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EVALUATING THE EFFECTS OF SPATIAL POLITICS OF PUBLIC TRANSPORT IN JOHANNESBURG:
A FOCUS ON BUS SYSTEMS

Noluthando Mthimkulu

A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in fulfilment of the requirements for the degree of BSc Honours in Urban and Regional Planning

Johannesburg, 2015

Declaration

I declare that this research report is my own unaided work. It is being submitted to the degree of Bachelor of Science in Urban and Regional Planning Honours to the Faculty of Engineering and Built Environment in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other university.

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Noluthando Mthimkulu

11 November 2015

Abstract

The importance of effective and efficient public transport systems in developing cities has become a topic of focus. Here, the research report seeks to investigate the spatial politics of public transport systems in the city of Johannesburg. With a spatial and social structure that remains sprawled and separated, there is an inherent need to discuss the value of public transport systems and their role in integrating and transforming the city. The research attempts to provide an enlightening overview of bus systems in the city, particularly the Rea Vaya Bus Rapid Transit, Metrobus and Public Utility Transport Corporation and to discover whether they have a place in the city's future urban form. It does this through exploring notions of access, integration, resilience and transformation and how public transport routes are affected by bureaucratic and spatial decisions. I argue that public transport has the power to shape the city's urban form and social structure. This leads to how the disjuncture in the system affects daily commuters and anyone who is required to interact with public transport. There are many different recommendations that are made to facilitate better systems. These include better infrastructure and providing more forms of access in public transport. I also recommend, at a more cognitive level, the changing of perceptions. In coda, the research provides final evaluation of what has been discussed with regards to having more effective public transport systems.

for the women who raised me, ngiyabonga

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I thank God who makes all things possible. It is only through His faithfulness and great grace that I have made it this far.

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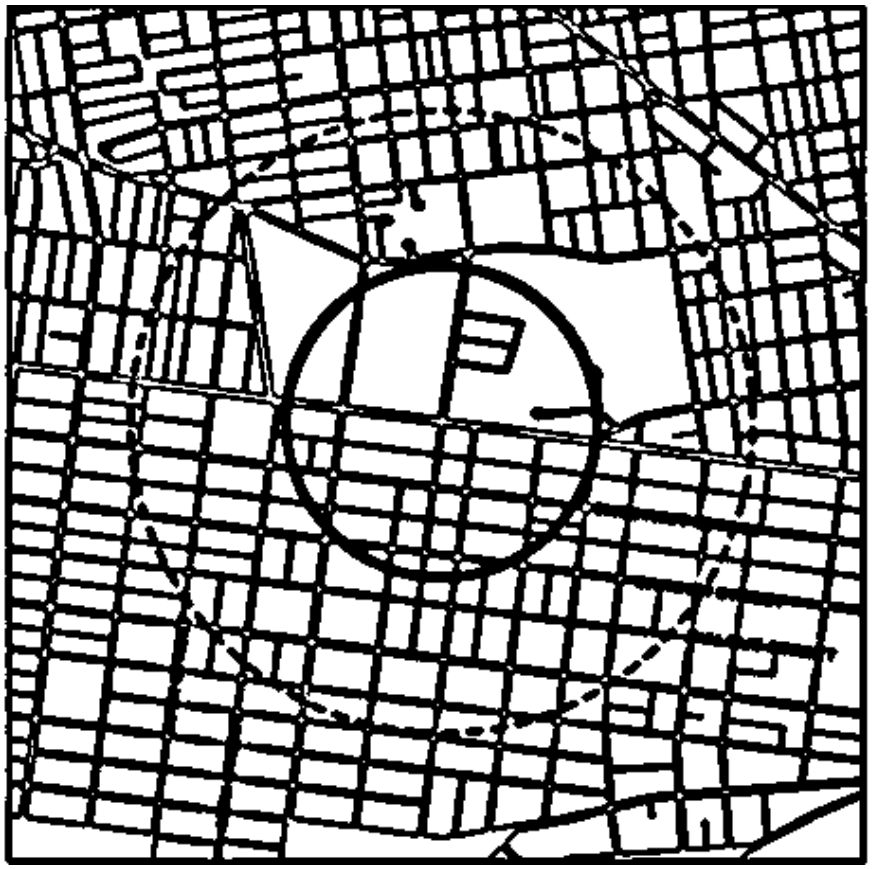
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List of Acronyms

AITP	African Association of Public Transport
BRT	Bus Rapid Transit
CBD	Central Business District
COJ	City of Johannesburg
GDRT	Gauteng Department of Roads and Transport
GDS	Growth and Development Strategy
GMS	Growth Management Strategy
GTIP5	Gauteng Transport Implementation Plan
GWIT	Gauteng Women in Transport
IMTP25	Integrated Transport Master Plan
IRTN	Integrated Rapid Transport Plan
ITP	Integrated Transport Plan
IUDF	Integrated Urban Development Framework
MMC	Member of the Mayoral Committee
NDP	National Development Plan
NPC	National Planning Commission
PRASA	Passenger Rail Agency of South Africa
PTISG	Public Transport Infrastructure System Grant
PUTCO	Public Utility Transport Cooperation
SACN	South African Cities Network
SMME	Small Medium and Micro Enterprises
SOCA	State of the City Address
SPTN	Strategic Public Transport Network
TOD	Transit Oriented Development
UITP	International Association of Public Transport



Chapter One:

Introducing the Study

1.1 Introduction

Public transportation has become a critical vein in the system that is the city network. This research report is centred on how spatial politics affects the modal reach of transit commuter buses in Johannesburg and how they influence movement and accessibility of different areas. A transit commuter refers to someone who uses a passenger transport service, regularly from one place to another, usually home to work or school (Merriam-Webster Dictionary, 2015). While there are different buses and companies that operate in the city, the Rea Vaya Bus Rapid Transit (BRT), Metrobus and Public Utility Transport Corporation (PUTCO) have been specifically chosen in order to examine their relation to each other, and how further interaction can be facilitated in order to make the commuter experience more functional and reachable.

Under the scope of focusing on these systems, the research unpacks and analyses the route, ridership experience and transitions between the systems in order to facilitate an institutional understanding of the bus systems and how they can add value to public transport integration in the city. Providing a background for the study is essential in order to produce a contextual base for why the research is taking place. Following this, the rationale delves into the reasons behind the research as well as motivating tools for how the research will be conducted and how it remains relevant to the context of planning in addition to promoting the notion of integrated public transport.

1.2 Personal Motivation

It is important to emphasise that this is a personal research topic, one that resonates with why planning has become an inherent part of who I am and what I want to achieve in this profession. In turn, this will make the study and its methodology an enlightening experience. The problem statement outlines the direction in which the research is intended to go and addresses the subsequent research question and sub-questions. In order to provide a critical understanding of the institutional and academic thought of the discussion, it is fundamental to engage in a dialogue with the literature which contributes to the conceptual framework of the research. The research methods advise how the investigation is going to take place as well as how the questions are going to be answered. Ethical considerations are then taken into account from a holistic point of view in light of the continuous issues and complexities that commuters are faced with.

My first clear recollection of using a bus in Johannesburg was when I started primary school in Craighall, one of the northern suburbs of Johannesburg. Preparing for the daily commute required leaving the house before 6:00 with my cousins who were in the same school. Our commute would find us

catching a taxi from Orlando East in Soweto to the Central Business District (CBD) of Johannesburg in order to catch a connecting mode of transport that would take us to the north. I remember the slogan on the side of the buses which simply read "we bus the best". We would embark on a bus on Eloff Street (this was before the construction of Ghandi Square as a bus terminus) which took the Jan Smuts avenue route to Randburg and we would make sure to manoeuvre to the front of the bus as we approached our destination. Although the bus was full of people in the mornings, the afternoons found me being spoilt for choice for a seat in the bus as many people were still at work. I found myself in the front seat of the double decker buses with their large windows and panoramic views of the suburbs where the trees would cascade into the streets and were different to the ones I used to in Soweto. At seven years old, the city of Johannesburg and all its views had captured me.

In the pursuit of this profession, it was a course that discussed public transportation that cemented my new found passion and could put into words and concepts, my curiosity for how transport networks function together and contribute to the economy, peoples livelihoods and the manner in which they have physically changed the spatial blueprint of the city. I have had the pleasure of witnessing the evolution of public transport systems in Johannesburg and their resultant impact on those that use the systems and how the infrastructure has changed the city. These changes are almost always seen in a negative perception for those who have not considered all the angles of access and integration for people who are dependent on these systems. As a user of these three systems, I have come to understand the concerns and complaints that people have from different sides of the spectrum, thus the research endeavours to critique and consider how the bus networks and routes can be made more functional for the everyday commuter, not only from a spatial understanding, but also with institutional consideration from policies and appropriate strategies for the benefit of those who interact with and are affected by public transport.

1.3 Background

"Transportation and urban geographers in South Africa have recently begun to draw attention to the gigantic transportation problems that are posed by social and economic transformation in South Africa and the central government's policies of territorial-racial separation encapsulated in the term apartheid"(McCarthy and Swilling, 1985; 236). This quote from *South Africa's emerging politics of bus transportation* still holds true in South Africa's context of public transport today and sets the foundation of the background as it is explained. Public transportation systems in South Africa and in Johannesburg specifically have become

an integral part of spatial planning and transformation for the state and contributors to the built environment.

The recognition of Johannesburg as a fragmented city has brought up notions of integration and congruency in spatial planning, implementation and ultimately, transformation. According to an eNCA report on daily commutes in Johannesburg by Yusuf Omar, "on average, a person here travels between 30 and 40 km's to get to work" (Omar, 2014), this is then perpetuated with increasing congestion and the need for more people to purchase private vehicles because of the limited provision of good public transport systems and networks. In the context of bus systems, Metrobus and PUTCO have been around and active since apartheid, navigating and facilitating long commutes between townships and places of work and other amenities under the spatial layout of apartheid geography (Cronin, 2006).

Furthermore, these two systems have persisted and remained relevant since the turn of democracy, having upgraded buses in some instances. Metrobus and PUTCO have been responsible for moving commuters around greater Johannesburg, although they are not the sole providers of this service. The Rea Vaya BRT system, a fairly new system compared to the others has had to develop as a public transport system in Johannesburg and although there have been many successes around the world in its planning and implementation and maintenance, in this context, it has also had to overcome some stumbling blocks. In this regard, one would think that as the bus systems have developed, there would be competition for bus routes and commuter numbers, not just with Metrobus and PUTCO but also with Metrobus and the Rea Vaya.

From this perspective, it is clear to see that the modal reach of the 'recently introduced' BRT has not deterred the necessity for the Metrobus and PUTCO systems respectively. This is a critical factor in that it illustrates the inherent need for effective and efficient public transport in Johannesburg and that it seems that or there is a perception that commuters are constantly considering what the alternative options are when it comes to accessibility and travelling, something that planners should be mindful of in the policies and strategies they develop.

1.4 Rationale

Johannesburg has been through many significant changes, it has transformed in its social and spatial fabric. The public transport bus networks that are in place have not become obsolete with the introduction and the successive implementation of the BRT and its extended and proposed routes. There may have been adjustments and changes to the systems but their routes have not altered significantly and the

systems all operate in parallel streams and at times, share routes. Another reason for having an interest in this research topic is that Johannesburg has policies for integrated transport plans and frameworks that stipulate directions for how public transport integration can be facilitated and implemented but it does not expand on how this will be achieved within the different contexts.

Many policies look at the concept of integration at a large scale focusing on rail, the backbone of public transportation in Gauteng and the taxi industry, a service provider of public transport that has met the short falls of the black community's lack of transport services since before the turn of democracy. There have been different provisions to upgrade these and other systems in order to enable the improvement of public transportation systems in the context of Johannesburg. This research is not intended to discuss taxis or other modes of public transport systems besides buses; as stipulated in the title.

Investigating how these systems function in this way (together but apart) is vital in trying to understand and promote the ideas and concepts of plans and policies such as the one ticket one province notion as well as other considerations pertaining to the Integrated Transport Master Plan for Gauteng (ITMP25) and the Johannesburg Integrated Transport Plan (ITP).

Another reason why this research is important is that the PUTCO bus system has not been delved into as a public transport system that functions within the city and in greater Johannesburg although it has a vast modal reach, reaches its targets in terms of its ridership and is the biggest commuter bus operator in the country (PUTCO, 2015).

As a subsidised entity by the provincial government, it will be interesting to investigate its operational patterns and what it owes its resilience to; something that can be learned by the Rea Vaya network. Finally, an important reason for conducting this research is that it comes from a personal stance of being a commuter (having used the Metrobus network in my primary and high school years, the PUTCO bus for funerals and travelling far distances to work with my mother, and finally, being a user of the Rea Vaya system at the present time). These bus systems and networks along with the commuters that use them and to an extent, the operators are integral to a holistic understanding of how future planning and implementation of policies can be done in order to remain relevant in the transformation of Johannesburg and the province. These systems are multifaceted but are often viewed in a one dimensional manner.

1.5 Outlining the Issue: Problem Statement

Although Johannesburg's public transport systems are working towards integration, there is still a disjuncture that exists in the city's bus networks.

The above problem statement provides a standpoint on the issues that are dealt with, unpacked and discussed in this study. The issue of disconnections in public transport is often noted at large scale viewpoints. This investigation narrows these disconnections down to the spatial politics that occur between bus networks and how they can navigate towards notions of integration through shared routes and seamless public transport transfers.

1.6 Aims and Objectives

Essentially, the research report aims to provide an understanding of the bus networks in the Johannesburg metropolitan area from an institutional perspective which discusses policies and plans and whether these transcend to the operation of the bus systems. From research done and the provided perspective, there is little that discusses how valuable these networks are for the city and the province at large. The aim also stems from the problem statement. Policies are motioning for integration but they are not questioning the scale at which this needs to be done and in turn, who is affected as well as what the outcomes may be, which then deters the progress that can be made in the different systems. It is evident within the large scale of public transportation as well as in isolated scales of the Gautrain and Metrorail and the bus networks. Thus it is essential that such an investigation and discussion take place. The research intends to critically evaluate the bus networks and provide an enhanced understanding of how they have remained relevant in the context of a city that is under constant social and structural transformation.

1.7 Research Question

Can these bus networks adapt into Johannesburg's future urban fabric without being dispensable?

Johannesburg, in its transformation, has made leaps in its public transportation interventions but justifiably, not everyone agrees with this. There are still many fissures that need to be filled with regards to access to public transportation for all economic classes and people of different backgrounds. According to Lucky Montana, Passanger Rail Agency of South Africa's (PRASA) former CEO "*Public transport is about bringing people together…*" (Omar, 2014) this is vital in developing transport networks that come together under the theme of integration, which is assisted by interaction. Thus the above question arises. As change happens, systems become obsolete and white elephants when modernised versions are

developed. With technological and complex systems being an ideal to cities, can these systems remain relevant to the commuter and the city as a service without being dispensed by new policies? A discussion of the above question is undertaken in the literature. Furthermore, in delving into this question, the following 3 sub questions arise:

1. **Where** do the BRT, Metrobus and PUTCO bus systems intersect and is there any relationship of usability in that space?

    1. This question attempts to discuss the integration of the systems from a spatial perspective. It discusses how people use the systems according to where they are located and whether transitions can be facilitated within the context. This provides a contextual framework from a user's perspective.

2. These 3 systems operate at different scales. **How** does that impact their routes and modal reach from north to south?

    1. Metrobus and Rea Vaya are part of the City of Johannesburg Metro and are operated under this jurisdiction. PUTCO is operational under the Gauteng province and it is contracted by the province to provide this service. This question attempts to investigate any conflicts that may arise according to routes and how these are resolved from plans in the institutional capacity. In her discussion on the Eco mobility dialogues, Silimela (2015) advises that the city continues to have elements that are bound by race when looking at the northern and southern suburbs and their access to transport, the economy and amenities.

