative targets to reach over a specified time. For example, one goal presented in the vision refers to decreasing travel hazards by repairing and maintaining existing transportation infrastructure. An appropriate indicator for this goal would be to survey instances of accidents related to poor infrastructure and aim to decrease the number over a specified period of time. Transition arena actors would know if the goal was being approached if a transition strategy began to decrease the instances of accidents related to poor infrastructure over time. A range of indicators and quantitative targets may be identified for each goal presented in the vison to evaluate the transition process.

7.4 TOOLS APPLIED TO EXAMPLE STRATEGIES

The addition of the three research tools to the TMC activities operationalizes the management of transitions for the problem of poor accessibility and well-being in the West Bank. In an effort to show how the tools might affect transition management, I briefly discuss a sample group of transition strategies for accessibility improvements in

the West Bank using the tools to define and evaluate the status of the strategies and how they might proceed. Transition management is a process that occurs using transition strategies that are at varying levels of formation. The process may be invoked for strategies that are already established as well as for strategies that are in need of further development. Accomplishing the kinds of actions associated with the TMC has the duel ability to advance strategies that are still in flux and implement strategies that are well defined.

The final question I posed for the experts I interviewed asked them to tell me of existing transition strategies for accessibility in the West Bank with which they were familiar. My expert sample of eight participants brought up a total of 25 strategies that addressed a variety of drivers to the problem at differing scales of influence. All the strategies they discussed were well established at the time of the interview. From that sample, I selected four strategies to discuss in detail. They may be summarized as follows:

1. *Urbanization with the new city Rawabi*. Rawabi hails as the first planned Palestinian city. Its site is conveniently located between the bustling city center of Ramallah and the university town of Birzeit. The development project is the largest private sector project in Palestinian history and is financed by Bayti Real Estate Investment Company, which is jointly owned by Qatari Diar and Massar International. Construction on the site began in January 2010. The final city will be a true example of mixed development, paving the way for enough housing units for 40,000 residents and enough

business and retail space to generate more than 5,000 permanent jobs. (Rawabi, 2015)

2. *Scanner system for freight vehicles passing through checkpoints*. In 2012, the Netherlands proposed to donate two container scanners, one at the Allenby Bridge separating the West Bank from Jordan and the other at the Shalom crossing into Gaza, to better facilitate Palestinian trade. The scanner system would be controlled by Israel and reduce transit costs for Palestinian businesses by expediting freight travel times and increasing the volume and range of goods allowed through the crossings. The PA hopes the same kind of system may be expanded in the future to allow for Palestinians who receive permission from Israel to pass through checkpoints more quickly using scanners. Implementation of the Dutch scanner system has yet to be approved by Israel. (Keinon, 2012)
3. *Bicycle lanes in Jericho.* At the time of the interviews with my expert sample during the summer of 2013, one interviewee was an engineer working on the construction of bicycle lanes in Jericho. The project was completed in July of the same year and opened to users by August. The lanes allow for two-way bicycle traffic along a 1,200 meter stretch through the city. The new lanes encourage previous and new bicycle users by separating bicycle traffic from vehicular traffic to improve safety and decrease congestion. The lanes also support the growing tourist industry in the city through the introduction of

bicycle tours. Bethlehem is now interested in constructing bicycle lanes to achieve the same added benefits. (Kalman, 2013)

4. *Alleviating congestion at the Qalandiya checkpoint using Facebook*. A Facebook group titled "Qalandiya Conditions" was created to allow Palestinian users to share real-time updates about congestion conditions at the Qalandiya checkpoint separating Ramallah and Jerusalem. In the year that passed since the project was brought up by one of my interviewed experts, the group's membership grew from about 13,000 people to about 31,000 people. Members use the group to inform their travel decisions regarding interactions with Qalandiya. During high congestion conditions, users warn others to avoid the checkpoint by either waiting to travel or encouraging them to take alternate routes. (Abdalla, 2013)

The previous descriptions reveal that the scope and intent of the four example strategies varies greatly. The status of the strategies are also an area of divergence especially considering the lapse in time since the projects were discussed during my interview sessions and the time of this writing. The differences among the strategies make for some noteworthy comparisons.

I applied my research tools to assess each strategy to eventually draw upon comparisons and make observations regarding the manageability of the strategies. A summary of the assessment appears in Table 7.1.

Table 7.1

Transition Management Assessment for Sample Transition Strategies

		Transition Strategy			
	Transition Management Considerations	1. New Urban City, Rawabi	2. Freight Scanner System	3. Bicycle Lanes in Jericho	4. Facebook Group for Qalandiya Conditions
Strategic considerations	Transition arena actors	Bayti Real Estate Investment (funding); AECOM (planning and construction); local experts from Birzeit and An-Najah University (planning); IOF (approvals); future city residents and employees	Netherlands (funding); IOF (approval and system facilitation); freight suppliers, drivers, and consumers	Jericho municipality (funding); Nablus engineering firm (planning and construction); bicycle users	Group admins; group users and commuters
	Meets vision goals	Yes	Yes	Yes	No
	Goals addressed	Secure the individual freedom to choose places to access and participate in associated activities; expand existing road network	Sanction the removal of Israeli travel barriers	Expand existing road network; introduce infrastructure to places where it is lacking	N/A
Tactical considerations	Intervention point	Physical characteristics (major category); Palestinian built-up areas, urban cities, population density and distance between built-up areas (sub-categories). Policy--IOF (major category); interference with development (sub-category)	Transportation infrastructure (major category); freight travel (sub-category). Policy--IOF (major category); restriction on freight travel (sub-category)	Transportation infrastructure (major category); limited sidewalks (sub-category). Travel behavior (major category); safety concerns due to infrastructural quality (sub-category)	Travel behavior (major category); congestion (sub-category)
	Influence on other drivers	Above average	Below average	Average	Average

Table 7.1 Continued

		Transition Management Considerations	Transition Strategy			
			1. New Urban City, Rawabi	2. Freight Scanner System	3. Bicycle Lanes in Jericho	4. Facebook Group for Qalandiya Conditions
Reflexive considerations	Monitoring	Conflict barriers	High conflict barriers but within the Zone of Conventional Expectation	High conflict barriers and within the Zone of Growing Desperation	Low conflict barriers	Low conflict barriers
		Assets	Moderate manageability; funding, resources, and expertise available	Low manageability; funding and resources available; some expertise available	High manageability; funding, resources, and expertise available	High manageability; funding, resources, and expertise available
		Cost	High	Low	Medium	Low
		Influences on the system	High according to major categories; above average according to sub-categories	High according to major categories; below average according to sub-categories	High according to major categories; average according to sub-categories	Low according to major category; average according to sub-category
		Demonstrated need	Yes	Yes	Yes	No
		Gains in accessibility and well-being	High	High	Low	Low
	Evaluating	Goal	Increase mixed-use development	Decrease travel times; increase economic outputs	Increase transportation mode choice and bicyclist safety	Reduce congestion and wasted time
		Indicator	Residential to commercial structure ratios; travel times	Travel times; delay hours; economic gains	Length of bicycle lanes available; accident rates	Delay hours

Application of the research tools reveals many characteristics of the transitions strategies that include deficiencies and limitations to be addressed along with strengths to capitalize upon. It is important to admit that my assessment of the strategies benefits from hindsight knowledge regarding the status of the projects. At the time of writing, the Jericho bicycle lanes and the Qalandiya Facebook group projects were successfully implemented; the Rawabi project was still progressing; and the freight scanner project was halted indefinitely. I often bring up the status of the projects to conjecture on what makes for a strength, deficiency or limitation in the following discussion about transition management.

Strategic activities involve gathering appropriate actors to participate in the transition and determining the goals for transitions to aim to achieve. The transition arena actors of the four projects differ in size and composition. It seems that the collaborative capability of actors is a defining factor for project success, which makes transition arena composition more important than size. The two projects that remain to be completed, the Rawabi project and the freight scanner project, both require cooperation with Israel, which has historically been difficult to achieve for Palestinian development. The freight scanner project requires the most IOF collaboration (for both approval and to fill facilitation roles) and is the only project whose progress is completely stalled. Meanwhile, transition arena actors of the two successful projects, the Jericho bicycle lanes project and the Qalandiya Facebook project, are all domestic area actors. When it came to assessing whether the projects met vision goals, I compared the scope of each project to the overarching goals presented in the Stakeholder Vision for the West

Bank Transportation System. The only project to not address at least one goal was the Qalandiya Facebook project. The defining factor of that project that differentiates it from the other three is that it indirectly addresses a factor of inaccessibility, congestion, by enabling commuters to avoid it. The project is limited and does little to progress conditions to meet the highlighted goal that aims to remove Israeli travel barriers like the Qalandiya checkpoint itself. However, such a distinction does not mean projects that do not meet vision goals like the Qalandiya Facebook project are not valuable. Instead, the distinction should serve to avoid possible misrepresentations of projects' capabilities. The Qalandiya Facebook project is capable of alleviating the effect of a problem, but it is not capable of solving the problem.

Tactical activities involve defining transition agendas, which includes determining the best intervention points for strategies to be applied. I used information provided by the system analysis for poor accessibility and well-being in the West Bank to determine the major and minor intervention points each strategy addresses. Again each strategy was differentiable. The number and type of intervention point were variable according to the different strategies. The number of intervention points seems to be somewhat proportional to the scope of the project. Of the four projects, the Rawabi project is most capable of strongly transforming the transportation landscape, and it addresses the highest number of intervention points. However, the observation is not definitive because it is possible for specialized projects to exit on large scales as well. On the other hand, it is almost always the case that the type of intervention point determines the kind of influence probable projects have on other system drivers. The system

analysis revealed that certain drivers affect a greater portion of other drivers, which gives those drivers a greater influence. The intervention points associated with the Qalandiya Facebook project have an above average influence on other drivers, which also supports that the project has a strong transformative quality. Consideration of intervention points is a way to reveal the relative strength of a transition strategy.

Reflexive activities serve to monitor a transition process and to evaluate transition outcomes. At the beginning of a project, it is beneficial to define specific goals directly addressed by the problem (not overarching vision goals) and determine an indicator that may reveal progress toward the goals so that evaluation may concurrently occur as the project is implemented and so that needs for improvement in the strategy may be revealed as soon as possible. Each example strategy addresses a different problem, although there is some overlap with indicators to monitor progress toward specified goals. This information is helpful for assessment later on in the transition management process. At the beginning stages of the transition process, the ABC is a more useful assessment tool. In terms of "attainability", the status of conflict barriers seems to be the most definitive quality. The high conflict barriers associated with the freight scanner system project and the Rawabi project have delayed their progress. Although beneficial, the possession of assets does not seem to ensure or block the possibility for implementation success with the four example projects. The same is true for cost levels. However, projects with a higher cost values are not as easily replicated given the monetary instability of the Palestinian Territories. Because the Rawabi project was expensive, it is unlikely that many similar projects will be initiated. On the other hand, it may be beneficial to expand

projects like the Jericho bicycle lanes project and Qalandiya Facebook project since they have smaller cost-to-benefit ratios. In terms of the "benefit" criteria, it is important to point out that both projects provide considerably less gains in accessibility and well-being because they affect smaller portions of the West Bank's Palestinian population (Jericho bicyclists and Qalandiya commuters with access to the Internet respectively). All the information provided by reflexive assessment enables strategic changes to be made to improve strategies. For example, expanding the Jericho bicycle lanes project to other West Bank cities would increase the accessibility capabilities of more people, which would increase the project's ability to achieve gains in accessibility and well-being. The assessment also influences the development of additional strategies. For example, it may be unwise to invest in a civilian scanner system similar to one used in the freight scanner system project because that project was not successfully implemented.