3. **What** role does PUTCO play as a private entity in the integration of these systems?

    1. Hanyane (2009) states that PUTCO is the biggest provider of bus transport in the greater Gauteng area. PUTCO is a key stakeholder in the public transportation sector; however, it is not often indicated as to what its institutional value is to the city and what its role is for the city. It is understood and represented in isolation as though it does not share the same spatial access as the other bus networks. This question investigates why this is and how it affects notions of integration for the city.

These questions are fundamental in that they speak directly to how the bus systems can adapt and be integrated in Johannesburg and whether this type of adaptation contributes to or supports their resilience within the city and its transformative ideals.

1.8 Structure of Research Report

The following outline provides the direction and structure in which the research report follows in order to facilitate a critical and flowing discussion.

Chapter two provides a context into the study. It focuses on the physical background of the research report in order to locate the research as well as outline the boundaries that are followed for the research. Under this chapter, a brief context into the buses themselves will be outlined for clarity. In addition to this, a historical context that provides a backdrop of how looking into the past, can make working towards future goals for public transportation, more focused and direct is facilitated.

The literature review engages with the themes around the main arguments, ideas, and debates that are taking place. It develops the theoretical spine of the research report. From the literature review, a conceptual framework is developed in chapter three and it focuses on the terms that come about from the literature and it seeks to unpack them and provide and understanding from the perspective of the topic as well as their relevance. Having done this, the chapter also reflects on policies and how they add value to the discussion that has taken place.

In the fourth chapter of the research report, the focus shifts towards the methodology. This section aims to direct focus on the practical aspects of doing this research and the limits and challenges that take place. A process is followed in order to attain results and form them into coherent and practical sections of information. The research methods outline how the investigations take place and how the outcomes are applicable to the study.

Having gone through the methods of extrapolating the data, chapter five discusses the findings and analyses them. Here the argument is revisited in order to keep to the main themes and compare as well as contrast whether the key questions can be answered comprehensively before making recommendations. In essence, this section of the research report seeks to respond and promote dialogue between theory and practice; what is being said in comparison to what is being done on the ground.

Concluding thoughts and recommendations are then given in chapter six of the research report. Here, final remarks and comments are also provided as to give a holistic understanding of the research report and what it has aimed to

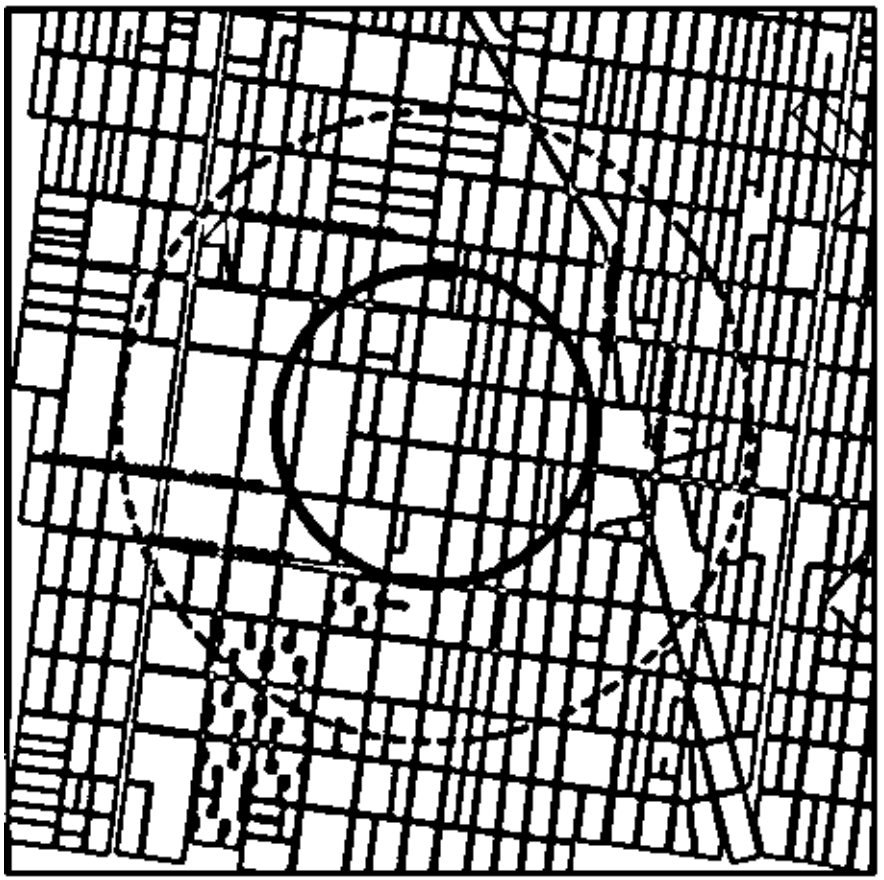
achieve. This reflection attempts to discuss insights for future planners according to what has been considered and unpacked and discovered in this research. Thus it revisits the research report in its entirety while outlining the important statements in the report.

1.9 Concluding Thoughts

This first chapter of the research report has provided a concrete foundation as to what needs to be discussed and analysed with regards to the topic. From here, we see that there are many topics that need to be explored in order to provide a succinct and holistic report, one that gives a better understanding and critical review of how public transportation systems in the city work, and how the bus networks specifically have a direct and important part in structuring the cities movement patterns and commuter networks.

Although they may be often overlooked within the public transportation discussions that are facilitated in literature and at times, policy, bus networks and their different developments are critical in understanding how the city functions, not only in terms of routes, but also in terms of negotiating the physical and social transformation of a city such as Johannesburg.

This research report investigates why some of these networks are sometimes overlooked when it comes to dealing with public transportation progress and exponential advancement. The enhancement of any and all public transport systems should be considered at the helm of redeveloping cities that are responsive to their inhabitants. Thus no system should be considered better than another where the other is never considered for upgrading or improvement. There needs to be a balance in the way we ultimately provide public transport for all without developing systems that are class and race based. Thus in undertaking this research, the way in which space is considered should be considered in relation to the politics of the environment so that one does not influence the other only from a surface perspective.



Chapter Two:

Providing a Context

2.1 Introduction

The nature of this study cannot depart from notions and ideas of apartheid spatial planning and segregation. It is important to look into this context as it is a legacy that the city of Johannesburg continues to try and dissipate, even today. Different trajectories and travel patterns are directed by how people travel from the homes to their places of work and entertainment, travel patterns that are timely and costly. This is a component of their lives that shapes the different movement patterns that are ultimately discussed in this chapter. In order to discuss the imminent question of the bus networks future operation, it is critical to also discuss the past events that shaped how these bus systems came to dominate Johannesburg's road network.

This chapter delves into the physical frame of reference for the study as well as the historical context as a contributing factor for the routes that have been selected for this study. As a fragmented city, Johannesburg has had to grapple with many changes in its new and improved character development even though it still has many features to work on. Policies and intervention strategies, although efficient on paper, continue to be misaligned when it comes to implementation and spatial transformation. Thus it is vital to provide arguments on how the history of the city has influenced what is taking place in the present context of the city. We start off by physically situating the text through maps and routes of the bus networks and why they have been chosen.

2.2 The Bus Network

Johannesburg has a widespread network of bus systems and services. This reaches far beyond the three bus systems and routes that are discussed in the research report. Within the city of Johannesburg, the average length of the commuter route for buses is 27 kms (Johannesburg Strategic ITP Framework, 2013). In order to make bus fares affordable, the bus systems are subsidised by the province and the city. According to McCarthy and Swilling (1985), the amount or size of the subsidy that is provided goes directly to the bus company that is concerned with providing the service.

There are calculations that are involved in that the operating costs of the bus systems are taken into consideration with those of how much commuters can actually pay for the bus. Some bus subsidies amount to R4500 per commuter but what makes this figure unsettling is that some commuters continue to pay more than a third of their incomes towards bus fares (Cronin, 2006). The regular commuter bus systems are all subsidised and thus provided by Metrobus for the city and are subsidised by the province for PUTCO as well as through services contracted and subsidised by the Gauteng Department of Roads and Transport (McCarthy and Swilling, 1985; Cronin, 2006).

These include the contract for PUTCO in Soweto, Eldorado, Boksburg and other South Western Areas that work with contracts (Johannesburg Strategic ITP Framework, 2013). From here, we find that these services operate with 1200 buses; this includes the city's Metrobus system. According to the framework, Metrobus operates 455 buses and 490 are run by the Soweto Depot for PUTCO, an increase from 250 in 2007. In a separate instance from the buses that are subsidised, there is a large number of unscheduled, and at times unregistered bus operators that provide services to and from the city to other areas.

These unscheduled bus operators facilitate different services, some of which include private hire services for special events such as festivals and concerts that require park and ride systems, school transport for learners, as well as inter-city coach services for work purposes. A total of 4 935 buses and small or midibuses (not to be confused with minibus taxis) for use in public transport are licensed in the city of Johannesburg according to the national Department of Transport's tagging and licensing system. However, not all of these bus systems operate in the city of Johannesburg and are thus not part of the study (Johannesburg Strategic ITP Framework, 2013).

As stipulated, the main focus of this investigation is around the BRT Rea Vaya, the Metrobus and PUTCO. Below is a figure of the three bus networks being tested by a local newspaper on their convenience, accessibility, affordability and time between trips. These are all high factors that contribute to people's daily experiences when using public transport. Here taxis are also included due to their popularity as a means of public transport and their reach across the city (Gibbs, 2013).

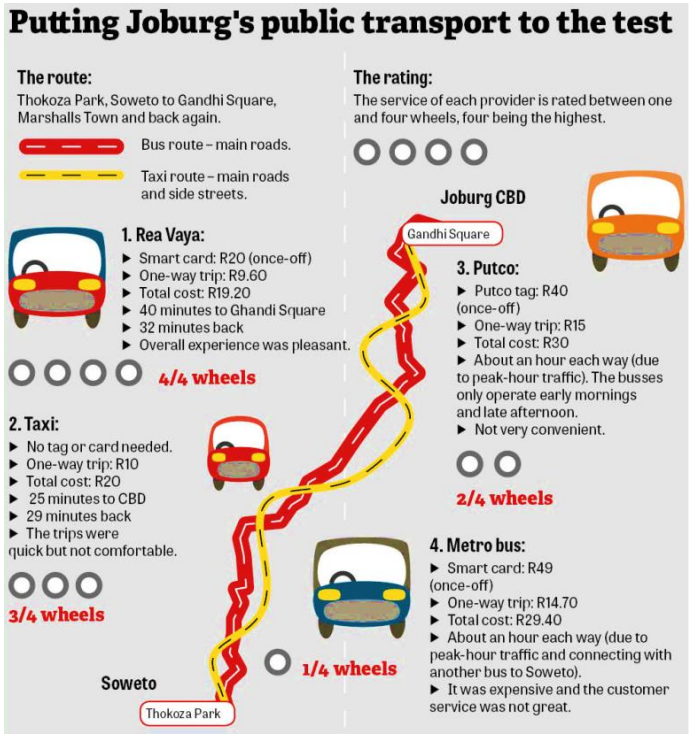


Figure 1: The three main bus systems and taxis being put to the test for a trip from Soweto to the City (Gibbs, 2013)

2.2.1 Moving with Metrobus

The Metrobus system services and transports around 90 000 people daily across the city. The bus company was re-established in 2000 in order to have the city of Johannesburg as its sole owner. Within the context of South Africa, it is the second largest municipal bus operator covering 80 routes that run on a schedule and 130 routes that are directed at schools. Metrobus has separated its coverage of the city into concentric districts, which radiate from from Ghandi Square in the heart of the city. Fare prices are considered according to how many zones are traversed with ticket prices varying from zone to zone. Many of the routes go through the CBD to connect the zones. However, longer distance routes such as the Soweto, Sandton to Sunninghill route does not (COJ, 2015).

In July of this year, the city took to transforming the image of the bus systems by introducing the new green buses that would run on bio gas and sustainable forms of duel fuel. Under this new project, 70 buses were introduced with some of them being retrofitted to be eco-friendly. This was an initiative that was required due to the fact that the city was considering pulling the bus service from the network because of conditions of the old buses and recent accidents that had occurred which required a reconsideration of the effectiveness and efficiency of the buses (Walters, 2015; Sithole, 2015).

The transport company's ***vision*** is to be a world-class African bus service across the greater Johannesburg metro. In its endeavour to provide customer-friendly public bus transport within greater Johannesburg, the ***mission*** aims to focus on innovation, safety, reliability, efficiency, sustainability, environmental consciousness, continuous learning and being customer focused (COJ, 2015).



Figure 2: Metrobus (Mthimkulu, 2015)

2.2.2 Relying on Rea Vaya

The Rea Vaya BRT is a fairly new bus system in the city of Johannesburg. Its launch in 2009 was met with much uncertainty, but great hope as a new public transport initiative for the city. The system can be found in many different areas across the greater urban fabric of Johannesburg, connecting the south to the north and the east to the west. It covers a route of 325km to date and continues to be in the process of expanding (COJ, 2015).

The system is made up of trunk routes that keep to the designated lanes and are connected by the stations along the route. The T1 route runs from Thokoza Park in Rockville, Soweto and ends in Ellis Park. There are more than 15 bus stations across this route that facilitates access onto the buses. The main trunk routes are supported by complimentary and feeder routes that navigate other parts of the city. These feeder buses use the main routes of the road network like other vehicles and public transport systems.

Although it has not yet been implemented, there are plans to extend the different phases of the BRT to the northern suburbs. Construction for the routes and stations has already started in the Sandton area. With its intention to be one of the most sustainable forms of public transport in the city, the Rea Vaya is noted as being cost effective, safe and relatively reliable. It is considered as an inherent component of the city's future urban form as it is one of the main elements of the corridors of freedom initiative.

Finally, the Rea Vaya is referred to as one of the most determined initiatives by the city, being spearheaded by a woman and having a completion goal of three years from ground breaking to implementation and operation (Moosajee, 2015).



Figure 3: Rea Vaya (Mthimkulu, 2015).

2.2.3 In Pursuit of PUTCO

The PUTCO bus company is one of the most prominent services in the city region. It has a fleet of more than 500 buses, some of them having a double axle train bus system like those of the Rea Vaya. This provides them with the opportunity to carry more passengers going to specific destinations.

PUTCO has a vast range of routes and networks; it covers three different provinces, specifically Gauteng, Limpopo and Mpumalanga. These systems are subsidised by each provincial government in order to facilitate movement of system. Earlier in the year (July) however, there was a major strike in Mamelodi, Pretoria where the company had decided to pull the service line, leaving commuters stranded (Khumela and Dlamini, 2015).

One of PUTCO's best initiatives was when they started manufacturing special access buses in 2002. These buses are designed to facilitate the transportation of people with disabilities who are going to work and other destinations and each bus has people who can operate the system to help people who have difficulty accessing the bus.

As one of the bus networks carrying passengers to their destinations, PUTCO has also been synonymous with accidents and high death rates. This is an unfortunate stigma that is known by commuters and those who use public transport systems. Furthermore, with them being so predominant on the road network, their levels of road worthiness are often questioned when the buses are stuck on the side of the road. The most efficient manner of paying for this bus service is through a coupon or bus fare which has been upgraded to card. This is explained further in the Bus Boycotts section of the research.



Figure 4: PUTCO (Mthimkulu, 2015).

2.3 Localising the Text

The greater Johannesburg metropolitan council is the largest economic hub in South Africa, yet it is the smallest in terms of physical size in its located province of Gauteng, as depicted by the figure below (Todes, 2012). Close to one million people commute in and out of the city on a daily basis. Out of this number, 25% use the bus networks that are supplied by the city (Metrobus and Rea Vaya) and the province (PUTCO). This is a significant number considering that bus fleets hold the lowest number of mobility vehicles on the road.

The study takes place in Johannesburg due to the limited resources that are available to fund the research. It also takes place in the city because of the qualities that Johannesburg has in its progression to become a world class city as well as being a city that has unique and underlying elements of past and to a certain extent, present segregation. Furthermore, there are disputes that it is difficult to navigate the city with public transport if you are not familiar with the operational system. Lastly, the reason for choosing this city is for the mere fact that there is a sense of familiarity within the networks and conduits of the city and that as a commuter, there are routes that have come to be a struggle to comprehend and accept at face value.



Figure 5: A map of Gauteng outlining the greater Johannesburg metropolitan council (GIS, 2015).

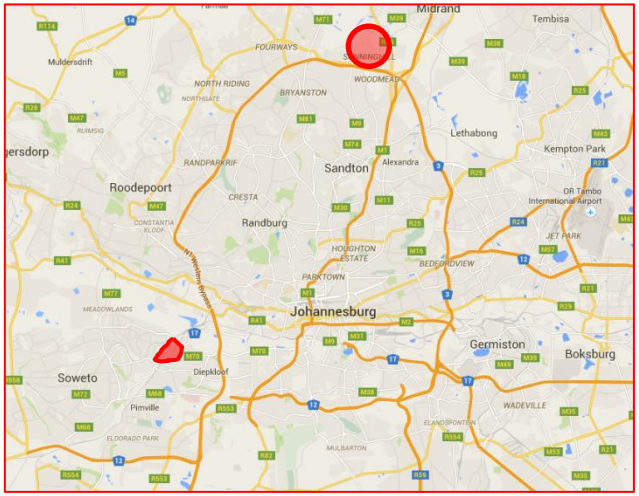


Figure 6: A Map of Johannesburg outlining the focus areas of Orlando in the South and Sunninghill in the North (Google Maps, 2015).

At a more specific level, the study is based in Orlando East in Soweto, Johannesburg CBD and Sunninghill in the northern suburbs. The reason for this is that all three bus systems operate between these areas as well as have direct access between the above mentioned areas. In the above figure six, these areas are highlighted to provide clarity. From here, the CBD acts at the connector for the two polarised areas in the study. Thus, in the context, it would not be surprising if the bus networks travelled into the city in order for commuters to change buses so that they could be further connected to their destinations in a form of general commuter transition. The Gandhi Square bus terminus within the city centre is where the main bus station is for the Metrobus and where most of the buses start or end their route. It is considered as a zone of transition and a node. This development of Gandhi square and its rejuvenation happened after the turn of democracy, before this, the area was known a government square (Beavon, 1997).

2.4 Route Selections

The main route that is investigated is the Soweto to Sunninghill route. It is facilitated by the Metrobus and PUTCO and the Rea Vaya has plans to introduce the feeder route between 2016 and 2018. One of the major pushes of the City of Johannesburg's *Integrated Transport Plan (ITP) – 2003-2008* was to redirect the notion of a car oriented city that had well developed motor ways, to an emphasis on the public transport system for the city, one that would focus primarily on improving movement and access for people. Under this guise, the most important recommendation of the ITP was that the City develops a Strategic Public Transport Network (SPTN). The SPTN was both a network and a concept of operation to guide the City (Johannesburg Strategic ITP Framework, 2013).

In its layout as a network plan, the overarching responsibility of the SPTN was where public transportation connections could be created and further developed according to the busiest networks. This concept was essentially intended to support a compact and multi-nodal city form, through providing a legible permanent public transport 'grid' of well-considered and directed high-frequency public transportation routes that would join key high-density nodes as well as dense residential areas. Once on this transport *grid*, the most important destinations could be accessed through the developed public transport system because of the strong connections. It was designed as a framework of public transportation routes, which were 325km in total length and connecting the 45 development nodes within the city to each other along major mobility spines. This has since developed into the Transit Oriented Development (TOD) conceptualised by the city as the Corridors of Freedom which is further explained in text box one below.

Corridors of Freedom are an initiative by the city of Johannesburg and are led by the Mayor, Parks Tau, to re-imagine the city through a new spatial vision that is in line with the Growth Management Strategy (GMS), Growth and Development Strategy (GDS) 2040 and TOD's. The main aims of the initiative are to devolve apartheid spatial planning through developing and city that has an efficient urban form which is compact. It essentially facilitates this through space, where mixed land-use areas are developed and supported by a widespread public transport network that comprises of high intensity movement corridors and with attractive environments for walking and cycling. This is then interpreted in society where residents are provided with opportunities for greater access and social cohesion is promoted.

(COJ, 2015)

The Soweto to Sunninghill route became a popular network when the transport department, with financial assistance from the Public Transport Infrastructure and Systems Grant (PTISG), initiated a development of a public transport priority lane in 2005. This was mainly for buses and minibus taxis that would stop on the kerbside of the road network. With its connections through Parktown Rosebank and Sandton via Oxford Road, Illovo and Rivonia Road, the route would have established a strong public transport link along this road network. Thus these routes have become popular in the context of providing strong transport networks for the public through more practical transport policies (Johannesburg Strategic ITP Framework, 2013).

2.5 Fragmented Cities

The fragmented city is not an uncommon revelation in the planning and development of cities. The current sprawling fragmented and separated form of the Johannesburg spatial urban form is completely unsustainable (Dewar, 2000). Fragmented cities have developed a sense of pressure on movement and accessibility to different amenities and opportunities. While settlements have continued to sprawl outwards, urban employment and economic or commercial activities and opportunities have been slow to respond and to follow the pattern of growth that has taken place, even though it is present. Most major transportation decisions are reactive in the sense that they are demand led and thus destination based (Dewar, 2000).

The problem with this is that demands change, and the levels of demand within one area may not hold true across the route thus influencing directions and travel routes for public transport and imminent infrastructure. Under this guise, public transportation networks become detached from what

commuters need because of the pull factor or demand that is experienced and the institutional necessity to have enough ridership and a sufficient amount of users. There is a continuing attempt to make access to amenities that are required for good livelihoods and to make access to urban opportunities such as steady employment easier but unfortunately, these inputs and most of the headway that has been made continues to have elements of reinforcing existing patterns and making them acceptable instead of changing them completely.

Transport is a recurring issue that needs to be rectified in order to resolve other issues of sprawl and the strain that is placed on movement patterns. According to Dewar (2000), the most equitable public transport based movement systems are those where people can quickly and easily switch direction and modes of transport or movement. When it is possible, and likely to be available, people are able to move interchangeably because the system provides 'access to access', rather than being primarily reactive or destination determined.

Moreover, I add that the system should also not be influenced by time constraints or the eagerness to only provide quality and efficient transport during peak hours, but also be wholly functional during non-peak hours. Furthermore, there is a gap and thus a necessity to connect people that may not necessarily be going to the furthest point or destination, those who are moving in the in-betweens of the greater urban areas of Johannesburg. There are centre points that act as zones of access that are conceptualised at transport interchange points. These are places where modes of transport are integrated and where opportunities to change direction are highly possible and probable (Dewar, 2000).

This redirects the focus of trying to repair the negative effects of urban sprawl. In recent years, the government has committed itself to achieving an efficient and regulated public transport system, one that utilises different modes of transport and infrastructure to their best advantages in an integrated manner. This implies that the spatial conditions that speak towards notions of compaction, greater intensification along more continuous public transport routes and a more decentralised pattern of urban opportunities needs to be further considered and acted on appropriately. Implementation of the Rea Vaya and its work in conjunction with the 'corridors of freedom' is an idea of how these types of conditions are met. However, their implementation and subsequent rationale or effectiveness is not entirely met. There is still a gap in what is being said and what should be done (Dewar, 2000).

With Johannesburg and many other cities being fragmented, there is a deep seated necessity to resolve these issues, most of which do not need to place their blame on the past. Many of the serious problems for commuters and the public transport systems that they use is that there is a pronounced separation of their places of work and the communities in which they live. A further issue and what makes it difficult to deal with the effects of a sprawled city such as Johannesburg is that policies that pertain to public transport accept these issues as facts that cannot be completely eliminated. In doing this, and in trying to find resolutions that will solve the problems, marginalisation and further sprawling occurs, thus making the issue worse (McCarthy and Swilling, 1985 and Cronin, 2006).

For academics and authors such as Todes, Dewar and Harrison, the major social and environmental consequences that stem from the structure and the form of our cities suggests that the current pattern of urban planning and development is unsustainable which then makes any infrastructure upgrades and transport development unsustainable. This then leads to the notion that urban compaction is an essential condition for and improved urban performance, one that is considered in a strategic and socially relevant manner (Todes, 2012). In the following section, apartheid spatial planning explores some of the reasons behind why urban sprawl has occurred in such an orchestrated manner in the context of the country.

2.6 Apartheid Spatial Planning

Public transportation and in some cases, bus public transport in South Africa has an even more fragmented history regarding government control and institutionalisation due to the effects of apartheid spatial planning. Disparities continue to be prevalent in that they occur with regards to implementation policy and the availability and accessibility of decent public transportation systems besides bus systems. This is in spite of the many changes that have taken place during the last few decades, the progress that has been made through infrastructure prior to the turn of democracy in 1994 (Groenewald, 2003). According to Groenewald (2003), the fragmented profile of the government's control of bus transport was at its worst when the apartheid spatial policies were still strictly enforced in the late 90's.

During the apartheid era, transportation for a black person was funded with monetary funds that were corrupt and misused although they were administered at national level thus making them limited and inefficient. These services were generally restricted to routes between the homelands as well as the demarcated black area townships and the main employment centres or business districts within the city and other industrial areas. Bus transport for white people was provided by the municipal bus services, funded with local rates and taxes (Groenewald, 2003). Since the early 90's, these

services have been opened up to all other racial groups to accommodate and ease the issues of spatial forms that were racially structured, highly fragmented and sprawled.

These services though, are far from being different to the former dispensation, where the same buses are being used almost 30 years later. To this day, South African cities continue to have high levels of racial, socio economic and functional segregation. The phenomena of sprawl and segregation generate a tremendous amount of movement but there is generally a weak articulation or evolution of land use to public transportation (Schoonraad, 2002).

According to Schoonraad (2002), the development of South African cities is like those of a doughnut city. Under this comparison, developments on the periphery are more inclined to be at a higher density, although still at a low density than the older, more centrally located areas, with plots that are smaller in size. These cities are not linked to any forms of effective public transport systems and where they may have a linking element; it is usually deduced that this link is weak. The potential benefits of high densities have been negated by their mono-functionality, and have not led to a decrease in the need to travel by public or private transport. This system tends to heighten social issues including poverty, unemployment, social inequality and polarisation. Moreover, it fails to create the conditions for a viable, efficient and accessible public transport system. It should be emphasised that transport is one of the dominant issues that are central to the debates around sustainable urban forms which seek to promote positive living conditions.

2.7 Bus Boycotts of '55

Having discussed the issue of strikes in the context of the buses that are focused on, it is important to compare and contrast this to events that took place over 60 years ago. This gives an account that social issues faced by people using these bus systems are not a new phenomenon. In the year of 1957, PUTCO, the main bus transportation in the province advised that they would be increasing their bus fares, an incident that would essentially occur for the first time in 20 years. In response to this, the residents of Alexandra Township decided to boycott the bus system and make other means of getting to work in order to send a message to the bus cooperation.

The leadership of the Alexandra public transport society along with the rest of the affected community estimated that around 5000 people boycotted the bus company for those few weeks in the beginning of the year (McCarthy and Swilling, 1985, Catsam 2007a). Their stand would prove successful in negotiating the rise in fares that the bus company had created. PUTCO's superiority in raising the fares was because it

had been formed by the merging of several bus companies in the late 1940's. Under this guise and with an inevitable public transport monopoly in effect, the bus company predictably started to increase local and suburban bus fares that would infringe on and make it difficult and more costly for commuters to travel daily. The statements made in order to drive this message across to the companies ranged from 'Azikwelwa' to 'Asinamali' which translate to 'they[the buses]will not be ridden' and 'we have no money' respectively. This was to show those in power the atrocity and rebelliousness of the commuters to the state of affairs and how it needed to be attended to (Catsam, 2007b). These movements created an atmosphere and consequences for what can be seen in public transport operations today, particularly in the PUTCO enclave.

In their dialogue, McCarthy and Swilling noticed that the most serious problems for the black commuter and their intrinsic public transport industry were due to an especially pronounced separation of the workplace and the community in which they live. However, the state did not see this as a concern, rather, it was generally accepted and yielded as an unchanging factor in transport policy (McCarthy and Swilling, 1985). However, they did not make an effort to ease these struggles within their policies, instead they only aggravated them. The same can be concluded for policies that deal with public transport in the present day however; this will be dealt with further in chapter three.

The movement that was linked to the *Azikwelwa* boycotts saw the emergence of what appeared to be an almost ad hoc mass protest based on the principles of non-violence in the wake of what had become an intolerable situation which was often characterised by abuse, surges of violence, intimidation and mistreatment for those affected by the system changes as well as the infrastructure that was in place. So in this context, the pursuit of non-violence was able to warrant the necessary response from the state and its stakeholders and the expectancy that something would be done to resolve the issues at hand. From this perspective, it is not surprising that these would be the type of methods that would be taken to respond to similar issues faced by unhappy commuters today.

However, this mass mobilisation does not take place anymore when there are transport issues that pertain to unhappy commuters and the state not responding in an appropriate way. In many of the conflicts that have been taking place in recent years, more specifically recent months, there have been many acts of violence that have taken place that have put people at risk as well as injured some commuters. Under extreme circumstances, some people have even been killed during the protests and strikes (Catsam, 2007b).

This comparison of the past experiences and present issues shows that these concerns are persistent and are fundamental to resolving the pitfalls of public transport systems and the downfalls that occur within the system. Although many people may not register this thought process and these notions on their daily commutes, public transport in Johannesburg has many problems, mainly at the institutional level, with bureaucratic influences and restrictions that are translated into problems that are experienced in daily commutes. These are at times converted into problems of bus strikes and bus route disputes or increases in costs. There are elements of bus politics under the public transportation institution that are overlooked and not dealt with completely.

Transport policy in South Africa is caught up within the characteristics and contradictions of the politics of collective consumption under the force of capitalism and what it entails. This contradiction is certainly a good reason for what the issue is when policy is translated from policy conception to interpretation and implementation, there are cross wires that happen and what needs to be focused on is left aside because of bureaucratic greed and capitalistic ideas of development instead of what needs to be done for the betterment of the society. An engagement with these notions further explored and scrutinised under policy interpretation (Rakodi, 2003).

Many township residents who are mostly black people, have been at the mercy of public transportation companies due to residential segregation policies that forced people to live a great distance away from their places of employment. This is a recurring theme, one whose occurrence and eminent challenge are predominant across the city of Johannesburg.

One of the most grappling questions that comes up within this context of public transportation is that if this was already a challenge in the 1950's that was outlined by the apartheid state and it was known that power in the future would eventually shift, then why are these challenges still prevalent 58 years later? In summary, the Alexandra bus boycotts ended when the employers and associated companies in Johannesburg agreeing to provide a subsidy for their workers and PUTCO agreed to maintain their standard prices for any users who in turn agreed to purchase weekly fare coupons that would guarantee regular riders a maintained and non-fluctuating rate and PUTCO, a more guaranteed monetary flow. Irregular riders would be subjected to fluctuating fares and increased costs of using the buses. Thus the concept of the weekly and monthly coupon that is prevalent in the system today was due to PUTCO wanting to secure their income and not necessarily for the convenience of commuters as is considered in the circular environment (McCarthy and Swilling, 1985).