My assessment of the example strategies using the research tools revealed a lot of information to consider for transition management activities. Some revealed information supported the use or expansion of the example strategies, while other information highlighted areas for improvement. When accomplished in a real-world setting, such an assessment would look different. First, it would be accomplished differently. A larger group of actors having managerial roles in the projects would be the ones to complete the assessment, rather than just one person, which was the case in my assessment. The group would then be responsible for consolidating information and positions on the different assessment considerations before deciding upon further actions. Second, my assessment of the example strategies was accomplished entirely retrospectively, since each strategy

was fully formed (some already successfully implemented) before I completed the assessment. In the real world, the process may be accomplished concurrently, meaning the assessment of ideas could guide the creation of a new strategy. Lastly, it is up to the managerial group of actors to decide when to pursue a strategy or not. Such a decision may be influenced by information gained from the research tools, but unfavorable qualities within a strategy do not always necessitate large restructuring or disengagement.

7.5 LASTING EFFECTS

In response to the difficulties development strategies face in the West Bank due to the political conditions and resulting social effects, this research produced a series of region specific tools that may be used to overcome development obstacles. Application of the tools intends to guide transition research to be able to discover transition strategies that may be presently initiated given current conflict conditions while still leading to worthwhile gains in accessibility and well-being. To be able to distinguish between strategies that are optimal versus strategies that are achievable is imperative to ensure that progress continues regardless of the region's political status. Optimal strategies for increased accessibility and well-being in Palestine inevitably involve increased Palestinian autonomy over land and people, which conflicts with the nearly 50 year-long Israeli military rule over the Palestinian Territories. Achievable strategies require less Israeli cooperation generally in exchange for smaller transition gains. This brings up a significant strategic distinction: given today's current conflict climate, attainability may be a more important consideration. As conflict conditions hopefully improve over time, expected benefit would become the more important consideration. This is not to say that

an attainable strategy is always associated with smaller expected benefit, nor does it imply that a cluster of implemented, attainable strategies may not equally provide a strong achieved benefit. Instead, the four example strategies exhibit a general trend that shows attainability is currently more important for successful implementation. This will likely not always be the case. As a result, this study provides for the ability to identify robust strategies for current conditions (attainability) and future conditions (expected benefit).

A significant shift in planning away from considering optimal goals to achievable goals remains to be seen. Ideally, a regional transition away from a status of poor accessibility and well-being is most desired by Palestinian residents and transition arena actors alike. However, achievable strategies tend to have more of a community focus in order to stay within areas with the most Palestinian jurisdiction (Area A and Area B, refer to Figure 4.3). It remains to be seen if multiple gains in accessibility on a community scale may eventually blend to accomplish a larger, more regional transition.

7.6 CONCLUSION

I intended for this research to culminate by producing information that could directly lead to improvements in the status of accessibility and well-being in the West Bank. By embedding the research's system analysis, vision, and ABC into the TMC framework, the tools effectively calibrate the framework for the West Bank Case and reveal necessary information to guide transition management activities. Without the extra step of applying the tools to an action oriented framework, their contribution to the field is just theoretical. In conjunction with the TMC framework, the tools are capable of

improving conditions by advancing the process through which strategies are conceived and assessed.

This chapter does not give a definitive approach to applying the research tools. The method I describe here is singular and open for interpretation and adjustment. It may be that the tools can be used individually or as a unit to help planning for development in other ways. I accomplished exactly that when I employed the system analysis and vision as separate planning tools to establish the ABC in Chapter 6. The use the tools this chapter describes for transition management is not intended to exclude the use of the tools in other planning strategies.

CHAPTER 8

CONCLUSION

This dissertation presents an interpretation of information that has theoretical and practical application potential in transformational sustainability research and the West Bank Case respectively. The research presented in this document simultaneously uses the TSR framework as a procedural guide to interpreting the problem of poor accessibility and well-being in the West Bank so that sustainable transitions may be discovered whilst building upon the framework so that it may better account for transitions occurring in a region riddled with conflict barriers. In addition to this contribution, I feel this dissertation's greatest value resides in the four deliverables (system analysis, future transportation vision, ABC, and transition management guide) it builds inside its central chapters. These deliverables are useable for application with planning and development endeavors in the West Bank. They were created with the intent to inform stakeholders so that they may identify transition strategies capable of being presently implemented and provide necessary benefits to current Palestinian residents.

The chapters in this dissertation address the guiding research question: *How do drivers influencing the issue of poor accessibility and well-being in the West Bank persist and interact, and how might solutions be approached?* Four central chapters address additional focused questions that help lead to an amalgamated answer to the guiding question.

Chapter 4 addresses the question: *What characterizes the complex system propelling poor accessibility and well-being in the West Bank?* The chapter follows the first TSR procedural step, *Past and Current State Analysis*, to explore the transportation system in the West Bank. In so doing, I reference published and empirical information to define the boundaries of the system considered in the research, identify main stakeholders, and define drivers to the problem of poor accessibility and well-being as well as determine their interactions amongst one another. Findings suggest that the West Bank transportation system is complex and involves drivers that affect the system in varying capacities. Complexities are inherent to the system because multiple national parties are involved, including Palestinian, Israeli, and International stakeholders. System drivers also magnify complexities in the system because they interact with each other as well as contribute to the overall lacking ability of the system to allow for accessibility and achieved well-being. I expected drivers to impact the system at varying degrees. However, my analysis uncovered significant trends for different categories of drivers. As a whole, drivers relating to physical aspects of the transportation system or Israeli policy for the transportation system have the strongest influence on the entire system. I postulate that there are multiple possible applications for the system analysis presented in the chapter. Based on the TSR framework, the analysis is a necessary component to uncovering intervention points for transitions strategies to address. Outside the framework, the analysis may be used as a reference for other development endeavors.

Chapter 5 addresses the question: *What is the future vision for the transportation system in the West Bank?* The question was posed in order to meet the visioning

procedural step included in the TSR framework, which aims to uncover the desired system transformation. I decided to use a participatory approach for my visioning research so that the presented vision could represent the preferences of Palestinian commuters since they are the group of stakeholders most affected by challenges associated with transportation. I had anticipated a degree of divergence among preferences for differing commuters, so I stratified my interview sample into four commuter groups based on population demographics (female, male, students, taxi service drivers) to ensure that more viewpoints were represented. However, I found that while travel experiences and needs for travel differed significantly among the four groups, participants generally had the same vision for the future of the transportation system in Palestine. They expressed a desire for having functional and efficient access to destinations of their own choosing; sufficient travel services available to use at their disposal; and higher quality transportation infrastructure. In the chapter, I offered a comprehensive stakeholder vision for the West Bank transportation system after combing through participants' responses and ensuring that commuter preferences met a set of sustainability quality criteria. The vision includes a set of three qualitative goals based on the visioning preferences I previously mentioned and in addition to action proposals for meeting the goals. The vision itself is useable as a reference for future transportation planning in the West Bank and further informs proceeding steps in the TSR framework. Application of the transportation vision ensures a bottom-up approach to transportation planning, where the opinions of Palestinian commuters become a valued portion of the planning process.

Chapter 6 addresses the question: *How do conflict conditions affect probable transition strategies?* This chapter deviates from the steps included in the TSR framework, although its concentration provides crucial information to guide backcasting efforts. The conflict conditions existent in the West Bank Case require that transition research considers how conditions affect probable strategies since past experiences in the region suggest that the conflict acts as a limiting factor to successful strategy implementation. The TSR framework works best to identify ideal strategies that lead to the envisioned state. However, in the West Bank Case, ideal strategies are challenged by the political status quo so there is a need to support the identification of alternative strategies. The chapter addresses this need by identifying characteristics that make transition strategies more or less successful given the current state. The majority of the chapter is dedicated to explaining a new tool that may be used to assess probable transition strategies based on their attainability and expected benefit, which I title the Attainability/Benefit Criteria. The criteria are useful to assess whether or not probable strategies may be successfully implemented by determining the status of their limiting factors (conflict barriers, available assets, and cost) to decide their attainability. The chapter suggests that attainability should be considered in relation to the expected benefit probable strategies are capable of achieving (high influence on the system, meets a demonstrated need, and provides gains in accessibility and well-being). I also identify qualitative measures using a combination of published and empirical information for each criteria. Application of the criteria may enable stakeholders to understand the full potential of probable strategies, to suggest changes to existing strategies, or to guide the

creation of new strategies. From a theoretical standpoint, my addition of the ABC to the TSR framework is a novel method for considering transitions occurring in conflict zones.

Chapter 7 addresses the question: *How may transition management for transportation development in the West Bank be guided?* The question and the chapter were intended to contribute to the final TSR consideration, *Intervention Research*. Ultimately, Chapter 7 works to organize the practical deliverables supported by this study so that they might be combined for a common purpose. In the chapter I introduce the TMC as a useful guide for transition management in the West Bank Case and situate the system analysis, future transportation vision, and ABC within the framework. By embedding the research's deliverables into the TMC framework, the deliverables become tools that effectively calibrate the framework for the West Bank case so that it may be used to reveal necessary information to guide transition management activities in the region. This consideration is entirely for practical purposes since the TMC framework is concerned with action oriented activities for transition management. In conjunction with the TMC framework, the deliverables are capable of directly improving conditions by advancing the process through which strategies are conceived and assessed.

It is worth repeating that the importance of the material this dissertation presents resides in its ability to illicit change in the West Bank Case. The system analysis of the current conditions distinctly shows that many travel barriers make moving around and outside the West Bank a difficult and frustrating task for the region's Palestinian population. The status of a region's transportation system has deep implications for several aspects of daily life in addition to its intended function of allowing people to get

where they need to go. Transportation is tied to the greater functionality of a region and the ability of a region to have healthy and happy social and economic communities. This dissertation presents material that may be used to inform planning for accessibility, which is ideal for an unstable region because levels of accessibility may be achieved with small, informal changes made to a transportation system. The informality of this type of planning is what gives it the greatest ability to be successful in the West Bank. Palestinian development in the West Bank is constantly checked and often limited by Israeli occupying forces. Transformational development that improves accessibility is capable of leading to informal travel improvements that can occur in a short period of time, even under military occupation, which persists indefinitely. For practitioners, this dissertation supports the creation and strengthening of development endeavors. In addition to its practical importance, this dissertation contributes to information that is valuable for researchers focusing on sustainability transitions. Revealed in its pages is a demonstrated example of a complete use of the TSR framework on an ongoing problem. This dissertation may be used as an example of how the framework shapes transition research for solutions to complex problems. The dissertation also builds upon the framework after demonstrating how it can be applied in a region currently in conflict, whereby the best route for a sustainable transformation may be strongly inhibited by political conditions.

Throughout the chapters of this dissertation, I mention more than one limitation associated with the research, which can be summarized into a few main points. The summary represents the limitations I was able to recognize as a researcher deeply

entrenched in the study and is likely not definitive. However, I purposefully point out the following limitations because they present opportunities for researchers and practitioners alike to further advance the information and methods I present.

First, this study exclusively considers the accessibility and well-being of Palestinian residents living inside the West Bank, meaning it is geographically and demographically bounded. For this reason, the deliverables are likely not entirely applicable in any case considering the accessibility and well-being of another population, even for related populations like Palestinians living in Gaza or in other foreign countries. Future considerations may consider expanding the study boundary. Expanded system boundaries would have the most notable effect on the system analysis; problem drivers would be different, and similar drivers may behave differently. As they stand, the deliverables are entirely case specific. This also contributes to a theoretical limitation. For example, the ABC were created to improve the ability of the TSR framework to guide transition research in a conflict region. However, the ABC are only relevant to the West Bank Case and may not be transferable to development projects outside the transportation sector or in other areas of conflict. There is still a need for field researchers to consider how transition research may accommodate conflict ridden areas in a more general manner.

Another limitation associated with this dissertation is that it does not concentrate on exploring the breadth of possible applications for its research deliverables, although I do admit that the applications I suggest are not definitive. It may be useful for practitioners to explore multiple uses for the deliverables as tools in development

planning for the West Bank Case. The methods I suggest in this document for the use of the deliverables are singular and open for interpretation and adjustment. I do not want my assessment for the use of the deliverables to inhibit their use in other planning strategies.

An additional consideration: because the research deliverables presented in this dissertation have not yet been used in practice, they have yet to be evaluated for their effectiveness. To this end, practitioners and researchers will need to collaborate. Practitioners applying the deliverables will need to monitor their use and give constructive feedback to researchers who can record and report the proceedings to a wider audience. Both may make additional adjustments to the tools based on evaluation results.

Lastly, I wanted to offer one more recommendation for future research. This dissertation has shown and accounted for multiple challenges that probable transitions for the West Bank Case may face. However, I did not account for a particular challenge I was made aware of by some of my interviewed experts: the fact that transition strategies sometimes have a hard time becoming universally accepted by Palestinians. The greater effect of this challenge is that some proposed strategies, which have the capacity to improve accessibility, are never successfully implemented. I observed this challenge during an informal conversation on a field visit with a worker in the PA Ministry of Transport. He pulled out a blue print of a planned road proposed and funded by USAID to allow Palestinian traffic to avoid the Qalandiya checkpoint for trips going in north-south directions (entry to East Jerusalem would still require traffic to pass through the

checkpoint). The plan was intended to ease congestion and improve travel times. He explained to me that many ministry members did not want to accept the plan because they felt the plan legitimized the existence of the checkpoint. Their stance was not unreasonable. Permanent infrastructure that acknowledges the existence of checkpoints does in fact assume checkpoints to be permanent as well, which is universally unacceptable to Palestinians. At the time of this writing, the plan remains unfulfilled. There are two discourses associated with planning in Palestine: one values improvements to well-being above all else and the other does not accept concessions to Occupation related legislation at all costs. I observed the second discourse often throughout my interactions with my sample of interviewed experts.

> *"Solutions [should] assume the 1967 borders, which includes access to East Jerusalem. If we still had access to East Jerusalem we wouldn't have Qalandiya. Any road that they [Israel] will build further east becomes a substitute for Jerusalem, which is unacceptable to me. We want our solution to include East Jerusalem. How can you accept the Separation Wall? It was built in the middle of our streets. I used to go to Jerusalem every day and now I can't. You say let's build roads to ease problems at Qalandiya but then this becomes a permanent solution."*
>
> *–Expert #2*

Future research into conflict related challenges for transition research in the West Bank and possibly other regions should find a way to account for the qualities of probable

strategies that make them more or less acceptable to regional stakeholders. Doing so also helps to predict which strategies may be more attainable.

I feel in noteworthy to acknowledge that my research potentially opens up more questions than it answers. My deliverables do not solve the issue of poor accessibility and well-being in the West Bank. The ground work remains to be accomplished. Also, a concentration on fixing this problem requires incredibly significant changes to the landscape. It remains unknown how Palestinian society, culture, and way-of-life will be affected by such grand changes.

Transition research and the methods needed to accomplish it (current state analysis, visioning, and intervention research) are still in their early stages of development and application. This study's use of the framework on the West Bank Case is the first of its kind. It is my hope that my contribution advances the field of transition research and also influences improvements for Palestinian accessibility and well-being. The ideas presented in this dissertation are subject to debate. Debate on issues addressed in this research is welcomed since it may lead to advancements, which should always be the intended goal.

REFERENCES

Chapter 1

Abu Ghazaleh, R. (2008). *Urban adaptive mechanisms for communities under siege: The case of Jerusalem, Palestine.*

Abu-Eisheh, S., Nablus, P., & Al-Sahili, K. (2006). The framework for the development of a medium-term transportation program for an economy in transition: The Palestinian case. *Transportation Research Board 85th Annual Meeting,* (06-1995).

Awadallah, F. (2011). Options for achieving internal economic connectivity and effective international trade for a viable Palestinian state. Presented at the MAS Annual Conference, Palestine Economic Policy Research Institute.

Bdair, R. (2011). *Transportation Strategic Planning Under Uncertainty: The Palestinian Case.*

Calì, M., & Miaari, S. H. (2013). The labor market impact of mobility restrictions: Evidence from the West Bank. *World Bank Policy Research Working Paper,* (6457).

Elias, W. (2011). The impacts of the segregation wall on travel behavior in the Palestinian territory.

Keshet, Y. K. (2006). *Checkpoint watch: Testimonies from occupied Palestine.* Zed Books.

Maoh, H., & Isaac, J. (1999). The status of transportation in the West Bank. *World Transport Policy and Practice, 5*(4), 18-29.

Remington-Doucette, S. (2013). *Sustainable world: Approaches to analyzing and resolving wicked problems*. Dubuque, IA: Kendall Hunt Publishing Company.

Saleh, A. (2009). *Future Urban Structure and Infrastructural Networking for a Palestinian State: Scientific Model for a Sustainable Approach*. Ghent University, Ghent, Belgium.

Shearer, D. (2006). Territorial fragmentation of the West Bank. *Forced Migration Review, 26*, 22-23.

Suisman, D. R. (2005). *The Arc: A formal structure for a Palestinian state*. Santa Monica, CA: Rand Corporation.

United Nations Development Programme [UNDP]. (2013). Supporting the formulation of a National Spatial Plan for Independent Palestine. UN-Habitat.

Wiek, A. (2011). Transformational sustainability science: Integrating foresight, backcasting, and intervention research. Unpublished manuscript.

Chapter 2

Berrios, G. E. (1989). What is phenomenology? A review. *Journal of the Royal Society of Medicine, 82*(7), 425-428.

Biernacki, P., & Waldorf, D. (1981). Snowball sampling: Problems and techniques of chain referral sampling. *Sociological Methods & Research, 10*(2), 141-163.

Chambers, R. (1995). Paradigm shifts and the practice of participatory research and development.

Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches.* SAGE Publications, Incorporated.

Finsterbusch, K., & Van Wicklin, W. A. (1987). The contribution of beneficiary participation to development project effectiveness. *Public Administration and Development, 7*(1), 1-23.

Lindlof, T. R. (1995). *Qualitative communication research methods*. Thousand Oaks, Calif.: Sage Publications.

Loorbach, D. (2010). Transition management for sustainable development: A prescriptive, complexity-based governance framework. *Governance, 23*(1), 161-183.

Macaulay, A. C., Commanda, L. E., Freeman, W. L., Gibson, N., McCabe, M. L., Robbins, C. M., et al. (1999). Participatory research maximises community and lay involvement in North American primary care research group. *BMJ (Clinical Research Ed.), 319*(7212), 774-778.

Mansuri, G., & Rao, V. (2004). Community-based and-driven development: A critical review. *The World Bank Research Observer, 19*(1), 1-39.

Nussbaum, M. C. (2011). *Creating capabilities.* Harvard University Press.

Remington-Doucette, S. (2013). *Sustainable world: Approaches to analyzing and resolving wicked problems*. Dubuque, IA: Kendall Hunt Publishing Company.

Ryan, G. W., & Bernard, H. R. (2003). Techniques to identify themes. *Field Methods, 15*(1), 85-109.

Silverman, D. (2006). *Interpreting qualitative data: Methods for analyzing talk, text and interaction.* Sage.

Wiek, A. (2011). *Transformational sustainability science: Integrating foresight, backcasting, and intervention research.* Unpublished manuscript.

Wiek, A., & Iwaniec, D. (2013). Quality criteria for visions and visioning in sustainability science. *Sustainability Science*, 1-16.

Wiek, A., & Lang, D. (2013). *Transformational research for sustainability: A practical methodology*.

Chapter 3

Banister, D. (2008). The sustainable mobility paradigm. *Transport Policy, 15*(2), 73–80.

Ben-Akiva, M., & Lerman, S. R. (1979). Disaggregate travel and mobility choice models and measures of accessibility. *Behavioural Travel Modelling*, 654-679.

Black, W. R. (2010). *Sustainable transportation: Problems and solutions.* Guilford Press.

Cervero, R. (1996). *Paradigm shift: From Automobility to accessibility planning.*

Coffin, A. W. (2007). From roadkill to road ecology: A review of the ecological effects of roads. *Journal of Transport Geography, 15*(5), 396-406.

Dalvi, M. Q., & Martin, K. (1976). The measurement of accessibility: Some preliminary results. *Transportation, 5*(1), 17-42.

Domanski, R. (1979). Accessibility, efficiency, and spatial organization. *Environment and Planning A, 11*(10), 1189-1206.

Du Pisani, J. A. (2006). Sustainable development–historical roots of the concept. *Environmental Sciences, 3*(2), 83-96.

Elias, W. (2011). The impacts of the segregation wall on travel behavior in the Palestinian territory.

Fürst, F., Schürmann, C., Spiekermann, K., & Wegener, M. (2000). The SASI model: Demonstration examples. *SASI Deliverable D, 15.*

Geurs, K., & Van Eck, J. R. (2001). *Accessibility measures: Review and applications.* National Institute of Public Health and the Environment.

Geurs, K. T., & van Wee, B. (2004). Accessibility evaluation of land-use and transport strategies: Review and research directions. *Journal of Transport Geography, 12*(2), 127-140.

Gibson, R. B. (2006). Sustainability assessment: Basic components of a practical approach. *Impact Assessment and Project Appraisal, 24*(3), 170-182.

Handy, S. (2005). Smart growth and the transportation-land use connection: What does the research tell us? *International Regional Science Review, 28*(2), 146-167.

Hansen, W. G. (1959). How accessibility shapes land use. *Journal of the American Institute of Planners, 25*(2), 73-76.

Hopwood, B., Mellor, M., & O'Brien, G. (2005). Sustainable development: Mapping different approaches. *Sustainable Development, 13*(1), 38-52.

Johansson, B., and Klaesson, J. (1995). Infrastructure, labour market accessibility and economic development. *The Management Measurement of Infrastructure-Performance, Efficiency, and Innovation*. Oxford. Pergamon Press.

Kates, R. W., Parris, T. M., & Leiserowitz, A. A. (2005). What is sustainable development? goals, indicators, values, and practice. *Environment: Science and Policy for Sustainable Development, 47*(3), 8-21.

Litman, T. (1999). Reinventing Transportation: Exploring the Paradigm Shift needed to Reconcile Transportation and Sustainability Objectives. *Transportation Research Board of the National Academies*, *1670*, 8–12.

Madanipour, A. (1998). Social exclusion and space. *Social exclusion in European cities: Processes, experiences and responses*. Psychology Press, 159-165.

Martens, K., & Golub, A. (2012). A justice-theoretic exploration of accessibility measures. *Accessibility Analysis and Transport Planning: Challenges for Europe and North America*, 195.

Nussbaum, M. C. (2011). *Creating capabilities.* Harvard University Press.

Pooler, J. A. (1995). The use of spatial separation in the measurement of transportation accessibility. *Transportation Research Part A: Policy and Practice*, *29*(6), 421-427.

Prud'homme, R., & Lee, C. (1999). Size, sprawl, speed and the efficiency of cities. *Urban Studies, 36*(11), 1849-1858.

Puri, J. (2007). *Measuring human development: A primer.* United Nations Development Programme.

Robeyns, I. (2003). The capability approach: An interdisciplinary introduction. *Training Course Preceding the Third International Conference on the Capability Approach, Pavia, Italy.*

Robeyns, I. (2005). The capability approach: A theoretical survey. *Journal of Human Development, 6*(1), 93-117.

Robeyns, I. (2011). The capability approach. *Stanford Encyclopedia of Philosophy,* January, 2013.

Ross, W. (2000). Mobility and accessibility: The yin and yang of planning. *World Transport Policy and Practice*, *6*(2), 13-19.

Saleh, A. (2009). *Future Urban Structure and Infrastructural Networking for a Palestinian State: Scientific Model for a Sustainable Approach*. Ghent University, Ghent, Belgium.

Schürmann, C., Spiekermann, K., & Wegener, M. (1997). Accessibility indicators. *Berichte Aus Dem Institut Für Raumplanung, 39.*

Sen, A. (1987). The standard of living: Lecture I, concepts and critiques. *The Standard of Living.*

Sen, A. (2000). *Development as freedom.* Oxford University Press.

Shen, Q. (1998). Location characteristics of inner-city neighborhoods and employment accessibility of low-wage workers. *Environment and Planning B: Planning and Design, 25*(3), 345-365.