The bus boycotts did not attempt to address larger concerns or issues in the system that left black people vulnerable to this company and dependent on poor access to public transportation. The root cause of the bus boycotts stemmed from the circumstances that created places like Alexandra to begin with. Black people were constantly marginalised in every way possible. They were disproportionally concerned with and thus exploitively affected by rising fares because they were the ones who were mostly reliant on the public transportation system and what it had to offer, which was not much in a city that was mainly car oriented (Catsam, 2007a).

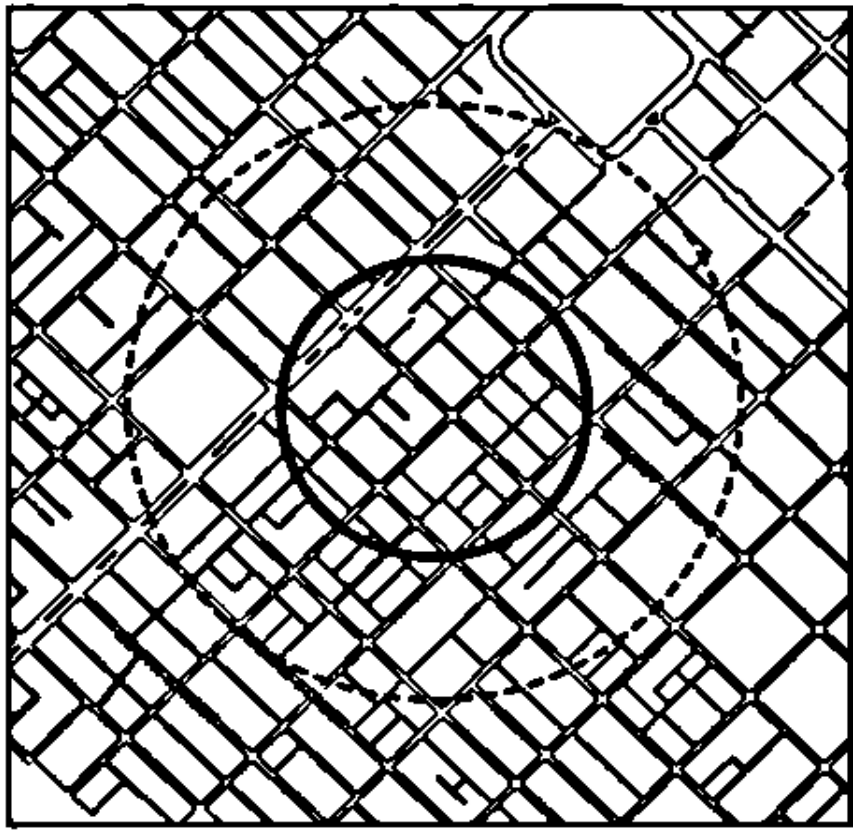
The economic sector being what it was and still remains to be today in some areas of the townships largely informal with little industry, small service centres and almost no public sector jobs, amplified by the minimal availability of other employment opportunities that would assist in finding a source of income or steady employment, people would have to travel into the inner city of Johannesburg in order to seek and hopefully find some work. This is something that is still predominant in today's context although there have been leaps to improve the situation.

Today, there are a large number of black people living in the city, but these are the middle class that have risen up in the economic ladder since the turn of democracy and those who can afford private vehicles, which makes them partial to public transportation and at times, exacerbate the issue of a car oriented city. This remains as a socially constructed idea which is not covered in this research. Those who remain marginalised in the township continue to be dependent and at the mercy of public transportation and the necessity of integrated systems. This is something that needs to be understood in order for us as planners to develop better facilities and network. When we mobilise behind one goal, there are higher possibilities for positive change and transformation.

2.8 Concluding Thoughts

This chapter has laid a foundation and contextual understanding of what the report focuses on. Fragmented cities continue to be part of the problem that faces Johannesburg today, over and above the issues of apartheid spatial planning and its effects. The need to mitigate these issues under the discussion of compaction and compact cities remains a challenge as the notion of these ideas or the outcome lead to further disparities in land and how land uses speak to their surrounding function which includes public transportation networks. The route selection and the discussion of the bus networks shows that there is a relationship that requires further exploration from the passive and active point of view.

Bus systems in Johannesburg have carried people around the greater part of the city and have done this for a number of years. Their longevity is something to be considered and further discussed. It has to be said that the implementation strategies that are being included at present continue to propagate sprawl and private vehicle reliance even if there is headway being made with public transportation provision. The next chapter discusses the concepts that pertain to the report. The literature review picks up on notions mentioned within this chapter and expands on and adds value to the conceptual framework before going into a discussion on policies pertaining to transport and how they can be interpreted.



Chapter Three:

Literature Review

Conceptual Framework

3.1 Introduction

In exploring the main arguments of the research report and developing a conceptual framework, undertaking a review of different literatures is inherent. Public transportation and transportation in general are not concepts that can stand in insolation. They are influenced by many different scopes that extend to movement and values and systems that connect people that connect people in different means. Literature pertaining to this study focuses on the accessibility of the different public transportation networks as well as elements of limitations and disjuncture. This is further discussed in the face of integration. In the planning sphere, the idea of integration has become a buzzword, one that is often focused on so much that even the minor achievements of integration in the city scape in transport networks and land uses are celebrated without looking at the details of what is lacking or still in disintegration.

Here, it is argued that integration has not reached the levels that it should for celebrations and commendations to be taking place, simply because people continue to access basic levels of safe and reliable public transportation. Having dealt with the literature on integration that encompasses ideas of integrated policy making (Stead and Meijers, 2004) transport and planning integration (Potter and Skinner, 2000) and public urban transport integration (Roumboutsos and Kapros, 2008) it is only fair to briefly discuss the public transportation systems in the city of Johannesburg and how accessible and integrated they are from a planner's perspective. The need for access, permeability of space and integration and the culminating necessity for these transport systems to adapt to the city leads to the debates on resilience of these networks and how their staying power provides a better understanding of their importance to those who use them on a daily basis. The theoretical backdrop of this report then ends the discussion on ones understanding of transformation for a city such as Johannesburg and what it means for bus networks and their relationship with the city network in its entirety. A brief discussion of policies and their role takes place after the theoretical reflections.

Once this has been done, a conceptual framework is developed with assistance from the theoretical discussion as well as policies and integrated plans that pertain to public transportation in Johannesburg. In this section, notions of whether theory does in fact translate into practice and how it goes about doing so is interrogated and discussed. Different viewpoints are provided in order to offer dialogue that is all-rounded and active. The literature and concepts support each other in that they draw comparisons as well as contradictory themes that provide a well understood analysis.

The main theory on public transport is that of strategic spatial planning and its mandate to transform cities through strong developments and public transport infrastructure. In the context of Johannesburg as a sprawled city, it is important to align ideas that push towards an integrated city network that supports the different movement systems. Other debates include the inefficiency of public transport in a sprawling Johannesburg and the reliance of private vehicles. From an international perspective, Pacione (2009) advises on his idea of

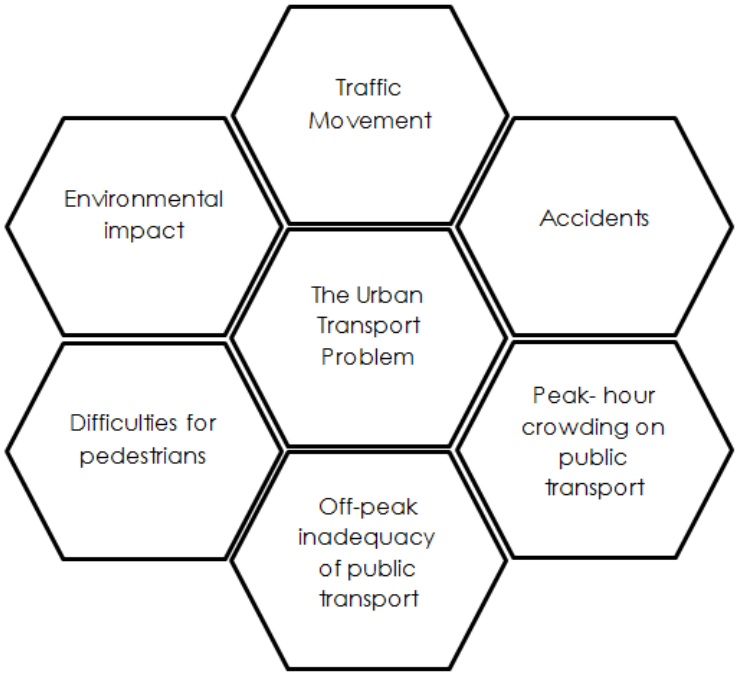


Figure 7: A diagram of the main concerns of the urban transport problem (Adapted from Pacione, 2009).

urban transport and how public transport influences the different dynamics that fall into the aspects of moving in the urban form. In an adapted diagram of what he considers the problems to be, it is clear that from this view, notions around well-developed public transport facilities are inherent.

The way in which Johannesburg was developed and the dependency on vehicles further creates heavy congestion on Johannesburg's roads. The unreliable nature of public transport is also a topic that comes through in literature focusing on all forms of transport but it mainly centres on taxis. There has also been a discussion around TOD's and the Corridors or Freedom initiative that looks at the sustainability and the efficiency of public transport as previously mentioned. The South African Cities Network (SACN) also provides policy ideas on transport mobility and integration.

The previous research that has been done looks at varying elements of public transportation. In South Africa specifically, there is a trend towards policies and how they influence the idea of transit development and integration in and around major cities. The 25 year Integrated Transport Master Plan for Gauteng (ITMP25) along with the Gauteng Transport Implementation Plan (GTIP5) which is aimed at monitoring the progress of the 25 year plan, Integrated Urban Development Framework (IUDF) (2014), Johannesburg Strategic Integrated

Transport Plan Framework are some of the plans and frameworks that have been established in researching the notion of public transport and its various forms of integration.

Although there are other publications and academic content; these plans set a stance for the normative research that takes place and what my research may gravitate towards. According to Todes (2006), it is important to focus on long-term plans centred on land-use and public transportation linkages and networks, with the assumption and intention that other forms of infrastructure can follow in order to adapt, particularly in a city like Johannesburg.

In investigating topics that have dealt with transportation, I have witnessed a great deal of focus on the new systems that have been developed, particularly the BRT and Gautrain where my peers have done well in providing their reflections in their research for which I am grateful for. However, I have also witnessed that the systems that still operate in Johannesburg have rarely been focused on at an in-depth level.

I am highly interested in contributing to the idea of public transport that has traversed the turn of democracy and the transformation of Johannesburg. I am interested in finding out if new systems such as the BRT have this kind of staying power. Included in this analysis of the literature are the focus of bureaucratic involvement and the elements of politics that come with them. This section of the research report encompasses all facets that may deal with public transportation in the context of the investigation. It is important to note that the literature and the concepts may not always be agreed with. This provides a different viewpoint into the theory that has been studied and encourages a practical notion of critical planning thought.

From a political standpoint, there are many decisions that have been made for commuters that do not necessarily benefit them. There are high levels of patronage and political resistance that have delayed the efforts of transforming the nature of public transport in the system. One of the primary reasons for this is the weak links and levels of communication between local government, more specifically within the municipal responsibilities as well as between provincial government and the way in which they have contracted the private bus systems (Rakodi, 2008).

There are inconsistencies between the manner in which networks are divided and which areas are serviced. Many of these service lines and routes have not changed with how the city has been changing. Furthermore, those who are involved and are responsible for the public transport routes and those who direct the systems and how they consider them to be effective are not necessarily those who continuously use the

systems or are themselves a commuter, which creates a lack of awareness for the issues which may possibly arise. Although there is a discussion of integration, not much of it seems to be taking place. Where there is no accessibility, systems should be willing and able to adapt, not the people.

In a city like Johannesburg, where the main focus is to restore the city and rejuvenate it, there should be more consideration on working with all the features of the city in order to develop a more conducive movement of transformation. The next section of this chapter explores the different concepts that encompass public transport systems and how they connect to the concepts of space and politics within the conceptual framework.

3.2 Adaptability and Accessibility

ac·ces·si·bil·i·ty
\-ˌse-sə-ˈbi-lə-tē\

> the measure of the capacity of a location to be reached by, or to reach different locations (Rodrigue, 2013)

adapt·abil·i·ty
\-ˌdap-tə-ˈbi-lə-tē\

> able to change or be changed in order to fit or work better in some situation or for some purpose (mcgrawhilleducationjobs.findly.co, 2015)

Accessibility according to Mackiewicz and Ratajczak (1996) implies the ability to be reached, and in the spatial sense, it means a close location of two points. Public transportation, like many disciplines in the built environment is complex and multifaceted. In order to adapt to an environment, there needs to be a certain level of being able to access and negotiate or traverse through the environment so that there is knowledge in the process of the navigation. Learning and flexibility become a key factor in the paradigm of access.

Accessibility into an environment, promotes the need to being able to adjust or adapt to the environment itselef. In the same stream of linking concepts, the concept of accessibility and mobility are mutually exclusive and dependent on each other. According to Mokonyama and Mubiwa (2014) in order for mobility to be absolutely functional, there needs to be certain levels of accessibility, especially to peripheral areas that lack amenities and opportunities. Accessibility is perceived as a necessary condition for the essence of living and functioning.

At a spatial perspective, there needs to be permeability and ease of access to different areas within the city, something that gated communities often times violate. Within the social perspectives, access to opportunities and services still remains a critical concern (Hanyane, 2009). Whether a person is walking, cycling or using any other mode of transport besides

being in their vehicle, there should be adequate forms of access and mobility.

According to Hanyane (2009, 170) it is important to note that accessibility is a relative notion that depends on other characteristics of the surroundings and the context of its obligation; what it intends to do, what the end function is of this kind of necessity besides what it has been defined to do. From this perspective, I concur with Hanyane in that access is about more than just providing a way through or a conduit from one point to another. However, its values as a conduit are amplified where it speaks towards access to more job opportunities and the easing of such processes. It is a fact that people are out seeking employment every day, in places that are extremely far from them because there are no opportunities around them. In figure 8, Karabo and Bafana, two young people from Meadowlands in Soweto give a brief account of what access is for them and how they are affected by the issues of not being able to access the resources.

Some of the elements that hold them back are the access to public transport systems and networks that are affordable enough for them to reach areas where jobs are available. For this type of accessibility to thrive, an environment of adaptability must be prevalent and support the requirements of accessible networks and systems.

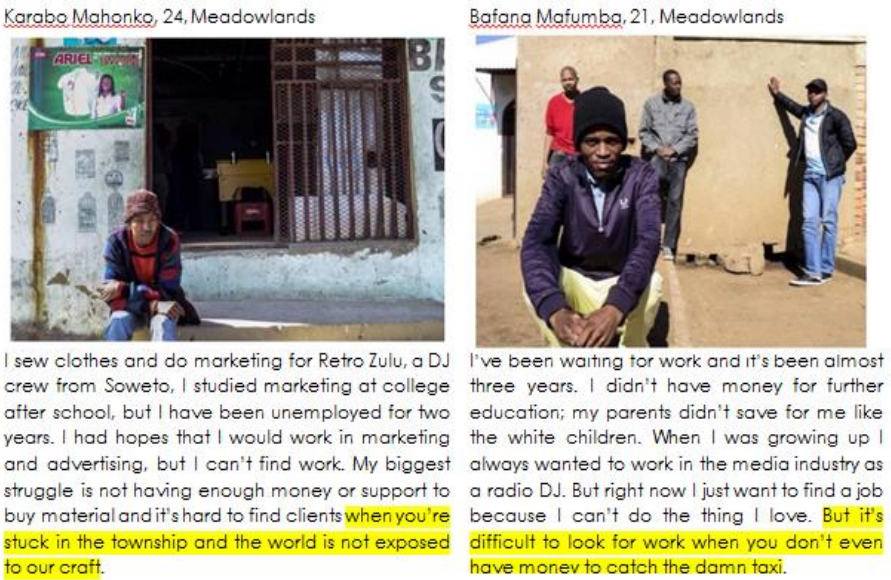


Figure 8: True accounts of how the lack of access limits people's opportunities for better living conditions (Mncube, S., 2015)

Accessibility to urban areas should be regarded as an extension to land use patterns, especially in a sprawled city such as Johannesburg. There is a need for alternative public transport networks and facilities. It is a concept that needs to be promoted alongside other ideas and notions so that all elements are able to support each other rather than stand in isolation and probable destruction. For Pirie (1981) accessibility is and remains as a concept that is to be politicised in order to gain relevance and appropriate action.