Southworth, M. (2005). Designing the walkable city. *Journal of Urban Planning and Development, 131*(4), 246-257.

Spiekermann, K., & Wegener, M. (2006). Accessibility and spatial development in Europe. *Scienze Regionali, 5*(2), 15-46.

Talen, E., & Anselin, L. (1998). Assessing spatial equity: An evaluation of measures of accessibility to public playgrounds. *Environment and Planning A, 30*(4), 595-613.

Wachs, M., & Kumagai, T. G. (1973). Physical accessibility as a social indicator. *Socio-Economic Planning Sciences, 7*(5), 437-456.

Weingroff, R. (1996). Federal-aid highway act of 1956: Creating the interstate system. *Public Roads, 60*(1).

Chapter 4

Abunimah, A. (2014). Infographic: How the Israeli ID card system enforces apartheid. Message posted to http://electronicintifada.net

Al-Sahili, K., & Abu-Eisheh, S. (2006). Diagnosis of existing transportation systems in Palestine under the current political conditions. Accepted for presentation in the Civil Engineering Infrastructure Systems Conference, The American University of Beirut, Beirut.

Applied Research Institute Jerusalem [ARIJ]. (2005). *Nature reserves in the West Bank.* Retrieved September, 2014, from http://www.poica.org/preview.php?Article=602

B'Tselem. (2011). Curfew. Retrieved September, 2014, from http://www.btselem.org/freedom_of_movement/curfew

B'Tselem. (2012). The Separation Barrier – statistics. Retrieved September, 2014, from http://www.btselem.org/separation_barrier/statistics

B'Tselem. (2013). Statistics on settlements and settler population. Retrieved September, 2014, 2014, from http://www.btselem.org/settlements/statistics

B'Tselem. (2014). Checkpoints, physical obstructions, and forbidden roads. Retrieved September, 2014, 2014, from http://www.btselem.org/freedom_of_movement/checkpoints_and_forbidden_roads

Central Elections Commission Palestine [CECP]. (2006). *Maps of electoral districts: Second PLC elections*. Ramallah.

Coffman, P., Davis, W., Framke, N., DeYoe, J., Maclay, D., & Reese, M. (Eds.). (2009). *Steadfast hope: The Palestinian quest for just peace.* Israel/Palestine Mission Network.

Dellios, H. (2000). Israelis, Arabs find auto thefts jointly profitable. *Chicago Tribune*.

Dovers, S. R., & Handmer, J. W. (1992). Uncertainty, sustainability and change. *Global Environmental Change, 2*(4), 262-276.

Greenberg, J. (2008). Militant Jews living near outposts increasing attacks on Palestinians. *Chicago Tribune.*

Israel Defense Forces [IDF]. Retrieved July, 2014, from http://www.idf.il/english/

IISS. (2014). *The military balance 2014.* Retrieved July, 2014, from https://www.iiss.org/en/publications/military-s-balance

Kaplan, A. (2010). In Palestine, occupational hazards. *The Chronicle Review*.

Keshet. Y. (2006). *Checkpoint watch: Testimonies from occupied Palestine*. London: Zed Books Ltd.

Lendman, S. (2013). Planned Israeli Jordan valley annexation? *Global Research.* Retrieved September, 2014, from http://www.globalresearch.ca/planned-israeli-jordan-valley-annexation/5363179

MA'AN Development Center. (2008). *Apartheid roads: Promoting settlements punishing Palestinians*. Ramallah.

MA'AN Development Center. (2011). *Restricted access and its consequences: Israeli control of vital resources in the Jordan valley and its impact on the environment*. Ramallah.

MA'AN Development Center. (2012). *Israeli imposed restrictions on movement of agricultural products from northern West Bank*. Ramallah.

Maoh, H., & Isaac, J. (1999). The status of transportation in the West Bank. *World Transport Policy and Practice, 5*(4), 18-29.

Maxwell, J. A. (2004). Using qualitative methods for causal explanation. *Field Methods, 16*(3), 243-264.

Ministry of Transport. (2010). *Transport sector strategy 2011-2013*. Retrieved September, 2014, from http://www.lacs.ps/documentsShow.aspx?ATT_ID=4812

Mohr, L. B. (1999). The qualitative method of impact analysis. *American Journal of Evaluation, 20*(1), 69-84.

National Spatial Plan. (2013). Transferring challenges into opportunities. Retrieved June 2013 from www.nsp.pna.ps

Palestine Economic Policy Research Institute [PEPRI]. (2012). *Qalandiya conjunction: The social and economic consequences of congestion and Disorder.* No. 10 Round Table Discussion.

Palestinian Central Bureau of Statistics [PCBS]. (2007). Press release: The Jerusalem statistical yearbook. Retrieved September, 2014, from http://www.pcbs.gov.ps/Portals/_pcbs/PressRelease/JEREprelease07.pdf

Palestinian Central Bureau of Statistics [PCBS]. (2014). The annual report on transportation and communication statistics in Palestine, 2013. Retrieved September, 2014, from http://www.pcbs.gov.ps/site/512/default.aspx?tabID=512&lang=en&ItemID=1175&mid=3172&wversion=Staging

Palestinian Central Bureau of Statistics [PCBS]. (2013). Number of new registered road vehicles in the west bank by governorate and type of vehicle, 2013. Retrieved September, 2014, from http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Trans_annual5_2012e.htm

Palestinian Central Bureau of Statistics [PCBS]. (2014). Number of vehicle and persons engaged and main economic indicators in Palestine by region and economic activity.

Retrieved September, 2014, from http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Trans_annual1_2013e.htm

Palestinian Central Bureau of Statistics (PCBS). [2014]. Population. Retrieved July, 2014, from http://www.pcbs.gov.ps/

Palestinian Central Bureau of Statistics [PCBS]. (2014). Transport survey: Outside establishments 2013 main results. Retrieved September, 2014, from http://www.pcbs.gov.ps/site/512/default.aspx?tabID=512&lang=en&ItemID=1151&mid=3171&wversion=Staging

Palestine Monitor. (2009). Another day at an Israeli checkpoint. Retrieved November, 2010.

ReMillard, F. (2009). *Is Israel an apartheid state: Rhetoric or reality?* Israeli Committee Against House Demolitions-USA.

Remington-Doucette, S. (2013). *Sustainable world: Approaches to analyzing and resolving wicked problems*. Dubuque, IA: Kendall Hunt Publishing Company.

Suisman, D. R. (2005). *The Arc: A formal structure for a Palestinian state*. Santa Monica, CA: Rand Corporation.

United Nations Department of Public Information [UN DPI]. (2002). Fragmentation of the West Bank.

United Nations Office for the Coordination of Humanitarian Affairs [UN OCHA]. (2007). The humanitarian impact on Palestinians of Israeli settlements and other infrastructure in the West Bank. Retrieved September, 2014, from http://www.ochaopt.org/documents/thehumanitarianimpactofisraeliinfrastructurethewestbank_intro.pdf

United Nations Office for the Coordination of Humanitarian Affairs [UN OCHA]. (2012). The humanitarian impact of Israeli settlement policies. Retrieved September, 2014, from http://www.ochaopt.org/documents/ocha_opt_settlements_factsheet_december_2012_english.pdf

United Nations Relief and Works Agency [UN RWA]. (2014). Where we work. Retrieved September, 2014, from http://www.unrwa.org/where-we-work

Watson, G. R. (2005). The "wall" decisions in legal and political context. *American Journal of International Law*, 6-26.

World Bank. (2014). West bank and Gaza data. Retrieved July, 2014, from http://data.worldbank.org/country/west-bank-gaza

Wiek, A. (2010). Analyzing sustainability problems from a pragmatic perspective. Unpublished manuscript.

Chapter 5

Birzeit University. (2014). About. Retrieved November, 2014, from http://www.birzeit.edu/about

Gibson, R. B. (2006). Sustainability assessment: Basic components of a practical approach. *Impact Assessment and Project Appraisal, 24*(3), 170-182.

Haj, S. (1992). Palestinian women and patriarchal relations. *Signs,* 761-778.

Palestine Red Crescent Society. (2010) Retrieved November, 2014, from http://www.palestinercs.org/en/index.php

Palestinian Central Bureau of Statistics [PCBS]. (2011). *Main findings of violence survey in the Palestinian society.*

Palestinian Central Bureau of Statistics [PCBS]. (2013). International Women's Day 2013. Retrieved November, 2014, from http://www.pcbs.gov.ps/portals/_pcbs/PressRelease/Press_En_WomenWD2013E.pdf

Palestinian Central Bureau of Statistics [PCBS]. (2013). Press release by PCBS on the occasion of Land Day. March 30, 2013. Retrieved November, 2014, from http://www.pcbs.gov.ps/portals/_pcbs/PressRelease/Press_En_LandDay2013E.pdf

Palestinian Central Bureau of Statistics [PCBS]. (2013). Press release on the results of the labour force survey: First quarter (January-March, 2013) Round main results. Retrieved November, 2014, from http://www.pcbs.gov.ps/site/512/default.aspx?tabID=512&lang=en&ItemID=1108&mid=3172&wversion=Staging

Palestinian Central Bureau of Statistics [PCBS]. (2014). Special statistical bulletin: On the 65th Anniversary of the Palestinian Nakba. Retrieved November, 2014, from http://www.pcbs.gov.ps/site/512/default.aspx?tabID=512&lang=en&ItemID=788&mid=3171&wversion=Staging

ReMillard, F. (2009). *Is Israel an apartheid state: Rhetoric or reality?* Israeli Committee Against House Demolitions-USA.

Remington-Doucette, S. (2013). *Sustainable world: Approaches to analyzing and resolving wicked problems*. Dubuque, IA: Kendall Hunt Publishing Company.

Vergragt, P. J., & Quist, J. (2011). Backcasting for sustainability: Introduction to the special issue. *Technological Forecasting and Social Change, 78*(5), 747-755.

Wiek, A. (2011). Transformational sustainability science: Integrating foresight, backcasting, and intervention research. Unpublished manuscript.

Wiek, A., & Iwaniec, D. (2013). Quality criteria for visions and visioning in sustainability science. *Sustainability Science,* 1-16.

Chapter 6

Collier, P., Elliot, V. L., Hegre, H., Hoeffler, A., Reynal-Querol, M., & Sambanis, N. (2003). *Breaking the conflict trap: Civil war and development policy.* World Bank Publications.

Geurs, K. T., & van Wee, B. (2004). Accessibility evaluation of land-use and transport strategies: Review and research directions. *Journal of Transport Geography, 12*(2), 127-140.

Grin, J., Rotmans, J., & Schot, J. (2010). *Transitions to sustainable development: New directions in the study of long term transformative change.* Routledge.

Grunwald, A. (2004). Strategic knowledge for sustainable development: The need for reflexivity and learning at the interface between science and society. *International Journal of Foresight and Innovation Policy, 1*(1), 150-167.

Institute for Alternative Futures [IAF]. (2014). *Public health 2030: A scenario exploration.* Alexandria, VA.

Kates, R. W., & Parris, T. M. (2003). Long-term trends and a sustainability transition. *Proceedings of the National Academy of Sciences of the United States of America, 100*(14), 8062-8067.

Kurtz, L. (Ed.). (2008). *Encyclopedia of violence, peace, and conflict*. (Vol. 2). Academic Press.

Meadows, D. H. (2008). *Thinking in systems: A primer.* Chelsea Green Publishing.

Nussbaum, M. C. (2011). *Creating capabilities.* Harvard University Press.

Remington-Doucette, S. (2013). *Sustainable world: Approaches to analyzing and resolving wicked problems*. Dubuque, IA: Kendall Hunt Publishing Company.

Smith, A., & Stirling, A. (2008). Social-ecological resilience and socio-technical transitions: Critical issues for sustainability governance.

United Nations Development Programme [UNDP]. (2014). Human development index (HDI). Retrieved January, 2015, from http://hdr.undp.org/en/content/human-development-index-hdi

United Nations Statistics Division [UNSD]. (2014). GDP and its breakdown at current prices in US Dollars. Retrieved January, 2015, from http://unstats.un.org/unsd/snaama/dnltransfer.asp?fID=2

Wheeler, G. (2014). Core and essential to education for sustainability. *Journal of Sustainability Education, 6,* 1-4.