Accessibility should be a politicised matter. During the late 20th century, academics such as Pirie (1981) and Holst (1979) had

an interest in the notion of accessibility being synonymous with ideas of reachability or modal reach of public transport and that of convenience. This was mostly prevalent in the interface between transport and land use patterns and systems and how they related. Although the terminology is different, the notions behind them remain at the crux of the dialogues.

From here, the idea of access was used to gauge the effectiveness of the transport services in relation to land use patterns within a spatial context. For them this was important in that it provided information on how people travelled according to how far amenities and industries were for them. This is a concept that may have been built on in recent research that focuses on compaction of cities along main networks and routes in order to develop notions of access as well as promote grand scale themes of TOD's (Pirie, 1981; Todes, 2006).

One of the main points that are raised by Pirie (1981) is that the phenomenon of accessibility may not always be highly considered if its conception, definition and scale of measurement are continuously changed. This has been a recurring theme in the literature. Rodrigue (2013) defines accessibility as a key element in geography and more specifically in transport because it is a direct extension of mobility of people. For him, mobility is a choice that is made by users which is then used as a means to evaluate public transport infrastructure that is available. If there are high levels of accessibility, then the public transport system and the infrastructure are efficient. In the context of South Africa however, this would be a difficult way to measure accessibility as mobility is often not considered in every aspect. He further explicitly defines accessibility as the measure of the ability of a location to be reached by or to reach different locations. From this perspective, infrastructure plays an important role in the way that access is recognised and informed.

Furthermore, because not all areas have the required infrastructure, inequalities may arise. Soweto and the city of Johannesburg are a definitive example. He considers location and distance in his definition of accessibility. Under the scope of location, the relativity of space is estimated in relation to public transport infrastructure because of their role as a means to support movement patterns. Levels of population and the level of economic activity are considered as attributes here.

However, these need to be context specific as notions of informality are not considered. Logically, there are physical separations that are between different locations. This is where the role of distance is emphasised. The concept of distance can only exist and be recognised when there is a plausibility to connect two locations through the means of public

transportation. These notions need to interact in order to facilitate accessibility (Rodrigue *et. al,* 2013).

From this, where there are clashes or friction, it is possible to attempt to resolve it by linking these two concepts together. This is facilitated by the concept of adaptability or resilience, a term that will be further explained within the conceptual framework. Similar to other theorists, Rodrigue admits that accessibility is context specific and dependent on social services and economic opportunities.

Accessibility makes other locations seem more valuable than others (Rodrigue *et. al* 2013). Another broad concept of accessibility confirms the many ways in which it may be realised, for instance, by changes in land use densities and zonings, alternative public transport modes and schedules, an introduction to more flexible hours and incentives for using public transport during the off peak times, which then suggests that improved accessibility may be achieved as a trade off from other projects that are attentive and aligned to it. Policies develop opportunities for such trade-offs.

In many well-formed policies, where private companies are involved, there are components that do not practice the ideas of having trade-offs or even considering them. Here, bureaucracy takes place where decisions tend to be made in an informal manner due to previous ownership and control and the allocation of resources. In addition to this, route selections and any other spatial consideration is made by people who do not necessarily interact with the bus system at a practical and spatial level, rather, because of their power and influence, the decisions are taken into account. Politicians, bureaucrats and residents are all interlocked into personalised relationships as both patrons and clients sharing similar wants (Rakodi, 2003).

From this, Rakodi (2003) proposes that where a municipality lacks resources in its capacity, there will be inadequate skills that in turn will affect bureaucratic processes where they will succumb to lack of efficacy. From this, she advises that communities and corporate companies promote political and administrative relationships that can facilitate systems that will be better for users (Walters, 2008).

3.3 The face of Integration

in·te·gra·tion
in(t)əˈgrāSH(ə)n/

> the action or process of integrating; combining (one thing) with another so that they become a whole (Oxford Dictionary, 2004)

The developments that are visible in public transport systems in the city have been occurring over a number of years. This can be attributed to infrastructure among other elements. The quantity of people who use public transport systems for

commuting is said to expand by a significant numbers as rapid urbanisation and the requirement for constant mobility take place. By 2030, public transport will be user friendly, less environmentally damaging, cheaper and integrated or seamless. These words are adapted from the Gauteng 25 year Integrated Transport Master Plan (ITMP25) and stipulate one of the goals for public transport integration using the term seamless. Integration as a concept in urban transport policies is frequently advocated for, but then rarely defined (May, Kelly and Shepard, 2006). Furthermore, as identified by Stead and Meijers (2004; 2), investigations that concern the integration of land use, transport and environmental strategies is somewhat limited and indication of any translation of rhetoric and theory into practice is difficult to discover.

Operational integration is distinguished from strategic integration that is facilitated by transport policy instruments as well as with policy instruments that are present in other areas. There is also a distinction with regards to institutional integration from local, regional or provincial and national governments. This distinction is made from within each sphere as well between each of them (Roumboutsos and Kapros, 2008). The complexity in defining and evaluating integration stems from the fact that it must be addressed at different spheres. Essentially, integration and the literature that is available and pertains to it are mostly based on institutional approaches. There is little that says and explicitly defines what integration is because no one person knows completely what is meant to be integrated. From a personal perspective, these discrepancies are present because it becomes easier to leave something in ambivalence in order to not have the responsibility of defining it. When it comes to integration, it is once again similar to accessibility in that it is important to contextualise what is being integrated and discussed (Roumboutsos and Kapros, 2008). For this research both the idea of public transport integration from a spatial and policy perspective are examined. From Potter and Skinner (2000) ambiguity and uncertainty are predominant again as they advise that there is no widely accepted definition of what integrated transport means. Stead and Meijers use the term 'fuzzy' to describe the notions around the issues of policy integration. This speaks towards the concerned and confused consideration of the concept (Stead and Meijers, 2004).

However, in several countries, the concept of integrated transport has become an important guiding principle that shapes transport policies and guides structural developments. Similar to other terms of understanding, the present work takes the view that the resulting level of transport integration may be considered as a combined result of strategies and implementations by certain individuals and transport operators

and the intervention of the regulating public authority within an established market environment (Roumboutsos and Kapros, 2008). For these academics, there is a 'paradoxical dilemma' that exists for them in trying to define the term. For them, not being able to compact the concept into a box means that the term is multifaceted. Furthermore, the ways in which they attempt to analyse integration gives a notion of how complex they find this process to be. The use of integration in transport and in practice is at an earlier stage of development compared to the desired benefits and outcomes that are needed. However, the integrated approach is not about easy solutions or a series of solutions which try to solve several issues all at once. Rather, integration should be designed to serve public transport policies rather than being an objective in their own right.

In part of the research of this report, it has been mentioned that the political aspects must be considered in the integration of the systems. There is a place for inclusive and united democratic politics that include participative and communicative components. The administrative processes are essentially directed by and are made accountable to those who are in politics and are responsible for the decisions making of the policy. It is important to have channels that exist for deliberative and collaborative decision making incorporating a range of actors including those low income groups that use public transportation (Rakodi, 2003; Walters, 2008).

Another perspective of public transport integration is linked to policy and how it is interpreted. This links in, not only with the types of policies that are developed, but how they translate into implementation and whether this speaks to the users in the space. Through discussions with other academics and students, there are considerations that the implementation strategies of the Rea Vaya could have been different, that the way in which they were designed and structured did not completely take into consideration the users of the system and how they would access the infrastructure that had been developed. The notion of the main stations being in the centre of the roadway may have been the correct way to design and develop the system in a city like Bogota where the system was contending with rush hour highway traffic. However, perspectives are different and reasons have been provided for the manner in which the designs take place and the trade-offs that have taken place.

However, in a city like Johannesburg, where the densities have proven to not be as high, it is suggested that the stations could have been designed and fitted on the kerbside of the roads to limit dangerous crossing as well as easier access on and off the

stations. Furthermore, this sort of implementation would facilitate the notion of other users such as those who do not necessarily use the bus systems to interact and consider using the system because of its accessibility. Understandably however, these are reflections that provide an opportunity to re-evaluate how the Rea Vaya may have been retrofitted into the city like the other bus systems instead of being implemented in isolation, physically.

May et al., (2006) reflect the idea of integration with that of synergy. Under this guise, improbable thoughts of barriers and how they can be removed as well as the pursuit for this term – synergy- are considered. Integration is a focal point of many international and local transport policies. However, a persistent reminder is that within these policies, it is only a few that understand the term and so endeavour to define them. Within the scope of May et al, the way in which they analyse the term and the process that follows their understanding of integration can be noted with different elements. Specific discussions on the operational factor of integration are highlighted. From this view of operating the systems, the integration of fares, the provision of supporting facilities and access to information within public transportation policies has always been an important concern. The different extensions of integration are bound to overlap at some point or another.

Although they do not specifically discuss a hierarchy of the different types of integration that are mentioned, one can deduce their level of importance on how they affect policy strategies and policy implementation. Firstly, there is integration between policy instruments involving different methods and strategies of strategies. Secondly, there is integration between policy instruments involving the provision of infrastructure management, information and pricing or fares. Thirdly, there is an important element of public transport measures and land use planning measures (May et al., 2006). These three thought processes draw on the increasingly wide range of types of transport and land use policy instruments that are available (Potter and Skinner, 2000; 282).

3.4 Public Transport Systems in Johannesburg

pub·lic trans·por·ta·tion
puhb-lik trans-per-tey-shuh

> buses, trains, subways, and other forms of transportation that charge set fares, run on fixed routes, and are available to the public (www.oxforddictionaries.com/definition/american.../public-transportation)

Transportation infrastructure is a vital entity to the economic growth and structure of cities as well as their well-being. Moreover, they are fundamental in developing countries, where transport investments account for as much as 40 percent of the public sector expenditure (Cervero, 2001). In

the city of Johannesburg, the average commuter spends around 59 minutes in public transport while drivers who are part of peak hour traffic and congestion may spend up to two hours depending on the distance of the trip (COJ, 2015). Thus it is important to develop systems that can move people away from their vehicles, not only to decongest road networks, but also to promote notions of sustainability and the retention of infrastructure. In his discussion on public transport, Cervero (2001) views transportation and cities as mutually dependent on each other, where they influence each other and inform each other on complex and dynamic activities.

Having these links, where notions of land use speak to and compliment public transport networks is vital to sustainable developments that promote access and integration. This section of the paper highlights the shift of public transport in Johannesburg and how it has shaped the city and its activities. Although concepts are considered and discussed, it is essential to remember that the core debates on public transport in this research are those of bus networks and systems. Public Transport is a service that is provided by public or private service operators who have gone into contract agreements with a transport authority. This is for a set and purposed range of services that are bound by the agreement (Finn, 2011).

The market for urban passenger transport has experienced major changes in the form of increased activity and more demand in many developing countries. Since there has been a shift of the way in which new developments are done, there has also been a focus on more contemporary sources of public transport which in itself becomes a limitation. This is experienced both in a spatial perspective as well as with policy (Finn, 2011).

The taxi industry is an integral part of public transport in South Africa. Minibus taxis are the most popular mode of public transportation for the major of people using public transport between different urban and at times, rural areas. Although it is considered as an informal business, the taxi industry facilitates an important role in the market and the economy as many people, mostly those who are poor, are dependent on this public transport systems. While buses are the central part of the research, they only account for 25% of public transport services, while taxis account for over 65%. In total, the industry has an estimated 150 000 taxis, many having gone through the recapitalisation program. As it is a business, the industry has accumulated over R16.5 billion in revenue turnover. It is made up of 20 000 owners and 200 000 drivers. This industry accounts as one of the most accessible forms of public transport, however, it is at times unreliable, costly and unsafe.

https://arrivealive.co.za/Minibus-Taxis-and-Road-Safety

More people are seeking to live closer to their daily activities but with the notions of a sprawled city and costly housing developments in the inner city, there is a disjuncture that takes people back to living on the periphery and being reliant on their private vehicles (Turok, 2012). Furthermore, this is extended across income groups where those who cannot afford their own household vehicles are highly dependent on the public transport systems. However, public transport systems rarely reach the furthest communities that are located on periphery. This is especially true for bus networks where if they do reach those areas; it comes at high costs for the commuters. From as far back as the apartheid dispensation, minibus taxis have resolved to meet people's needs in terms of mobility and reaching the furthest distances. Below, more information is explored on the South African minibus taxi. In the same scope as the city, the public transport industry is in a process of transition, from rail to bus systems and taxi services.

We want transport networks to succeed. Good quality public transport networks and systems should be what we aspire towards (Mokonyama, 2009; Mokonyama and Mubiwa, 2014). The consideration of public transport is important in the way that it is accepted and used. Having these systems being perceived as more than just a service requires a dynamic understanding from different stakeholders. However, if considered purely as a service, then these public transport systems should be scheduled for regular maintenance checks, infrastructure redevelopment, and better regulation in order to improve notions of service delivery and operational structures (Luke and Heyns, 2013). Furthermore, there should be more political consideration and commitment for policies of effective public transport systems to be implemented where short term and long term goals are met accordingly (Rakodi, 2003).

When Johannesburg became a single entity metropolitan authority six years into the new dispensation, it also brought forward a new era of local governance that would see it being led by one mayor who would target and make it possible to have more focused policies that could be successfully developed and implemented. Under this guise, and more specifically in terms of transport, these included the ITP, STPN, the Growth Management Strategy (GMS) and the Growth and Development Strategy 0f 2006 (GDS) which was redeveloped in 2011 to become the GDS 2040. In essence, the GDS provided the beginnings of a strengthened land use and transport growth strategy emphasis for the city.

Cervero, Ferrell and Murphy (2002) note that TOD's have gained in their popularity as a means of rectifying a number of urban issues which include traffic congestion, housing that is well located and affordable as well as unremitting urban

sprawl. The international popularity with TODs would also influence strategy plans in the different policies where it is established by Weakley and Bickford (2014, 5) that "TOD has emerged as a prominent concept globally which can successfully drive more effective and sustainable land use transport integration". From such policies, objectives emphasised strategies that promoted public transport and the promotion of mixed land use patterns which would then encourage strategic densification on specified areas. An important note to make is that according to Cervero *et al* (2002) in order for such TOD initiatives to have any chance of success, the public sector would have to be at the helm of developing the initiatives. An example of the city of Johannesburg's, TOD strategy is provided below in figure 9. Furthermore, these strategies would seek to contain urban sprawl and fragmentation (Todes, 2012; Weakley and Bickford, 2014).

This has ultimately led to the development of the corridors of freedom initiative that is the major focus of the city and as previously mentioned and the Rea Vaya BRT is a fundamental component of this initiative. Although they are not a main focus, TOD's are vital to what public transport in the city aspires to become. The outcomes of TOD characteristics as stipulated by the Queensland government are similar to those of the Corridors of freedom mentioned earlier in the paper and show that there is correlation in what needs to be done.

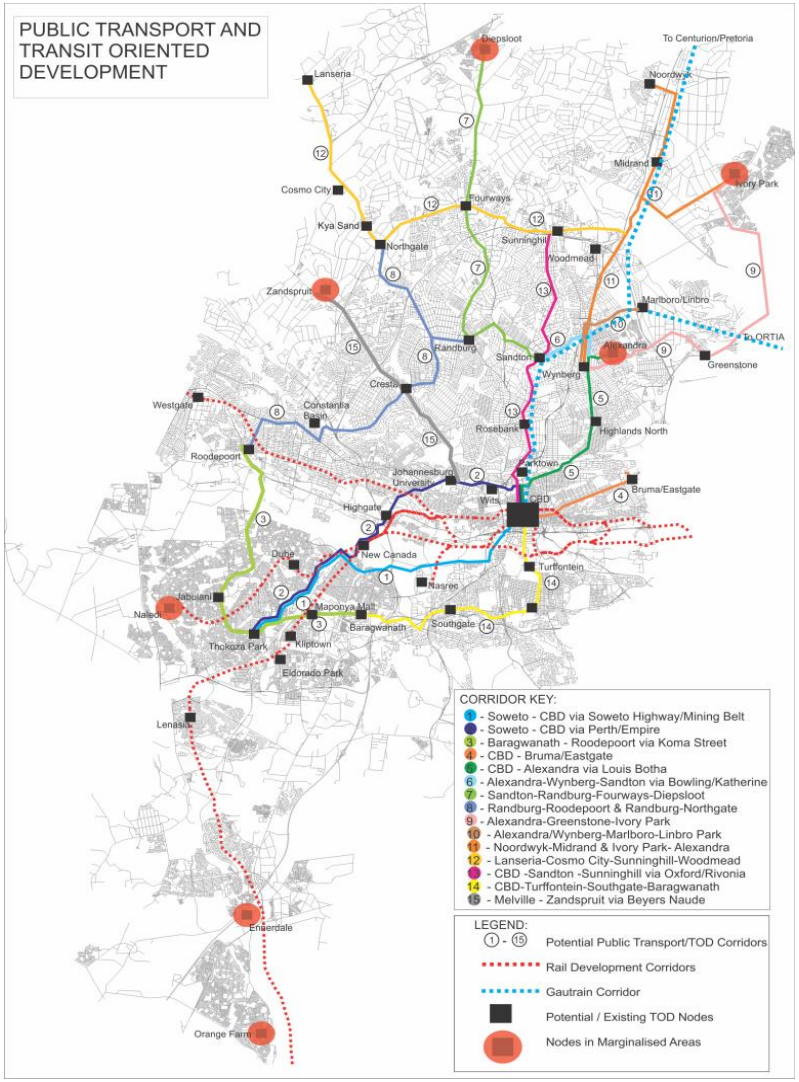


Figure 9: A detailed map of the city's TOD strategy (COJ, 2013)

3.5 Resilience-Staying Power

re·sil·ience
rəˈzilyəns/

> The ability of a substance or object to spring back into shape; elasticity (www.oxforddictionaries.com, 2015)

Modern definitions of spatial resilience consider resilience to consist of the amount of disturbance that a system can absorb while still remaining within the same state or domain of attraction (Cumming, 2011; 900). There is a degree to which the system is capable of self-organisation and the degree to which the system can build and increase its capacity for the process of learning and that of adaptation. According to Pike, Dawley and Tomaney (2010), there has been recent attention towards spatial resilience in development and planning. The concept of resilience has gained prompt recognition as a way to describe important features of stability and robustness in different systems (Seeliger and Turok, 2013). From this contemporary and supportive perspective of resilience there is a focus on a system of identity.

One of the main aspects about resilience is that it equates to the maintenance of key components and relationships and the continuity of these though time. If the resilience is low, then identity may be lost and in a corresponding manner, if the identity of a system is low, then we can conclude that resilience was low. Resilience can thus be operationalised by quantifying the level or output of identity that is found and assessing the potential for identity. It is important to note that even though they may have corresponding themes in this perspective, resilience and identity have strong subjective elements and should thus be defined in relation to a given perspective and problem. Without clear contextual definition, both resilience and sustainability become a set of meaningless concepts because there is no baseline against which to measure the change and minimal criteria against which to define the ultimate success or failure of the system and what has been identified. For Cumming (2011) resilience theory has largely focused on understanding how complex adaptive systems undergo fundamental changes in their structure and function. In considering some of the broad views that take place within these contexts, it is important to note that resilience is not always necessarily desirable.

A good example of this is the highly resilient structures and configurations of landscapes, such as the still evident imprint of the apartheid legacy in land use zones in South Africa. This may be considered as negative for the people who live in those landscapes and circumstances and are restricted to the remnants of this legacy. However, on the other hand, resilience is expressed as an attractive idea in policy discussions in part because in its common meaning, it is followed by positive

connotations unlike concepts of vulnerability, fragility and risk (Turok, 2014).

It is important to emphasise that there is a difference between resilience and sustainability. Universally defined by the Bruntland Commission (1987) as the development that meets the needs of the present without compromising the ability of the future generations to meet their own needs, sustainability has a new best friend on the block in terms of its relationship with resilience. A common misunderstanding is that resilience replaces the idea of sustainability or that resilience and sustainability are essentially the same. The two are linked in terms of aspirational concepts and in the fact that resilience promotes sustainability. However, the two are not equivalent in meaning. One of the ways in which this relationship can be understood between these two terms is to consider sustainability as an essential end goal for development and resilience as a way of thinking and facilitating the idea that would lead towards achieving sustainability. Resilience is the key to sustainability. As Turok (2014) informs, it is a process rather than an outcome. Therefore, a system can be sustainable, even when it is in the face of unpredictable change because it has been shaped by resilience.

Urban resilience has become a catchphrase, placing itself as the new kid on the block of the urban planning community, the shiny new toy to the academics, policies and theorists that are fascinated by its term and connotations. This is because many interpretations of resilience speak towards, the development of sustainable cities in a context where the idea of sustainability is highly important (Steeliger and Turok, 2013).

The city of Johannesburg made urban resilience one of the key themes in its new GDS, the Joburg 2040. It discusses and refers to the social resilience, environmental resilience, and economic resilience and to a certain extent, resilience of the new urban form and the freedom of space. Harrison et al (2014) define resilience as the capability of individuals and social groups, or even socio-ecological systems including towns and cities not only to live with changes, disturbances, adversities or disasters but also to adapt, innovate, and transform into new, more desirable structures. In a similar manner to resilience, the concept of sustainability has interconnected the scopes of economics, social structures and ecological characteristics (Stilwell, 2007). However, it is argued that notions of the political economy and power and their relationships with resilience have not been carefully considered (Pike et al, 2010).

There is an important distinction that is made from this consideration of resilience. On the one hand, there is resilience *in* cities, and on the other, resilience *of* cities. The resilience in

cities speaks towards and is concerned with social groups and individuals within the cities whereas the resilience of cities speaks towards the growth of cities and their longevity and prosperity (Harrison et al, 2014). Although the two are dissimilar, they work and function in relation to each other, they are mutually exclusive and should speak towards each other in order to develop a more encompassed idea of resilience.

The reason for this notion is that if we are going to be concerned on one and not the other, then we are not working towards a resilient environment because we are excluding one or another factor. Therefore, resilience requires that it be considered in an integrated way rather than in terms of dissimilar sectors or at any specific scale of government and operations. The way in which resilience is responded to addresses the perpetual challenges that come with complexities, uncertainties and changes in the specific environments and contexts in which they work and live because in essence, resilience deals with dynamic systems (Reggiani, Nijkamp and Lanzi, (2015).

Resilience requires many things in order for it to be active; it can be labelled as a catalyst or reactant of different elements and substances. One of the core features of this is adaptation. In this case, resilience seeks to adapt a system in order to help it to deal with the shock that it has experienced (Steeliger and Turok, 2013). This can be seen with regards to the Rea Vaya and how it has provided another alternative for people to connect to the city from the south and how, in turn, this has reduced congestion on some routes and air pollution due to the environmental ratings of the bus systems. It also assists in reducing travel times for passengers which then makes the city more accessible.

The way in which cities developed may not always warrant for the concept of resilience, however, the apparent necessity deduces the prerequisite for a responsive and flexible city. The city, at all stages of its development is required to provide opportunities for employment, shelter, food and services for its people while continuing in its aspirations to be sustainable. The ability to maintain vital functions while remaining in a state of adapting and developing in the events of changing circumstances is crucial for urban performances that may be deemed successful in the future (Seeliger and Turok, 2013). Although being able to maintain these functions is the end goal, there needs to be consideration for how these changes are to be produced and what mechanisms the changes involve (Stilwell, 2007).

Although change is involved, and at times, there are thoughts that the resilience of a system is how it is able to stay the same, resilience is meant to facilitate change. One of the main

challenges for complex systems such as cities, particularly bearing in consideration the city of Johannesburg, is that change and transformation is constant and so in this case, the condition of stability and equilibrium is unfeasible. Furthermore, paying particular attention to the bus systems, it is unlikely that they will, in the future, reach a point where no changes need to be made. Simply stated, there will always be room for improvement. Therefore, because of the consistency of change, these systems may never achieve a specific point of stability but are always in the process of adapting, whether bouncing backwards or forwards or attempting to evolve within the dynamic situations in order for resilience to have a continual adaptation to never ending disturbance or shock factors (Harrison et al., 2014; Seeliger and Turok, 2013).

Finally, the term resilience is generally used in a positive sense and as a desired state of adaptive capabilities. Resilience within space has the power to confront many problems through its responsiveness and adaptability (Pike et al, 2010). However at other times, resilience may have negative connotations and aspects such as the apartheid regime and its resistant structures. At an individual level, the concept of resilience may be a powerful state of being, and identifying with one's agency. It is important, at all times, for resilience towards the good of a complex system such as a city network and its public transport systems in order for it to support the endeavours of a sustainable city. The capability of cities to cope with hazardous conditions and learn to adapt to unfavourable conditions is crucial to their prospects of sustained growth and development. Here, the notion of resilience has become common in referring to the crucial characteristics of cities that enable them to deal with catastrophes and other threats which they have little control over (Seeliger and Turok, 2013).

3.6 Seeking Transformation

trans·for·ma·tion
ˌtran(t)sfərˈmāSH(ə)n/

> thorough or dramatic change in form or appearance (http://gcnlive.com/forum/index.php?topic=2155.0, 2015)

The city of Johannesburg was seen as a city for only white people and thus developed around their needs and aversions. The elements of segregation that this city has been subjected to have continued to remain even in the new dispensation. However, in that time, there has been a great deal of emphasis on transformation, both at a spatial and social platform. For many, transformation is a sensitive matter, one that is conceived in different realms and understood from different perspectives. It must be noted that for this report, transformation does not, in any way, represent the absence of one race over another or one system over another, rather, it

seeks to provide an understanding of revolutionising and changing the city to be better, to facilitate and accept more people and to do this through public transport systems. It is important to mention that transformation in this report is considered in all its facets, including economics and politics as well as, on a cognitive level, the transformation of mind sets.

Transformation cannot take place from above, rather, it is important to develop this concept from the ground level, to understand that, because it is multifaceted, it affects and influences many components of the city. According to Beavon (1997) Johannesburg is a metropolitan area that is in the process of transformation. This statement, in all its simplicity encompasses many complexities that come with being in a process of transformation. Under the guise of this statement, it is important to answer why the process of transformation is taking place. As this has been outlined throughout the report, Johannesburg remains a segregated city, one where sprawling elements continue to take place. Secondly it must be defined as to what the engine or conduit of transformation is; from the perspective of the report, public transportation remains as the most important driver of transformation.

Policies that use this term have explored it in their contexts and definitions have attempted to consider all the factors in what they endeavour to achieve. For the National Planning Commission (NPC) a national focus on spatial transformation across all geographic scales is an important one. From the aspect of public transportation networks and systems, policies, plans and instruments that are responsible for transformation need to be considerate of travel distances and the range of costs, especially for those who are outlined as low income households, those who at most times, have to pay the most for public transport.

Under the NPC, there are objectives that specifically address the problems that come about with how the apartheid city has affected the urban form of the city. For them, the year 2030 holds many changes. A greater proportion of the urban population should live in close proximity to their places of work, and the transport they use for commuting purposes should be safe, reliable and energy efficient. Although it has been mentioned, it is important to not develop more housing on the periphery, especially if there are no considerations for accessibility and connectivity to urban amenities. One of the ways in which this can be done is through higher urban densities that are facilitated to support public transport and reduce the effects of urban sprawl.

As stipulated earlier in the research, the effects of apartheid spatial planning remain rooted in the nature of South Africa's current spatial development. In seeking to transform the city,

although we have moved into a new dispensation, it is possibly more difficult today to restructure the effects of apartheid spaces than 20 years ago. The reason for this outlook is that today, there is no government or spatial policy that seeks to segregate but the effects of this previous legacy has evolved into sprawl and spatial divisions that can be traced through economic lines (Todes, 2012).

Moreover, at a policy level, there is an undeniable gap between the policy discourse and its intent with the outcome. This suggests that a powerful ghostly hand of segregation that is intertwined with inequality continues to be at work (Pieterse, 2006). This is a concern in that if we are seeking transformation but there are opposing forces that back track the process, then what are we aspiring towards, and which concepts are we conversely enforcing. Furthermore, as Allen states (2013, 3), one of the most challenging aspects of implementing any transport reform is the resistance to change of those who are benefitting the most from the present system. This is echoed by (Weakley and Bickford, 2014) who note that in the built environment, there is a resistance to change and a tendency of a stubborn nature for spatial transformation.

The concept of spatial transformation is discussed by Weakley and Bickford (2014) where they refer to Williams (2000: 171), in order to provide a clear and concise definition of the term. The paper referred to discusses urban transformation four years into democracy which indicates that not every aspect had been considered and many of the events that have since taken place have clearly not been factored in. Thus, urban spatial transformation is seen as a concept that is multifaceted, and should be considered in a holistic approach.

Transformation is fluid as well as open-ended; it is a multi-layered process which is best described as "tension-ridden planning in motion". The usefulness in this understanding is that it describes a picture of transformation as an iterative, dynamic and consistently changing process which is characterised by contention and requires reinvention, re-imagination and exploration.

As a fluid and dynamic concept, the definition of transformation provides a useful basis for which to reflect on the ability of South African interventions to deliver alternate spatial outcomes. This understanding of transformation suggests that spatial restructuring in South African cities will not be a straight forward linear process which yields effective results in the short term. To some extent, it seems that for more equitable and sustainable spatial outcomes to occur a complex and exploratory set of interventions will be required

which adapt and change over time as outcomes are assessed and lessons are learnt. Critical to the spatial transformation agenda is a generally clear understanding of the future South Africa is trying to build towards. The NDP (2011) is perhaps the best reference point for understanding the future vision.

It goes without saying that there must be reliable and affordable public transport systems and networks and better coordination between various modes of public transportation. The concepts have been interconnected in the diagram below to show that there is a level of interdependency that is involved which supports this. Now, the report delves into the policy interpretation phase of the research to argue its part in public transportation.

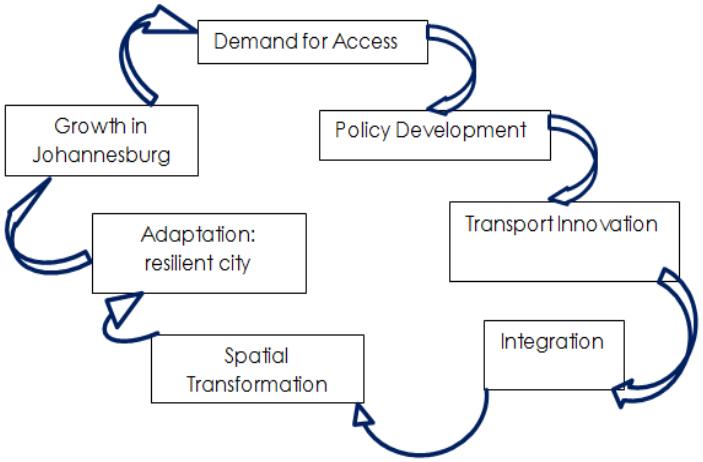


Figure 10: A diagram linking the concepts discussed and how they relate to each other (Mthimkulu, 2015)

3.7 Policy Interpretation

There is a dearth of evidence to show how the different policies that have been published focus on the integration of bus systems on their own. One of the only policies that focus on the development of bus systems is the ITP for Johannesburg and the Metrobus Policy on its green fleets. Instead, the integration referred to specifically focuses on the integration of space which in itself provides great value. Although policies discuss public transportation in general terms, it is difficult to follow up on and hold policies to account if they are not specific in the work and transformation that they seek to obtain within the city through different modes of public transportation.