Wiek, A. (2011). *Transformational sustainability science: Integrating foresight, backcasting, and intervention research.* Unpublished manuscript.

Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: A reference framework for academic program development. *Sustainability Science, 6*(2), 203-218.

Xiong, A. (2013). Participatory design of a comprehensive playground intervention manual for obesity mitigation in Phoenix, AZ. (Master of the Arts).

Chapter 7

Abdalla, J. (2013). Facebook makes the wait easier at Qalandia checkpoint. *The Christian Science Monitor.* Retrieved February, 2015 from http://www.csmonitor.com/World/Middle-East/Olive-Press/2013/1123/Facebook-makes-the-wait-easier-at-Qalandia-checkpoint

Kalman, M. (2013). Palestine's first bike lane in Jericho brings oldest city up to speed. *The Green Prophet*. Retrieved February, 2015 from http://www.greenprophet.com/2013/08/jericho-jerusalem-bicycle-lane-palestine/

Keinon, H. (2012). Dutch donation to boost Palestinian trade. *The Jerusalem Post.* Retrieved February, 2015 from http://www.jpost.com/Diplomacy-and-Politics/Dutch-donation-to-boost-Palestinian-trade

Loorbach, D. (2010). Transition management for sustainable development: A prescriptive, complexity-based governance framework. *Governance, 23*(1), 161-183.

Loorbach, D., & Rotmans, J. (2006). *Managing transitions for sustainable development.* Springer.

Parris, T. M., & Kates, R. W. (2003). Characterizing a sustainability transition: Goals, targets, trends, and driving forces. *Proceedings of the National Academy of Sciences of the United States of America, 100*(14), 8068-8073.

Rawabi. (2015). Retrieved February, 2015, from http://www.rawabi.ps/index.php

Remington-Doucette, S. (2013). *Sustainable world: Approaches to analyzing and resolving wicked problems*. Dubuque, IA: Kendall Hunt Publishing Company.

Rip, A., & Kemp, R. (1998). *Technological change.* Battelle Press.

Rotmans, J., Kemp, R., & Van Asselt, M. (2001). More evolution than revolution: Transition management in public policy. *Foresight*, *3*(1), 15-31.

APPENDIX A

IRB APPROVAL FOR RESEARCH WITH HUMAN SUBJECTS

ASU Knowledge Enterprise Development

Office of Research Integrity and Assurance

To:	Aaron Golub Coor 5550
From:	for Mark Roosa, Chair DM Soc Beh IRB
Date:	07/26/2013
Committee Action:	**Exemption Granted**
IRB Action Date:	07/26/2013
IRB Protocol #:	1306009290
Study Title:	Travel and well-being in the West Bank, Palestine

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(2) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

APPENDIX B

EXPERT INTERVIEW QUESTIONS

Explain the map: The purpose of this map is to pictorially organize components of the complex transportation problem here in the West Bank. Using published reports and my own observations, I have created a draft map that organizes the components of the transportation system that lead to poor accessibility (the ability to access a desired location) and limited functioning (freedoms and capabilities).

Map questions:

1. Please comment on the accuracy and completeness of the map.
    a. Is there anything you would revise or add?

Barrier questions:

2. Which barriers do you think are the most pressing/threatening at the moment? Why?
3. Which barriers are the most manageable at the moment? Why?
4. Using the map, identify your top 3 leverage points for intervention to increase accessibility and/or functioning.
5. Who should be involved in the problem solving efforts?
    a. What roles will each party play?
    b. How may collaboration be executed?

Solutions questions:

6. Are you aware of any current or future efforts aiming to alleviate any of the barriers identified on the map? If so, describe:
    a. The effort
    b. The geographical scale of the effort
    c. The implementation time frame of the effort
    d. The expected outcome of the effort

APPENDIX C

GROUP INTERVIEW QUESTIONS

Short Introduction

My name is Omaya Ahmad. I am a PhD student working to get my degree in sustainability at Arizona State University in the United States. In collaboration with Ahmad Saleh from the Ministry of Planning, I am working on a sustainable development study in Palestine. My interest in the region stems from my familial heritage. My father is from the town of Kafr Malik, and the Palestinian culture is very much a part of my own life. I want to study how the problems with transportation in Palestine affect your daily life.

I am inviting your participation in my study through a group discussion. You will be asked to respond to questions concerning your traveling experiences and to comment other participants' opinions and questions. Your answers to questions will remain anonymous. The duration of your participation will be approximately 20 minutes.

Interview

Important Questions:

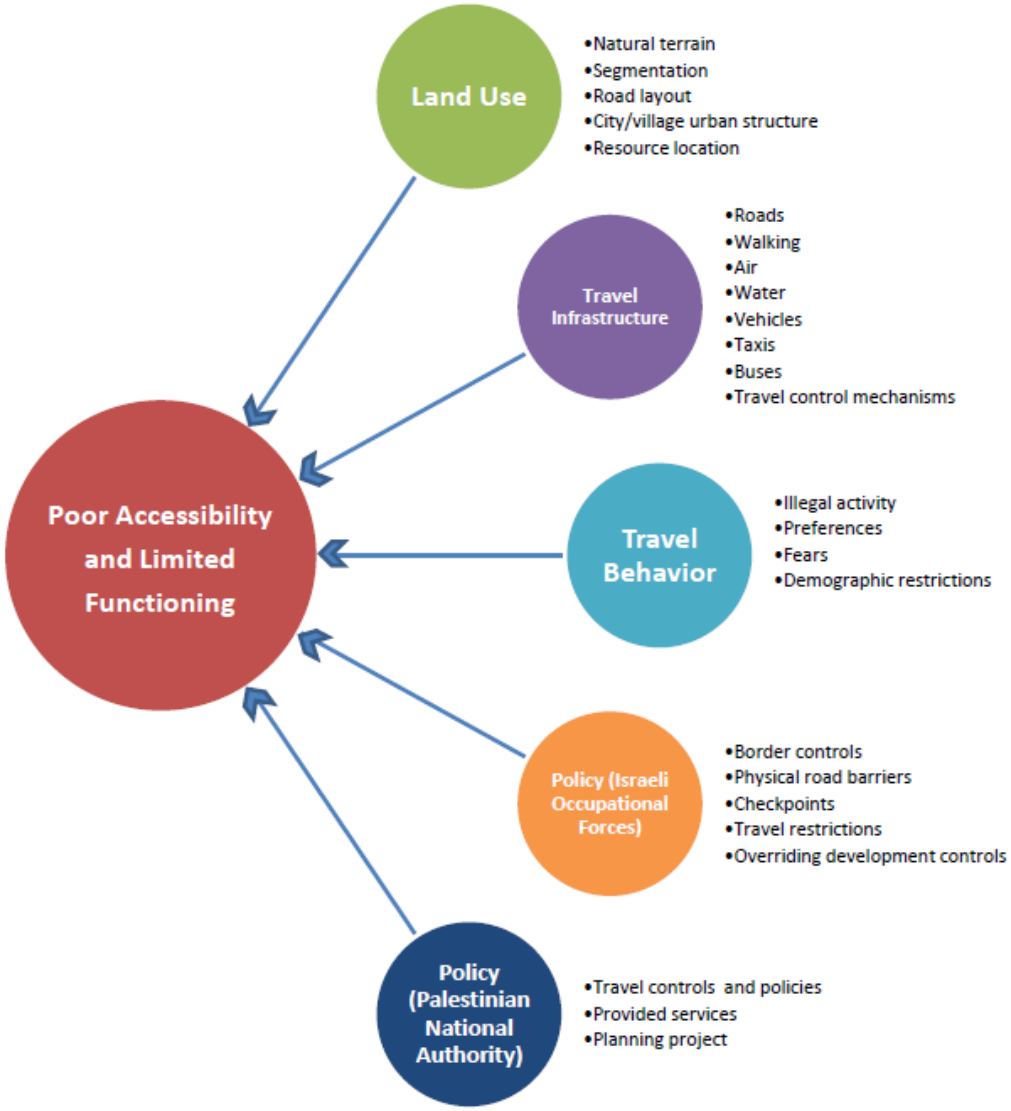
1. For what reasons do you travel (intra- or internationally)?
2. Tell me about a typical day of traveling for you.
3. In the future: what would you like to be able to do? (access related)
    a. Family-wise
    b. Daily task-wise
    c. Education-wise
    d. Work-wise
    e. Healthcare-wise
    f. Choice-wise
    g. International travel-wise
4. In the future: what would you like the Palestinian transportation system to offer you service wise?

Other topical questions:

5. What is your primary mode of transportation?
6. Do you use your primary mode of transportation by choice or force?
7. How far away from your home do you travel on a regular basis?
8. How would you describe how people drive here?
9. Tell me a specific story of your trouble with the transportation system. What was a time that your activities were really hindered by the system?
10. Are there places you want or need access to but are currently unable to reach?
11. What transportation barrier inhibits your ability to travel the most?

APPENDIX D

DRAFT SYSTEM MAP


Land Use
•Natural terrain
•Segmentation
•Road layout
•City/village urban structure
•Resource location
Travel Infrastructure
•Roads
•Walking
•Air
•Water
•Vehicles
•Taxis
•Buses
•Travel control mechanisms
Poor Accessibility and Limited Functioning
Travel Behavior
•Illegal activity
•Preferences
•Fears
•Demographic restrictions
Policy (Israeli Occupational Forces)
•Border controls
•Physical road barriers
•Checkpoints
•Travel restrictions
•Overriding development controls
Policy (Palestinian National Authority)
•Travel controls and policies
•Provided services
•Planning project

APPENDIX E

DRIVER INFLUENCE CHARTS

			Key																
			O Non-directional influence																
			+ Positive influence																
			- Negative influence																
			X No influence																
				Physical Characteristics															
				LU				S		CVS				R			E		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Physical Characteristics	Land use (LU)	1	Natural terrain		O	-	O	X	-	O	O	O	O	O	O	O	O	X
		2	Palestinian built-up areas	O		-	-	O	-	O	O	O	O	O	O	O	O	O
		3	Israeli built-up areas	O	X		-	X	O	O	O	O	O	O	O	O	O	X
		4	Limited surface area	O	O	-		O	-	O	O	O	O	X	X	X	X	X
	Segmentation (S)	5	Distance between built-up areas	-	O	-	+		-	O	O	O	O	O	O	O	X	O
		6	A, B, and C territory control distinctions	O	X	O	X	X		O	O	O	O	O	O	O	X	O
	City/village structure (CVS)	7	Urban cities	O	O	-	O	-	-		O	O	O	O	O	O	O	O
		8	Villages/towns	O	O	-	O	-	-	O		O	O	O	O	O	O	O
		9	Refugee camps	O	O	-	O	-	-	O	O		O	O	O	O	O	-
		10	Industrial areas	O	O	-	O	-	-	O	O	O		X	X	X	O	O
	Resources (R)	11	Arable land	O	O	-	O	O	-	O	O	O	X		X	X	X	X
		12	Forests and groves	O	O	-	O	O	-	O	O	O	X	X		X	X	X
		13	Water	O	O	-	O	O	-	O	O	O	X	X	X		O	X
	Environ-mental (E)	14	Climate	O	O	O	X	O	X	O	O	O	O	+	+	O		O
		15	Population density	O	O	O	O	O	O	O	O	O	O	X	X	X	X	
Transportation Infrastructure	Roads	16	Poor quality roads	-	O	-	X	-	-	O	O	O	-	X	X	X	-	-
		17	Outdated road layout	X	O	-	X	O	-	O	O	O	O	X	X	X	X	-
		18	Small road size	X	O	X	X	O	-	-	O	O	O	X	X	X	X	-
		19	Lacking travel-use mechanisms	X	O	-	X	-	-	+	O	O	X	X	X	X	X	X
	Taxi and taxi van	20	Tumultuous relationship with PA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		21	Limited passenger capacity	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Mass transit	22	No public mass transit	X	O	-	O	O	-	+	O	O	X	X	X	X	X	O
		23	Private and public buses	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Walking	24	Limited sidewalks	-	O	O	X	-	-	+	O	O	X	X	X	X	X	O
		25	Lack of sidewalk barriers	O	O	X	X	-	-	+	O	O	X	X	X	X	X	X
	Air	26	No functioning airports	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X
	Vehicles	27	Poor quality vehicles	-	O	-	X	-	X	O	O	-	O	X	X	X	-	X
		28	Limited parking facilities	X	O	X	X	X	O	O	-	-	X	X	X	X	X	-
		29	Freight travel	-	O	-	X	-	-	O	X	X	O	X	X	X	X	X
el Beha	Undesirable activity	30	Parking in undesignated zones	X	O	X	X	X	X	O	O	O	X	X	X	X	X	-

		31	Speeding	O	O	O	X	-	X	O	O	O	O	X	X	X	X	O
		32	Overfilling cars	X	O	X	X	-	X	-	-	-	O	X	X	X	O	O
		33	Reduced carpooling	X	O	X	X	O	X	O	O	O	O	X	X	X	O	O
		34	Over-taking vehicles on two-way streets	X	X	X	X	X	X	X	O	X	X	X	X	X	X	O
		35	Not wearing seatbelts	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		36	Jay walking	X	O	X	X	X	X	-	X	X	X	X	X	X	X	X
		37	Walking in streets	-	O	X	X	X	X	-	-	-	X	X	X	X	X	X
		38	Congestion	O	O	-	X	+	X	-	-	-	X	X	X	X	X	O
		39	Participating in the automobile "black market"	X	O	O	X	X	X	O	O	O	X	X	X	X	X	X
		40	Building against zoning rules	O	O	O	O	O	O	O	-	O	X	X	X	X	X	X
	Mode preference	41	Preference for private automobile use	-	O	-	X	-	X	O	-	O	X	X	X	X	O	O
		42	Preference for private taxis over taxi vans	X	O	X	X	-	X	-	O	O	X	X	X	X	O	O
	Fears to travel	43	Safety concerns due to conflict	X	O	-	-	-	-	O	O	O	X	X	X	X	X	O
		44	Safety concerns due to infrastructural quality	O	O	X	X	-	-	+	-	-	-	X	X	X	-	O
		45	Safety concerns due to others' behavior	X	O	-	X	-	-	-	-	-	X	X	X	X	X	O
	Demographic restrictions	46	Restrictions by gender based on cultural norms	X	O	X	X	O	X	+	O	O	X	X	X	X	X	O
		47	Restrictions based on income	X	O	X	X	-	X	O	O	O	X	X	X	X	X	X
Policy—Israel Occupation Force	Border controls	48	Passport types and privileges	X	X	-	X	X	O	X	X	X	X	X	X	X	X	X
	Physical road barriers	49	Road destruction	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X
		50	Road blocks	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X
		51	Separation Wall	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X
		52	Temporary and permanent fences	X	X	-	X	X	O	X	X	X	X	X	X	X	X	X
	Checkpoints	53	Permanent checkpoints	X	X	-	X	X	O	X	X	X	X	X	X	X	X	X
		54	Floating checkpoints	X	X	-	X	X	O	X	X	X	X	X	X	X	X	X
	Travel restrictions	55	Difficulties with international travel	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		56	Settler by-pass roads	X	X	-	X	X	O	X	X	X	X	X	X	X	X	X
		57	Curfews	X	X	-	X	X	O	X	O	O	X	X	X	X	X	X
		58	Restrictions imposed by age and gender	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X

		59	Restrictions on freight travel	X	X	-	X	X	O	X	X	X	X	X	X	X	X	X
	Overriding development controls	60	Interference with development	X	X	-	O	X	-	+	X	X	X	X	X	X	X	X
Policy—Palestinian National Authority	Transportation policies and services	61	Private vehicle subsidies	X	X	X	X	O	X	X	X	X	X	X	X	X	X	X
		62	High number of taxi permits	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		63	No coordination with taxis and taxi vans	X	O	-	O	-	-	O	-	-	X	X	X	X	X	X
		64	Travel rules are not enforced	X	X	-	X	-	-	+	-	-	X	X	X	X	X	X
		65	Limited police jurisdiction	X	X	X	O	X	X	O	X	X	X	X	X	X	X	X
		66	Residents are unaware of travel rules	X	O	X	X	-	-	+	-	-	X	X	X	X	X	X
	Planning projects	67	Future oriented	X	X	-	O	O	-	O	O	-	X	O	O	-	X	O
		68	Foreign influence	X	O	X	X	X	X	-	O	X	X	X	X	O	X	X
		69	Uncertainty	X	X	-	-	O	-	O	O	-	X	-	-	-	O	-
		70	Limited resources and funds	O	X	X	-	X	X	O	O	-	O	O	O	O	X	O
		71	Lacking collaboration between ministries	X	O	X	X	-	O	O	O	X	X	X	X	X	X	X
			Total + influences	0	0	0	1	1	0	9	0	0	0	1	1	0	0	0
			Total - influences	7	0	37	5	22	29	8	11	13	2	1	1	2	3	7
			Total O influences	19	42	7	15	16	12	33	37	32	19	10	10	11	13	22
			Total influences	26	42	44	21	39	41	50	48	45	21	12	12	13	16	29

				Key															
				O	Non-directional influence														
				+	Positive influence														
				-	Negative influence														
				X	No influence														
						Transportation Infrastructure													
						R				TTV		MT		W		A	V		
						16	17	18	19	20	21	22	23	24	25	26	27	28	29
Physical Characteristics	Land use	1	Natural terrain	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		2	Palestinian built-up areas	-	-	-	-	O	-	-	+	-	-	-	-	-	+
		3	Israeli built-up areas	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		4	Limited surface area	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Segmentation	5	Distance between built-up areas	X	-	X	O	X	X	X	X	O	X	-	X	X	X
		6	A, B, and C territory control distinctions	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	City/village structure	7	Urban cities	-	-	-	-	O	-	-	+	-	-	-	-	-	+
		8	Villages/towns	-	-	-	-	O	-	-	+	-	-	-	-	-	+
		9	Refugee camps	-	-	-	-	O	-	-	+	-	-	-	-	-	+
		10	Industrial areas	-	-	-	-	O	-	-	+	-	-	X	X	-	+
	Resources	11	Arable land	-	-	-	O	O	O	O	O	O	X	X	O	X	+
		12	Forests and groves	-	-	-	O	O	O	O	O	O	X	X	O	X	+
		13	Water	-	-	-	O	O	O	O	O	O	X	X	O	X	O
	Environ-mental	14	Climate	X	X	+	X	X	X	-	O	X	X	X	-	X	X
		15	Population density	O	O	O	X	X	X	O	X	O	X	X	X	X	X
Transportation Infrastructure	Roads (R)	16	Poor quality roads	■	-	-	-	X	X	O	-	-	-	X	-	-	-
		17	Outdated road layout	-	■	-	X	X	X	X	X	X	X	X	X	X	-
		18	Small road size	-	-	■	-	X	X	+	-	X	X	X	X	X	-
		19	Lacking travel-use mechanisms	-	-	O	■	X	X	-	O	-	-	X	X	X	X
	Taxi and taxi van (TTV)	20	Tumultuous relationship with PA	X	X	X	X	■	X	O	X	X	X	X	X	X	X
		21	Limited passenger capacity	X	X	X	X	X	■	-	+	-	-	X	O	X	X
	Mass transit (MT)	22	No public mass transit	-	-	-	-	X	+	■	X	X	X	O	X	X	X
		23	Private and public buses	-	X	-	-	X	+	O	■	X	X	X	X	X	X
	Walking (W)	24	Limited sidewalks	-	-	X	X	X	X	X	X	■	X	X	X	X	X
		25	Lack of sidewalk barriers	-	X	X	O	X	X	X	X	-	■	X	X	X	X
	Air (A)	26	No functioning airports	X	X	X	X	X	X	O	X	X	X	■	X	X	X
	Vehicles (V)	27	Poor quality vehicles	-	-	X	X	X	X	X	X	X	X	X	■	O	X
		28	Limited parking facilities	-	X	X	X	X	X	X	+	X	X	X	X	■	X
		29	Freight travel	-	-	-	-	X	X	X	X	X	X	O	X	X	■
el Beha	Undesirable activity	30	Parking in undesignated zones	-	X	-	-	X	X	X	X	-	-	X	O	-	X

		31	Speeding	+	-	+	-	X	X	X	X	X	O	X	O	+	+
		32	Overfilling cars	+	-	X	X	X	-	-	+	O	X	O	O	X	X
		33	Reduced carpooling	O	+	O	X	X	O	X	+	O	X	X	O	+	X
		34	Over-taking vehicles on two-way streets	+	X	-	-	X	X	X	X	X	X	X	X	X	-
		35	Not wearing seatbelts	+	X	X	-	X	-	X	X	X	X	X	O	X	X
		36	Jay walking	X	X	-	-	X	X	X	X	-	-	X	X	X	X
		37	Walking in streets	X	X	O	-	X	X	X	X	-	-	X	X	-	X
		38	Congestion	-	-	-	-	X	X	-	+	-	-	X	X	-	-
		39	Participating in the automobile "black market"	X	X	X	X	X	X	-	X	X	X	X	O	X	X
		40	Building against zoning rules	X	-	X	X	X	X	X	X	-	X	X	X	X	X
	Mode preference	41	Preference for private automobile use	-	-	X	X	X	O	O	X	-	X	X	X	+	X
		42	Preference for private taxis over taxi vans	X	-	X	X	X	O	O	X	O	X	X	X	X	X
	Fears to travel	43	Safety concerns due to conflict	X	-	X	X	X	X	X	X	X	X	-	X	X	X
		44	Safety concerns due to infrastructural quality	-	-	-	-	X	X	X	-	-	-	X	-	-	X
		45	Safety concerns due to others' behavior	-	-	-	-	X	X	X	X	-	-	X	X	X	X
	Demographic restrictions	46	Restrictions by gender based on cultural norms	X	X	X	X	X	X	X	X	-	X	X	X	X	X
		47	Restrictions based on income	X	-	X	X	X	X	-	+	X	X	-	-	X	X
Policy—Israel Occupation Force	Border controls	48	Passport types and privileges	X	X	X	X	X	X	X	X	X	X	O	X	X	O
	Physical road barriers	49	Road destruction	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		50	Road blocks	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		51	Separation Wall	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		52	Temporary and permanent fences	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Checkpoints	53	Permanent checkpoints	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		54	Floating checkpoints	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Travel restrictions	55	Difficulties with international travel	X	X	X	X	X	X	X	X	X	X	O	X	X	X
		56	Settler by-pass roads	O	O	O	X	X	X	X	X	X	X	X	X	X	X
		57	Curfews	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		58	Restrictions imposed by age and gender	X	X	X	X	X	X	X	X	X	X	X	X	X	X

		59	Restrictions on freight travel	X	X	X	X	X	X	X	X	X	X	X	X	X	O
	Overriding development controls	60	Interference with development	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Policy—Palestinian National Authority	Transportation policies and services	61	Private vehicle subsidies	X	O	X	X	X	X	-	X	X	X	X	O	X	X
		62	High number of taxi permits	X	O	O	X	O	O	-	X	X	X	X	X	X	X
		63	No coordination with taxis and taxi vans	-	-	X	-	-	X	-	X	X	X	X	X	-	X
		64	Travel rules are not enforced	X	X	X	-	O	X	X	X	X	X	X	X	O	X
		65	Limited police jurisdiction	X	-	X	X	X	X	X	X	X	X	X	X	-	X
		66	Residents are unaware of travel rules	X	X	X	-	X	X	X	X	-	-	X	X	-	X
	Planning projects	67	Future oriented	X	-	-	X	O	X	-	X	X	X	-	X	X	O
		68	Foreign influence	X	X	X	X	X	X	X	X	X	X	X	X	X	O
		69	Uncertainty	X	X	X	X	X	X	-	X	X	X	-	X	X	O
		70	Limited resources and funds	O	-	-	-	X	X	X	X	-	-	O	X	X	O
		71	Lacking collaboration between ministries	X	X	X	X	X	X	-	X	X	X	X	X	X	X
			Total + influences	4	1	2	0	0	2	1	11	0	0	0	0	3	8
			Total - influences	24	30	21	23	1	7	18	3	20	16	9	8	13	5
			Total O influences	4	4	6	5	11	7	10	5	8	1	6	11	2	7
			Total influences	32	35	29	28	12	16	29	19	28	17	15	19	18	20