One of the most crucial influences of transforming public transport systems was in 2006 when the department of transport launched a policy program that was set out to revitalise passenger transport systems within the country (Schalekamp and Behrens, 2010). From this advancement, the Integrated Rapid Public Transport Network (IRPTN) was designed with 12 cities in mind including Johannesburg, Ekurhuleni, and Tshwane to develop a system of networks that would facilitate BRT's and consider factors and elements that would support non-motorised transport such as cycling and promote the use of public transport with integrated systems and mass rapid systems that interacted with their surrounding

space, an example of this being the corridors of freedom initiative within the city of Johannesburg. Having mentioned that there were plans designed for each municipal area in Gauteng, so did the necessity for the re-designing of the bus networks' contracts arise in the context of the national Public transport strategy and action plan, and in the light of BRT implementation projects such as Rea Vaya. However, since there was a stipulation that that the new and ensuing public transport networks would replace a substantial portion of existing road-based public transport systems, the policy outlined and stipulated that the operators that had been affected would be given the opportunity to bid for IRPTN services in order to keep them content. A number of subsidised bus companies such as PUTCO at a provincial level that it operates in, have generally responded positively to incorporation in the proposed services because they are operational routes and mandates that have been kept the same or improved in terms of subsidies and requirements.

However, operators within other passenger transport systems, those who would be the most affected such as taxi drivers and other operators were not in total favour of the changes that would be taking place. It has been discussed within many of the interviews that have been held that some taxi unions and other individuals who were responsible for holding discussions and protecting the rights of taxi associations have been (after many other disastrous and ineffective negotiations) effectively engaged on the role that city and national governments have envisioned for them in the new networks, including how they would be able to participate and help improve the systems.

Although some have claimed a lack of meaningful engagement and inadequate indication of improved business and employment prospects and benefits, the notions of the BRT have continued to be implemented, with increased hostility and at times, violence. The deadlock in negotiations, initially limited to the three cities where construction on BRT infrastructure had commenced, has escalated into a national issue, with both the national government as well as the provincial administrations being involved in order to relieve tensions and proceed with the course of implementation and introducing the new bus systems and networks. This move has highlighted the risk that the new networks may not always be implemented as planned and on schedule, as well as not received in an acceptable manner even though they are there to serve the community (Walters, 2013; News 24; Pretoria News).

It is outlined in the Strategic ITP Framework, that the city of Johannesburg runs and is responsible for the Metrobus and the Rea Vaya network, although the two are not integrated in any terms due to bureaucratic frictions. As part of their

responsibility, they also maintain and work on roads that are owned by the city's network; including the two freeways that bisect the city and also frame it (M1 and M2). This is important in that the public transport systems that run on these roads do not necessarily need external contributions or inputs in terms of selecting or altering routes and networks of the city when required to. Furthermore, according to the framework plan, the city builds public transport infrastructure on these roads and their supporting infrastructure such as bus stops and street infrastructure. Though the transport department is responsible for the transport planning for the city and responsible for all operations, not much has been stipulated in terms of what more can be done to make the systems more effective. These elements are clearly connected, and while this may be blatantly obvious, there is little consideration for the progress that can be made in a rapidly changing city such as Johannesburg (Finn, 2011).

It has been the intention of the city's MMC's to restructure and renegotiate the bus contracts in Johannesburg over the last ten years. In order to do this, the city established a Rationalisation Plan that would encompass the PUTCO service in Soweto. In the same instance, the GDRT had initiated a different project plan to redesign the subsidised bus services as previously stipulated. This displays that there are policies and attempts by the administration from policy, to try and integrate the bus networks. However, these notions that have been put forward do not necessarily speak towards making commuting better and more accessible for passengers and regular commuters because a fundamental process of holding dialogues with the passengers is not considered. Furthermore, it leads to considerations on how structures will contest the idea of a one card system if there are issues and high discrepancies with travel costs between the different networks and what kind of other solutions can be considered in order to facilitate the city's rationalisation concept. Stemming from this, more initiatives may have been considered in more recent years to improve the organisation of a more controlled public transport market that puts commuters at the helm (Mokonyama and Mubiwa, 2014; Finn, 2011; Walters, 2008; ITMP25).

Conversely, many of these city or provincial plans have not been fully implemented. In seeking to change this, Metrobus introduced a new service line which was independent of the plan. The main one was the Soweto to Sunninghill route which caused major repercussions in negotiations processes with the SPTN and taxi operators that were involved. This however, was a good move by Metrobus who have, as previously mentioned serviced only white neighbourhoods as this was their stipulation in the apartheid dispensation. They have, in essence, moved towards transformation in this initiative, even with much restriction from other passenger transport operators.

Furthermore, their initiative to move towards the green bus project and the attempt to have a new and more sustainable fleet of buses has illustrated that when transport authorities provide funding for the purchase of new technologies and seek towards upgrading the systems, some positive outcomes may be found. The table below adapted from Finn (2011; 96) exemplifies the initiatives, some taken by the city, can improve bus systems in the urban form (Finn, 2011).

It is fundamental that Public transport policy goals and objectives must be clearly defined and stated. Furthermore, there must be a supporting implementation strategy that speaks towards facilitating the operation phase of the policy. In addition to this, there will be an avoidance of policies that are generally ambiguous and those that do not speak towards being functional (Walters, 2008; 2013).

The NDP 2030 (NPC, 2011) views public transportation as a measure and approach to change in terms of social cohesion and social issues such as unemployment and poverty. For the plan, investing in public transport in general is seen as facilitating mobility and supporting low-income households and communities. It also has a mandate and includes the key necessities of safe and affordable as well as effective modes of public transportation; however, these are all in conventional terms. There is evidence that major public transport initiatives are being rolled out in order to improve public transport in the city (Walters, 2008).

Table 1. Summary of Changes in Role of Regulator/Transport Authority and Market Structure

Change in Role of Regulator/Transport Authority and Market Structure	Examples
Regulation of urban passenger transport introduced or restored	Ghana, Manila (Philippines)
Regulation of passenger transport transferred to the City	Jordan
Regulatory capacity developed within local government	Accra and Kumasi (Ghana), Amman (Jordan), Tbilisi (Georgia), Manila (Philippines)
Changes made to rules for market entry and/or procurement	Accra(Ghana) and Lagos (Nigeria), Tbilisi (Georgia)
Regulators develop new models for procurement of services	Recife (Brazil)
Regulators develop new contractual basis for bus services, or amend existing ones	Kaunas (Lithuania), South Africa, Santiago (Chile)
Regulator makes direct intervention to restructure private operators	Sri Lanka
Transport authority makes vehicles available to operator	Accra(Ghana), Tbilisi (Georgia), Dhaka (Senegal)
Transport authority provides funding or financial incentives for bus purchases and/or technology upgrades	Kaunas (Lithuania), South Africa, rural areas in Brazil
Transport authority finances new transport infrastructure to enhance public transport system quality and level of servce and to provide improved operating and maintenance facilities to operators	Accra (Ghana), Amman (Jordan), China, Dar es Salaam (Tanzania), Delhi (India), Mauritius, many other cities

Figure 11: A Table adapted from Finn (2011) on how the change in the transport authority brings about change for the system itself.

Public transport upgrading and infrastructure is not just essential for faster economic growth and notions of employment but also, these systems have the opportunity and platform to promote ideas of inclusive growth and providing

commuters and other users with the means to improve their own lives and boost their incomes through selling their products such as fresh produce and confectionary biscuits. This is evident in the stations and terminal areas or even within the buses themselves. Public transport infrastructure is essential to the development of the city but more needs to be done and critically evaluated in order for its potential to resolve social issues to be maximised.

It is important to note that In South Africa a policy of competitive tendering and proposals for bus services have been in place for as far back as the apartheid dispensation and have been retrofitted into the new transport policies after 1994. Under these structures, the systems are essentially accompanied and protected by a provision for negotiated contracts under specific circumstances which then makes it difficult to negotiate new and exciting bus systems into facilitating notions of integrations. In another report by Walters (2013), he advises of the generalised status of the process and the characteristics of tendered and negotiated contracts in the country and he continues to discuss the advantages and disadvantages of each method of contracting, as measured against a range of criteria and how effective it is. As three main role players are involved in the contracting system in the country, the perceived strengths and weaknesses of negotiated versus tendered contracts are analysed for each of the role players; government, operators and organised labour.

Finally, it has been admitted that the country has "in effect…missed a generation of capital investment in roads, rail, ports, electricity, water, sanitation, public transport and housing (Peters, 2014). This is evident in the gaps that are continuously found within these opportunities. At the forefront of any type of intervention, rail systems are seen as the main way to improve public transport networks. Public transport infrastructure and systems, including the renewal of the commuter rail fleet, supported by enhanced links with road based services are a good initiative to resolve the issues that are faced. However, one of the main issues with rail as an implementation strategy for public transport is that it is expensive and fixed in its route and infrastructure. With the Rea Vaya and other BRT systems being the backbone of new developments and strategies such as the corridors of freedom, more people can be reached due to the flexibility and mobility functions of the system (Allen, 2013).

3.8 Concluding Thoughts

This section of the paper has provided a concrete understanding of the theory, as well as policies and plans that pertain to public transportation systems in the city. The theoretical background and the interpretation of the literature

provide understanding; not only through the ideas that are specific to the topic, but those that would encompass and overlap with the notions of these bus systems. This is intentionally done in order to demonstrate that these public transport networks may be dependent on each other when it comes to ideas of integration and the way they have been represented in the different policies and plans that have been published. It is important to critically analyse the value of the policies that depict how public transport is considered in the city.

Johannesburg's road networks are well connected and provide linkages to the different corners of the city. Thus accessibility in terms of routes does not have to be limited to the main networks because evidently, this is not where many densities are developing. This provides an inkling of how the transport networks have the possibility of adapting to the transforming city scape. The diagrams provided have explained in clear way how the concepts are connected and require the process of being considered in relation to each other.



Chapter Four: Tracking the Process: Methodology

4.1 Introduction

In order to consider the methods and processes that take place during the research report, it is important to provide a chapter that stipulates the route of transition from the research that was available and how this research is suitable in starting to fill the gaps. The previous chapter provided a theoretical foundation for the research report and drew from different sources including research articles, academic journals, newspaper articles as well as interviews with academics and commuters that use the bus systems. Similar to some of the bus networks, there are certain conduits and routes that need to be followed in order to reach the predetermined destination. In this chapter, the methodology provides a way in which to track how the research has been conducted and what channels have been taken in order to reach the destination of analysis and findings with the greatest value of information. The research diagram encompasses all the elements that need to be considered in order to answer the main question which is in the sphere. From the diagram, it is clear that there are two parts to the report and the three bus systems act as a connector and main thread. In seeking to investigate and evaluate the nature of bus systems and how space and politics affects the modal routes, the second part of the research follows the discussions from theory and empirical information.

As previously stipulated, there has been a shift into investigating the inherent politics of bus systems and networks. This has come about due to the nature of literature that the research has been engaged in. Following this, an engagement of personal perspectives provides an opportunity for the reader to follow the thought process of the research report, highlighting how previous conditions and notions of the personal motivation for conducting this research have transformed. Sealing the gaps discusses the elements where there has been a lack of information to support the theory and why this is so. This is supported by the required or necessary research for the study and how this has been done.

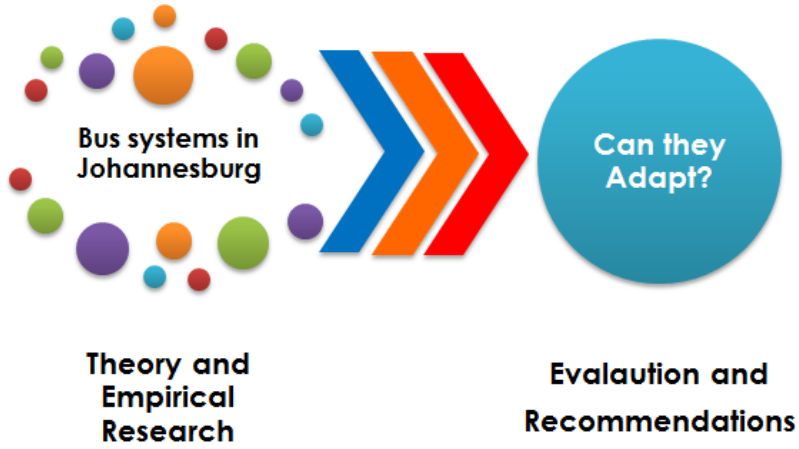


Figure 12: Research Conceptual Framework Diagram (Mthimkulu, 2015).

The required research follows the research methods and how the essential data has been collected. Having done this, a brief outline of the ethical considerations that have been encountered is provided in order to acknowledge those that have added their input to the research before ending off with the concluding thoughts.

4.2 Assessing the Existing Research

After having read through literature on transport and mobility in the city of Johannesburg as discussed by Mokonyama and Mubiwa (2014), Hanyane (2009), Weakley and Bickford (2015), it came to my realisation that there is a lack of literature on specific systems of public transportation in the city, which may be due to the fact that there is little consideration on specific modes of public transportation such as buses. As discussed and unpacked in the literature review as well as the conceptual framework, public transport systems in Johannesburg continue to be a complex and sensitive matter. When the process of starting the research began, there was a specific direction that was to be taken in order to answer the pre proposed questions at the beginning of the research report. In order to discuss the highlighted themes within the question that would support and promulgate the discussion of the modal reach of the bus systems, certain journals and narratives would have to be thoroughly investigated. Conducting relevant research on the case study area resulted in having to take a step back and investigate how certain attributes of the public transport system we experience now, came into existence. In looking into these ideas, academics such as Swilling and McCarthy along with Catsam were some of the only people to discuss the nature of bus systems specifically with regards to protest actions and how they affected commuters. This lead to questions of why bus systems operate in the nature they do today and how this affects notions of their modal reach and ridership in the context of space and politics.

Under the scope of the conceptual framework, it was fundamental to start looking into the concepts that critique the nature of bus systems today and what they may look like in the future, an answer that can only be discussed towards the end of the research report. The five concepts that have been investigated deal with issues of the past, current issues and issues that may arise in the future. Although they may stem from different contexts, these issues may be aligned to public transport and in some instances, bus systems. There is a common thread that runs through many of the articles and previous research that has taken place. Firstly, most of the previous research is sparsely dated, raising the point that this topic is not always discussed or followed up on in the corridors of planning academia. Secondly, within the research articles

that are available, there are not many papers that distinctly advise as to what they are trying to say, there is an underlying premise of being vague and indecisive with a topic that wholly affects people's lives. An assumption for this is that these authors themselves do not have anyone to refer to. Another common thread with journals that have come out from the new dispensation is that some are not considerate of how public transportation has not changed despite these issues being visible during the apartheid regime, besides the likes of Pieterse (2006) and Turok (2014) who focus most of their research on how planning affects socio economic conditions in South African and have been part of the African Centre for Cities research program, not many have been able to accept this element and vital peace of information.