			Key																			
			O Non-directional influence																			
			+ Positive influence																			
			- Negative influence																			
			X No influence																			
				Travel Behavior																		
				UA												MP		FT			DR	
				30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Physical Characteristics	Land use	1	Natural terrain	X	O	X	X	X	X	X	X	-	X	-	+	X	-	-	X	X	O
		2	Palestinian built-up areas	-	O	O	-	O	X	-	-	-	O	O	O	O	-	-	-	-	-
		3	Israeli built-up areas	X	X	X	X	X	X	X	X	X	X	X	+	X	X	X	X	X	X
		4	Limited surface area	X	X	X	X	X	X	X	X	O	X	X	X	X	X	X	X	X	X
	Segmentation	5	Distance between built-up areas	X	+	X	X	X	X	X	X	X	X	X	+	X	X	X	X	X	X
		6	A, B, and C territory control distinctions	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	City/village structure	7	Urban cities	-	O	O	-	O	-	-	-	-	O	O	O	O	-	-	-	-	-
		8	Villages/towns	-	O	O	-	O	-	-	-	-	O	O	O	O	-	-	-	-	-
		9	Refugee camps	-	O	O	-	O	-	-	-	-	O	O	O	O	-	-	-	-	-
		10	Industrial areas	X	O	O	-	O	-	X	O	O	O	O	O	O	-	-	-	-	-
	Resources	11	Arable land	X	O	O	X	X	X	X	X	X	X	X	O	X	O	-	-	O	-
		12	Forests and groves	X	O	O	X	X	X	X	X	X	X	X	O	X	O	-	-	O	-
		13	Water	X	O	O	X	X	X	X	X	X	X	X	O	X	O	-	-	O	-
	Environ-mental	14	Climate	X	X	X	-	X	X	X	X	-	X	X	-	-	X	X	X	X	X
		15	Population density	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Transportation Infrastructure	Roads	16	Poor quality roads	-	O	-	X	X	X	X	X	-	X	O	O	X	X	X	X	X	X
		17	Outdated road layout	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X
		18	Small road size	-	X	X	X	X	X	-	-	X	X	O	-	X	X	X	X	X	X
		19	Lacking travel-use mechanisms	+	+	X	X	X	X	X	X	O	X	X	X	X	X	+	+	X	X
	Taxi and taxi van	20	Tumultuous relationship with PA	X	X	X	X	X	X	X	X	X	X	X	X	O	X	X	X	X	X
		21	Limited passenger capacity	X	X	O	X	X	+	X	X	X	X	X	X	-	X	X	X	X	X
	Mass transit	22	No public mass transit	X	X	X	X	X	X	X	X	+	X	X	X	X	O	X	X	X	X
		23	Private and public buses	O	X	X	X	X	X	X	X	X	X	X	X	X	X	O	X	X	-
	Walking	24	Limited sidewalks	-	-	X	X	X	X	O	O	-	X	X	X	X	X	X	X	X	X
		25	Lack of sidewalk barriers	-	X	X	X	X	X	O	O	X	X	X	X	X	X	X	+	X	X
	Air	26	No functioning airports	X	X	X	X	X	X	X	X	X	X	X	X	X	O	X	X	X	X
	Vehicles	27	Poor quality vehicles	-	-	-	X	X	X	X	X	O	-	X	O	X	X	X	X	X	-
		28	Limited parking facilities	X	X	X	-	X	X	X	X	O	X	X	-	X	X	X	X	X	X
		29	Freight travel	-	O	X	X	-	X	X	X	-	X	X	X	X	-	-	-	X	X
Travel Behavior	Undesirable activity (UA)	30	Parking in undesignated zones		O	-	-	X	X	X	O	O	X	O	-	X	O	O	O	X	X
		31	Speeding	+		+	O	-	X	+	+	+	X	X	X	X	O	+	O	X	X

		32	Overfilling cars	X	O		+	X	-	X	X	X	X	X	X	X	O	+	O	O	-
		33	Reduced carpooling	O	O	+		X	O	X	X	+	O	X	O	-	O	X	X	X	+
		34	Over-taking vehicles on two-way streets	X	-	O	X		X	X	+	O	X	X	O	O	X	+	O	X	X
		35	Not wearing seatbelts	X	X	-	X	X		X	X	X	X	X	X	X	X	+	+	X	X
		36	Jay walking	-	O	X	X	X	X		-	-	X	O	X	X	X	O	+	X	X
		37	Walking in streets	-	O	X	X	X	X	-		O	X	O	X	X	X	O	+	X	X
		38	Congestion	-	O	X	-	O	X	-	-		-	O	-	-	O	O	O	X	X
		39	Participating in the automobile 'black market"	X	X	X	X	X	X	X	X	X		X	-	X	X	X	X	X	-
		40	Building against zoning rules	O	X	X	X	X	X	O	O	X	X		O	X	O	X	X	X	O
	Mode preference (MP)	41	Preference for private automobile use	O	-	X	O	X	X	X	X	O	-	X		X	O	O	X	X	O
		42	Preference for private taxis over taxi vans	X	-	O	X	O	X	X	X	X	X	X	X		O	X	X	X	O
	Fears to travel (FT)	43	Safety concerns due to conflict	X	X	-	X	X	O	X	X	O	X	X	X	X		X	X	O	O
		44	Safety concerns due to infrastructural quality	-	-	-	X	X	O	O	O	O	X	O	X	X	X		O	X	X
		45	Safety concerns due to others' behavior	-	-	-	X	-	O	-	-	O	X	X	X	X	O	O		X	X
	Demographic restrictions (DR)	46	Restrictions by gender based on cultural norms	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X		X
		47	Restrictions based on income	X	X	X	X	X	X	X	X	X	+	X	-	X	X	X	X	X	
Policy—Israel Occupation Force	Border controls	48	Passport types and privileges	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Physical road barriers	49	Road destruction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		50	Road blocks	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		51	Separation Wall	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		52	Temporary and permanent fences	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Checkpoints	53	Permanent checkpoints	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		54	Floating checkpoints	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Travel restrictions	55	Difficulties with international travel	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		56	Settler by-pass roads	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		57	Curfews	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		58	Restrictions imposed by age and gender	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

		59	Restrictions on freight travel	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Overriding development controls	60	Interference with development	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Policy—Palestinian National Authority	Transportation policies and services	61	Private vehicle subsidies	X	X	X	X	X	X	X	X	+	O	X	O	X	X	X	X	X	X
		62	High number of taxi permits	X	X	X	X	X	X	X	X	O	X	X	O	O	X	X	X	X	X
		63	No coordination with taxis and taxi vans	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X
		64	Travel rules are not enforced	O	O	O	X	O	O	O	O	X	O	O	X	X	X	X	+	X	X
		65	Limited police jurisdiction	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		66	Residents are unaware of travel rules	O	O	O	X	O	X	O	O	X	O	O	X	X	X	X	X	X	X
	Planning projects	67	Future oriented	X	X	X	X	X	X	X	X	X	X	X	X	X	-	O	X	X	X
		68	Foreign influence	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		69	Uncertainty	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X
		70	Limited resources and funds	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		71	Lacking collaboration between ministries	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
			Total + influences	2	2	2	1	0	1	1	2	4	1	0	3	0	0	5	6	0	1
			Total - influences	15	7	7	9	3	5	8	8	11	3	1	8	4	10	10	9	5	12
			Total O influences	6	19	13	2	9	5	6	8	13	9	14	15	8	14	8	6	5	5
			Total influences	23	28	22	12	12	11	15	18	28	13	15	26	12	24	23	21	10	18

Key	
O	Non-directional influence
+	Positive influence
-	Negative influence
X	No influence

				Policy—Israel Occupation Force													
				BC	PRB				CP		TR						O
				48	49	50	51	52	53	54	55	56	57	58	59	60
Physical Characteristics	Land use	1	Natural terrain	-	-	-	-	-	-	-	X	-	X	X	X	-
		2	Palestinian built-up areas	-	-	-	-	-	-	-	-	-	-	-	-	-
		3	Israeli built-up areas	X	X	X	X	X	X	X	X	-	X	X	X	-
		4	Limited surface area	-	X	X	-	-	X	X	X	-	X	X	X	X
	Segmentation	5	Distance between built-up areas	-	-	-	-	-	X	X	X	-	X	X	O	-
		6	A, B, and C territory control distinctions	X	X	X	O	O	X	X	X	O	X	X	X	O
	City/village structure	7	Urban cities	-	-	-	-	-	-	-	-	-	-	-	-	-
		8	Villages/towns	-	-	-	-	-	-	-	-	-	-	-	-	-
		9	Refugee camps	-	-	-	-	-	-	-	-	-	-	-	-	-
		10	Industrial areas	-	-	-	-	-	-	-	X	-	-	-	-	-
	Resources	11	Arable land	-	-	-	-	-	-	-	X	-	-	O	-	-
		12	Forests and groves	-	-	-	-	-	-	-	X	-	-	O	-	-
		13	Water	-	-	-	-	-	-	-	X	-	-	O	-	-
	Environmental	14	Climate	X	X	X	X	X	X	X	X	X	X	X	X	X
		15	Population density	O	X	X	O	O	X	X	X	X	X	X	X	O
Transportation Infrastructure	Roads	16	Poor quality roads	X	-	-	X	X	-	O	X	X	X	X	X	-
		17	Outdated road layout	X	-	-	-	-	-	X	X	-	O	X	X	-
		18	Small road size	X	-	-	X	X	-	-	X	X	X	X	X	-
		19	Lacking travel-use mechanisms	X	X	X	X	X	-	-	X	-	X	X	X	-
	Taxi and taxi van	20	Tumultuous relationship with PA	X	X	X	X	X	X	X	X	X	X	X	X	X
		21	Limited passenger capacity	X	X	X	X	X	X	X	X	X	X	X	X	X
	Mass transit	22	No public mass transit	-	-	-	-	-	-	-	X	-	X	X	X	-
		23	Private and public buses	-	-	-	-	-	-	-	X	-	X	X	X	X
	Walking	24	Limited sidewalks	X	X	X	-	X	-	-	X	X	X	X	X	-
		25	Lack of sidewalk barriers	X	X	X	X	X	-	-	X	X	X	X	X	X
	Air	26	No functioning airports	X	X	X	X	X	X	X	-	X	X	X	X	-
	Vehicles	27	Poor quality vehicles	X	-	X	X	X	X	X	X	X	X	X	X	X
		28	Limited parking facilities	X	X	X	X	X	-	X	X	X	X	X	X	-
		29	Freight travel	-	-	-	-	-	-	-	-	-	X	X	-	-
Travel Behavior	Undesirable activity	30	Parking in undesignated zones	-	O	O	O	O	-	X	X	X	X	X	X	-
		31	Speeding	X	+	+	X	X	+	+	X	X	X	X	X	O
		32	Overfilling cars	O	X	X	X	X	O	O	X	X	X	X	X	X

		33	Reduced carpooling	X	X	X	X	X	O	O	X	X	X	X	X	X
		34	Over-taking vehicles on two-way streets	X	O	O	X	X	-	X	X	X	X	X	X	-
		35	Not wearing seatbelts	X	X	X	X	X	X	X	X	+	X	X	X	X
		36	Jay walking	X	X	X	-	-	-	X	X	X	X	X	X	O
		37	Walking in streets	X	X	X	-	-	-	X	X	X	X	X	X	O
		38	Congestion	X	-	-	-	-	-	-	X	-	X	X	X	-
		39	Participating in the automobile "black market"	X	X	X	X	X	X	X	X	X	X	X	X	-
		40	Building against zoning rules	X	X	X	X	X	X	X	X	X	X	X	X	-
	Mode preference	41	Preference for private automobile use	X	X	X	X	X	X	X	O	O	X	X	X	X
		42	Preference for private taxis over taxi vans	X	X	X	X	X	-	-	X	X	X	X	X	X
	Fears to travel	43	Safety concerns due to conflict	-	-	-	-	-	-	-	-	-	-	-	O	O
		44	Safety concerns due to infrastructural quality	X	-	-	X	X	X	X	X	X	X	X	X	-
		45	Safety concerns due to others' behavior	X	X	X	X	X	-	X	X	-	X	X	X	O
	Demographic restrictions	46	Restrictions by gender based on cultural norms	X	X	X	X	X	X	X	X	X	X	X	X	X
		47	Restrictions based on income	X	X	X	X	X	X	X	-	X	X	X	X	O
Policy—Israel Occupation Force	Border controls (BC)	48	Passport types and privileges		X	X	-	X	-	-	X	O	O	O	O	X
	Physical road barriers (PRB)	49	Road destruction	X		O	X	X	O	O	X	O	O	X	X	X
		50	Road blocks	X	O		X	X	X	X	X	X	X	X	X	X
		51	Separation Wall	X	X	X		X	X	X	X	X	X	X	X	X
		52	Temporary and permanent fences	X	X	X	O		O	O	X	X	O	O	O	O
	Checkpoints (CP)	53	Permanent checkpoints	X	X	X	-	X		X	X	X	X	X	X	X
		54	Floating checkpoints	O	O	X	O	O	O		X	O	O	O	O	O
	Travel restrictions (TR)	55	Difficulties with international travel	-	-	-	-	-	-	-		O	-	-	-	-
		56	Settler by-pass roads	O	X	X	X	X	X	X	X		X	X	X	X
		57	Curfews	O	X	X	O	X	X	X	X	X		O	X	X
		58	Restrictions imposed by age and gender	O	X	X	-	O	-	O	O	X	O		X	X
		59	Restrictions on freight	O	X	X	O	O	-	O	O	O	X	X		X

			travel													
	Overriding development controls (O)	60	Interference with development	O	O	X	-	O	-	X	O	O	O	X	X	
Policy—Palestinian National Authority	Transportation policies and services	61	Private vehicle subsidies	X	X	X	X	X	X	X	X	X	X	X	X	X
		62	High number of taxi permits	X	X	X	X	X	X	X	X	X	X	X	X	X
		63	No coordination with taxis and taxi vans	X	-	-	-	-	-	-	X	-	X	X	X	-
		64	Travel rules are not enforced	X	X	X	X	X	X	X	X	-	X	X	X	X
		65	Limited police jurisdiction	X	X	X	X	X	X	X	X	X	X	X	X	X
		66	Residents are unaware of travel rules	X	X	X	X	X	X	X	X	X	X	X	X	X
	Planning projects	67	Future oriented	-	-	-	-	-	-	-	-	-	-	O	-	-
		68	Foreign influence	X	X	X	X	X	X	X	-	X	X	X	-	-
		69	Uncertainty	-	-	-	-	-	-	-	-	-	-	-	-	-
		70	Limited resources and funds	X	-	X	X	X	X	X	X	X	X	X	-	-
		71	Lacking collaboration between ministries	X	X	X	-	-	X	X	X	X	X	X	X	O
			Total + influences	0	1	1	0	0	1	1	0	1	0	0	0	0
			Total - influences	19	25	23	29	24	35	24	11	24	12	8	14	32
			Total O influences	8	5	3	7	7	5	7	4	8	7	8	5	11
			Total influences	27	31	27	36	31	41	32	15	33	19	16	19	43

			Key											
			O Non-directional influence											
			+ Positive influence	**Policy—Palestinian National Authority**										
			- Negative influence	TPS						PP				
			X No influence	61	62	63	64	65	66	67	68	69	70	71
Physical Characteristics	Land use	1	Natural terrain	X	X	X	X	X	X	X	X	-	O	X
		2	Palestinian built-up areas	O	O	-	O	O	O	-	O	-	O	O
		3	Israeli built-up areas	X	X	X	X	X	X	-	X	-	X	X
		4	Limited surface area	X	X	X	X	X	X	X	X	X	X	X
	Segmentation	5	Distance between built-up areas	X	X	X	X	X	X	X	X	O	X	X
		6	A, B, and C territory control distinctions	X	X	X	X	X	X	X	X	X	X	X
	City/village structure	7	Urban cities	O	O	-	O	O	O	-	O	-	O	O
		8	Villages/towns	O	O	-	O	O	O	-	O	-	O	O
		9	Refugee camps	O	O	-	O	O	O	-	O	-	O	O
		10	Industrial areas	O	O	-	O	O	O	-	O	-	O	O
	Resources	11	Arable land	X	X	O	O	O	O	-	O	-	O	O
		12	Forests and groves	X	X	O	O	O	O	-	O	-	O	O
		13	Water	X	X	O	O	O	O	-	O	-	O	O
	Environmental	14	Climate	X	X	X	X	X	X	X	X	X	X	X
		15	Population density	X	X	X	X	X	X	X	X	X	X	X
Transportation Infrastructure	Roads	16	Poor quality roads	X	X	X	O	X	O	-	X	-	-	-
		17	Outdated road layout	X	X	X	X	X	X	-	X	-	-	-
		18	Small road size	X	X	X	X	X	X	-	X	X	-	-
		19	Lacking travel-use mechanisms	X	X	X	O	+	X	-	O	-	-	-
	Taxi and taxi van	20	Tumultuous relationship with PA	O	O	-	O	X	O	O	X	O	O	O
		21	Limited passenger capacity	X	X	O	X	X	X	X	X	X	X	X
	Mass transit	22	No public mass transit	X	O	X	X	X	X	-	O	-	-	-
		23	Private and public buses	O	X	X	X	X	X	X	X	-	X	X
	Walking	24	Limited sidewalks	X	X	X	X	X	X	-	X	X	-	-
		25	Lack of sidewalk barriers	X	X	X	O	+	X	-	X	X	-	-
	Air	26	No functioning airports	X	X	X	X	X	X	-	O	-	-	-
	Vehicles	27	Poor quality vehicles	O	X	X	O	X	O	X	X	X	-	X
		28	Limited parking facilities	X	O	X	X	X	X	-	X	X	-	-
		29	Freight travel	O	X	X	O	X	O	-	O	-	-	X
Travel Behavior	Undesirable activity	30	Parking in undesignated zones	X	X	O	-	-	-	X	X	X	-	X
		31	Speeding	X	O	X	-	-	-	X	X	X	-	X
		32	Overfilling cars	X	X	O	X	X	X	X	X	X	X	X
		33	Reduced carpooling	X	X	X	X	X	X	X	X	X	X	X
		34	Over-taking vehicles on two-way streets	X	X	X	-	-	-	X	X	X	-	X
		35	Not wearing seatbelts	X	X	X	-	-	-	X	X	X	X	X
		36	Jay walking	X	X	X	-	-	-	X	X	X	-	X
		37	Walking in streets	X	X	X	-	-	-	X	X	X	-	X
		38	Congestion	X	-	O	O	O	O	X	X	X	O	X
		39	Participating in the automobile "black market"	O	X	X	-	-	-	X	O	X	X	X
		40	Building against zoning rules	X	X	X	-	-	-	X	X	X	X	X
	Mode preference	41	Preference for private automobile use	-	X	-	X	X	X	X	O	X	X	X
		42	Preference for private taxis over taxi vans	X	O	-	X	X	X	X	X	X	X	X

	Fears to travel	43	Safety concerns due to conflict	X	X	X	X	X	X	X	X	-	X	X
		44	Safety concerns due to infrastructural quality	X	X	X	X	X	X	X	X	-	-	X
		45	Safety concerns due to others' behavior	X	X	X	-	-	-	X	X	-	-	X
	Demographic restrictions	46	Restrictions by gender based on cultural norms	X	X	X	X	X	X	X	O	X	X	X
		47	Restrictions based on income	+	X	X	X	X	X	X	X	X	X	X
Policy—Israel Occupation Force	Border controls	48	Passport types and privileges	X	X	X	X	X	X	X	X	X	X	X
	Physical road barriers	49	Road destruction	X	X	X	X	X	X	X	X	X	X	X
		50	Road blocks	X	X	X	X	X	X	X	X	X	X	X
		51	Separation Wall	X	X	X	X	X	X	X	X	X	X	X
		52	Temporary and permanent fences	X	X	X	X	X	X	X	X	X	X	X
	Checkpoints	53	Permanent checkpoints	X	X	X	X	X	X	X	X	X	X	X
		54	Floating checkpoints	X	X	X	X	X	X	X	X	X	X	X
	Travel restrictions	55	Difficulties with international travel	X	X	X	X	X	X	X	X	X	X	X
		56	Settler by-pass roads	X	X	X	X	X	X	X	X	X	X	X
		57	Curfews	X	X	X	X	X	X	X	X	X	X	X
		58	Restrictions imposed by age and gender	X	X	X	X	X	X	X	X	X	X	X
		59	Restrictions on freight travel	X	X	X	X	X	X	X	X	X	X	X
	Overriding development controls	60	Interference with development	X	X	X	X	X	X	X	X	X	X	X
Policy—Palestinian National Authority	Transportation policies and services (TPS)	61	Private vehicle subsidies		X	X	X	X	X	X	O	X	X	X
		62	High number of taxi permits	O		-	O	X	X	X	X	X	X	X
		63	No coordination with taxis and taxi vans	X	-		-	X	X	O	X	O	X	O
		64	Travel rules are not enforced	X	X	X		-	O	O	X	O	-	O
		65	Limited police jurisdiction	X	X	X	X		X	X	X	X	-	O
		66	Residents are unaware of travel rules	X	X	-	-	-		X	X	O	-	O
	Planning projects (PP)	67	Future oriented	X	X	O	O	X	X		O	-	-	X
		68	Foreign influence	X	X	O	X	X	X	O		X	X	O
		69	Uncertainty	X	X	O	X	X	X	-	X		-	-
		70	Limited resources and funds	X	X	X	X	X	X	X	X	X		X
		71	Lacking collaboration between ministries	X	X	X	X	X	X	X	O	O	X	
			Total + influences	1	0	0	0	2	0	0	0	0	0	0
			Total - influences	1	2	10	11	11	9	20	0	21	23	10
			Total O influences	11	10	10	17	9	14	4	18	6	11	14
			Total influences	13	12	20	28	22	23	24	18	27	34	24

BIOGRAPHICAL SKETCH

Omaya Heidi Ahmad was born in Phoenix, Arizona and is the only child of Hikmat Ahmad and Heidi Cocco. Her paternal heritage is Palestinian and her maternal heritage is German, Mexican, and Italian. She attended North Canyon High School where she earned an International Baccalaureate diploma and graduated in 2005. Following that accomplishment, she enrolled at Arizona State University (ASU) where she remained for the entirety of her higher academic career. In 2009, she graduated cum laude and earned a Bachelor of Science in Engineering in Chemical Engineering. She also earned a Certificate of Honors from ASU's Barrett Honors College and defended her honors thesis, entitled *Voices of the Palestinian/Israeli Conflict*. Later the same year, she began a doctorate program at ASU's School of Sustainability (SOS). While pursuing her degree, she worked as a research assistant in the Decision Center for a Desert City; a teaching assistant in SOS; a Graduate K-12 Fellow in the NSF funded GK-12 project, Sustainability Science for Sustainable Schools; a faculty associate in the Mary Lou Fulton Teachers College at ASU; and an academic research professional for the Sustainability Science Education (SSE) Project at ASU. Upon the completion of her doctorate program, she will continue her relationship with the SSE project as a postdoctoral researcher.