The research that is available may be considered as a limitation but it presents itself as an opportunity for there to be more investigation into such topics. Moreover, a platform of different perspectives is developed to give the previously discussed concepts an opportunity to have various interpretations and understandings. The past 20 years have exemplified that such concepts are considered in policies and strategic documents. This is valuable in that there is high consideration for more sustainable forms of public transport even if people are not always certain on how this is going to be done. Planners and academics need to be challenged to explicitly advise as to what they consider are the best practice methods to follow. This provides the opportunity for those using the information to either ague for, or against the content. Having done that, there is a catalyst for more research to be done to provide informed reports that are relevant and active rather than passive to the situations that are confronted. Assessing the research requires that there be at least one piece of evidence that draws on all of the challenges that people face in the context of bus systems and how this can be resolved.

4.3 Personal Perspectives

As stipulated earlier in the research report, one of the leading motivations for conducting this research is that I am an avid user of bus systems and wish to make a relevant contribution and difference in the profession as a planner and a commuter. Through the research that has been done to this point, my interest and questions have been enhanced to a level of more critical thinking and the inherent need to find out if the bureaucratic actions that are made by stakeholders are considerate of the commuter. In attempting to answer the main question, it is important to consider whether the notions of access and mobility are a precursor for planners and policy makers in striving to integrate public transport systems and whether this adds to the concept of resilience.

From a personal standpoint, the research that has been done has left me with an uneasy feeling. On the one hand, much has been said about planning strategies and the goals to make public transportation more integrated, the need for transformation and notions of compaction and the means that have been considered to resolve these inherent issues on public transport and the policies that support them. On the other hand, there is little that shows and measures the levels of effectiveness, the margins of transformation that have been taken, and which urban forms have been successfully compacted. Furthermore, in attempting to elucidate the data, there are assumptions on why public transportation has taken the time is has to be of an effective and high standard. Besides space being segregated, the ways in which plans and policies are conducted and implemented continue to have a cognitive agenda of segregation and lack of consideration for the struggles of those who have been marginalised for so many years. This may not be intentional but traces of such issues are still present in academic research as well.

4.4 Sealing the Gaps

In his reflection on public transportation in South Africa, Khosa (1995) clearly advises that public transportation access and mobility are both essential to the functioning of the economy and are an intrinsic and central part of everyday life, one cannot function effectively without moving around. Although this statement was provided 20 years ago, articles dating back 20 years before that carried similar statements and subsequent concerns with regards to public transportation. In aiming to seal the gap, it is necessary to branch out of one's comfort zone and seek to answer the questions that have come up in doing this research. This paper and the research that has been analysed looks at both the spatial impact of bus systems and networks in Johannesburg and how they affect both users and those who interact with the systems at different intervals.

Furthermore, in developing the paper, the research has also taken a turn that seeks to critically analyse the bureaucratic notions of bus systems that essentially affect and are at times, exposed in space. There are elements of politics within bus systems and how they are operated which may affect and hinder ideas of integration and transformation. However, as previously mentioned, not many academics have discussed these components a great deal which makes this research report a valuable contribution to the planning research. The paper does not seek to say that previous or current research that is done is irrelevant or not of value, rather, such research is the foundation and catalyst of the kind of research that takes place in this report.

Moreover, in seeking to seal the gap, the report has assimilated research that was published more than 20 years ago with articles that are recent. This has been facilitated in order to compare and contrast thought processes and how the different contexts shaped the content of the material. In addition to this, it is important to mention that this report and its content; public transport in South Africa and specifically in Johannesburg, has to do with a legacy issue. Thus notions of urban sprawl and apartheid spatial planning cannot be overlooked because they are issues that are still trying to be resolved almost 30 years later. In so saying, everything that has been analysed to this point is done in order to answer the question of how valuable bus systems and networks are, in a city that is moving towards being world class and transformed in spatial and social form.

Finally, from this standpoint, it is important, in a profession that is fundamental to shaping society and how people access the city, to be radical about how we perceive and understand the space around us in our respective fields. This paper has elements of being unapologetic about the struggles that I as a public transport user have faced, not only because of spatial inequality but also because of the administrative red tape that has delayed efficient and effective public transport.

4.4 Required Research

My research required that qualitative and quantitative research methods be used as information involving statistics and tangible information was necessary. Sections of my research required deductive results. The first sub question in my research could be answered though qualitative measures. Quantitative research was also helpful in terms of finding specific information from stakeholders and specialists. It influenced the notions that came from theoretical ideas and perceptions that were present. Essentially, it had elements of mixed methods research where it used the strengths of each method (Creswell, 2013). The research also required that I look into comparative methods of research it enhanced my understanding, specifically with regards to my second sub question.

At first, the research required information around what routes the bus systems operate on and an idea of how many people use the different systems. This would be understood through the concept of space and politics. Other information that was essential was where the bus systems intersected and if there was any interaction between the bus systems and the users. Moreover, if there was interaction that was present, was it facilitated by a node or as a mode of exchange? Here, it was important to interact with the spaces in order to visually see these spaces. I also required information pertaining especially

to the PUTCO bus system with regards to the users and the amount of buses that are issued for the certain route that had been selected. Academics such as Mathetha Mokonyama that have provided arguments and ideas around this topic were important in that they provided information around integration and how the modal systems affect each other not only at a spatial level but also between the administrative levels.

The detailed data that was required for my research report was mainly when the systems were operating at their highest peak-i.e. in the mornings and the evening. Inversely, it was also interesting to note what happened at off peak times and the amount of limited activity that took place between these specific routes. Another imperative detail was choosing a specific route in order to see the effects and levels of the systems interacting at the different intersections. This essentially generated a case study. It was also thought-provoking to note how people navigated and chose the bus system most convenient to them and how these preferences changed through the route. This presented itself as a challenge as it was time dependent and critical to my research outcome. It was also interesting to see who uses which bus system and for what reason (Yin, 1994).

The data was collected in the following manner:

a. Cluster Sampling- a sample group was identified in the different bus systems and was asked to fill in a questionnaire in order to generate a survey.
    i. This survey focused on short questions that referred to my research topic and the notions surrounding using public transport systems, especially bus systems. People on the bus systems hold valuable information about what they appreciate about the system and the route as well as the network but they may also hold grievances. It was mostly centred on workers and general commuters. This information was critical in the discussion of the importance and the necessity for the bus systems in the future. 25 people, 10 each, from Metrobus and PUTCO respectively as well as 5 from Rea Vaya were interviewed. It was also important to mention that the questionnaire was simple and moved away from planning terms in order to obtain authentic and fair comments and answers. The surveys did not go into speaking with anyone under the age of 18.

b. The qualitative data needed was specific to the questions that I presented to the professionals and academics that I conducted the interviews with. Among these people was Rehana Moosajee, former Transport MMC and transformation consultant. Furthermore, this data assisted in cognitively unpacking information that was received from policies and related articles. In addition to this, indirect information was essential to noting what had not been said directly or clearly within the collection of the qualitative data.
c. The comparative data was reliant on the direction that my research took. It was influenced by observations made while interacting with how one uses the different bus systems (May, 2011).
d. My third sub question required that I speak to specific people in the academic sphere to gain more knowledge and a quintessential understanding of the specific bus system. In addition to the academics that I have mentioned, it was important to speak to officials and people that are part of the administrative system of the city such as Lisa Seftel, the director of Transport in Johannesburg, mainly in the transport sector department.

4.5 Synthesising the Data

In the quest to find suitable and value filled answers to the questions that come with this research report, it is important to go over and above the obvious information that has been received and analysed. An underlying element that continues to be predominant is that *'people trust their eyes above all else - but most people see what they wish to see, or what they believe they should see; not what is really there'* and that in what the wish to see is sometimes not what the situation may be. In synthesising the data, although facts and figures may be available, it is important to note and critically examine what has not been mentioned or provided for scrutiny.

Below is an in-depth section of the research diagram and conceptual framework that speaks towards where most of the

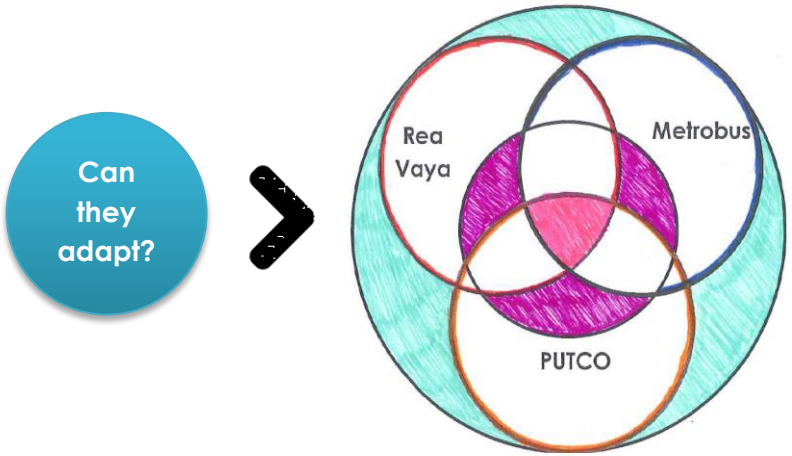


Figure13: In-depth section of *can they adapt* section of conceptual framework (Mthimkulu, 2015).

synthesising takes place within this research. At the heart of these bus systems and where they all come to an interface is where most of the investigation takes place.

Here, the evaluation and the critique of theory and practice is where most of the research may reside. The purple shaded area speaks towards the bureaucratic workings and interfaces within the different administrations. Here answers considering the integrative nature of the bus systems from a policy and administrative perspective may be answered. Outside of the three bus systems is where information may be synthesised and answers can be found as to how spatial integration can be achieved and how this may work and look within the urban form of Johannesburg.

4.6 Ethical Considerations

The ethical issues in this research are limited to the questionnaires and respondents. It is important that vulnerable people as well as scholars under the age of 18 are not interviewed. In the case of the academic and key respondents, consent forms must be provided and the key respondent may be bound to confidentiality agreements within their companies. In light of the recent strikes and bus accidents, it is important to remain sensitive to these issues when speaking about the bus systems. Finally, all information obtained must be reflected in an accurate and authentic manner.

4.7 Concluding Thoughts

This section of the paper has discussed the methodology and how information that has been used may add value and understanding to the report. It has looked into how data pertaining to the research may be gathered as well as how it may be used and interpreted. This is important as the next chapter encompasses the idea of interpreting material that has been investigated in order to discuss findings and connect the threads that have been gathered. Furthermore, it gives direction as to the reasons why material was collected in that manner and how it continues to attempt to answer the question and seal the gaps. The next chapter focuses on findings from different sources and what they mean to the greater perspective of the research report and the planning context. The following chapter seeks to connect the threads and answer the questions that have been the influencing factors for this research.



Chapter Five:

Connecting the Threads:

Findings and Discussions

5.1 Introduction

One of the main realities about public transportation is that it is about being future orientated. If we are planning towards ideas and notions that already exist, then we are behind the trend lines of development and infrastructure. In this chapter, the research transcends towards an in-depth discussion of the findings that have been gathered from the different methods that have been mentioned and explored from the previous chapter. This section provides a response to the literature review and the conceptual framework that has been developed. Here, the current trends are examined in order to provide a thorough analysis. Under this chapter, there is an attempt to capture the value of what has been discussed from the literature, and interpret it with an applied mind, one that relates the theoretical background with the practical threads of the research that has been instigated. Having done this, the discussion then moves to how the actual route has been navigated, where there are opportunities and if any integration is possible for the bus networks.

In seeking to connect the threads, interviews and secondary data will be revisited to make sure that there is a link in the discussions that are held. The findings are recent yet they continue to hold elements of the effects of the apartheid legacy. Here, I aim to find out why this is the case as well as explain the reasons behind the responses. Although this will be discussed further in the recommendations, it is important to consider the connections under the perspective of analysis.

Furthermore, this provides an understanding of the underlying premise of this report which has been carried through the research to this point; how can the commuter's experiences be considered in these bus systems and what value do commuters hold in addressing the future development of bus networks in the city. This is connected to the conversations that have been shared within the buses as well as with other respondents from different transport backgrounds. Prior to providing concluding thoughts on this chapter, an in-depth analysis of the role of space and politics takes place in order to unpack and compare how bureaucratic involvement and decision making influences and inherently shapes the spaces and movement patterns that the bus networks have developed.

5.2 Responding to the Question

In a dialogue that took place during the Eco Mobility Festival for Johannesburg, the Secretary General for AITP stated that Johannesburg has the highest bus fleet in Africa (Yssoufou, 2015). With this simple statement, he was able to reverberate one of the key themes that are identified in this research report. In its development of a city that is in constant demand for resources and seeking to be recognised as a world class

African city, Johannesburg has had to contend with many changes and transformations to become what it is today. In aspiring to be a city that hosts and supports international events and having the world focussing specifically on it, it has had to take conscious decisions to upgrade and develop its city structure. So in seeking to answer whether the bus networks can adapt into Johannesburg's urban fabric, the straightforward answer would be yes. There are many factors to consider though. Buses should be considered as more than just a service. Their reach goes beyond this. As stipulated, the notion of access is one that affects different opportunities in a number of ways. On the Metrobus and PUTCO buses that were used, people would sell their goods to the commuters on the buses then disembark from the bus once all the goods had been purchased; this was how they created income for themselves. Furthermore, with people who were going to their places of work, many took the time to develop their social networks and relationships on the bus; this is further discussed in the section below that captures the bus conversations.

When observing the nature of the systems, their fleet, the passengers, the routes, the ridership and holistic nature that encompasses the socio economic values of the bus systems and the networks from which they operate, it is clear to identify that these systems have a few more years as being part of the Johannesburg urban form. The only way that we can essentially be rid of buses as a form of public transport is if and when we have more futuristic and radical forms of public transport (Ngcobo, 2015). It cannot be overlooked that the systems have challenges which then influence ridership quantities and their general effectiveness, but from an observation point of view, literature and discussions that have been held, buses will remain as an inherent part of the city's public transport network.

One of the key terms in the question was '*dispensable'* through the literature and voices of the interviews, there were links that provided a sense of unity in that different values such as sustainability and resilience or staying power play in intricate role in the way these bus networks are considered for the future. From what has been gained in the literature, a fundamental thread that needs to be considered is what values the buses themselves play in the development of the city in terms of social relevance. When focusing on historical knowledge, it is clear to see that public transport networks in general have always been part of historical events that remained in society and more specifically, racial segregation. In the future, they will continue to hold values of people moving between cities to have their voices heard, they will remain as a system for transporting children and commuters and those who need to move with the system, but they will do so in more dynamic ways.

Gandhi, on his journey to Gauteng from Pietermaritzburg was forcibly removed from the first class compartment in the train for which he had bought a ticket for. Rosa Parks also made history for not wanting to move from her seat for a white passenger where the bus system was segregated in Montgomery Alabama. She too had adopted the thought process of Gandhi in attempting to protest against the segregation of people in public transport services (Whiticker, 2009). Thus from a social perspective, public transport has a platform to express to people that they have the power to stand up for what they believe in, if and when their rights are being infringed upon like any other public space.

This goes back to the notions discussed by Pirie (1981) which focus on how access to buses from a holistic approach, should be highly politicised and made use of for the benefit of those who use the systems. In accordance with this, Davies (1981) advises and so reaffirms that political participation is of substantial importance in the necessity for development to take place. This reaches further to question one that seeks to implement integration of the systems in order to facilitate a more integrated society.

From a spatial point of view, the way in which people consider the right to the space they use and essentially own is one that needs to be developed and expanded through public infrastructure and support. This impacts the way in which people experience the journey, from waiting for the different modes to being able to transition onto alternative systems whenever necessary. In essence, users and non-users of public transport want options to be available to them, and once they have these options, then they will be able to choose them. This is further emphasised by Mokonyama and Mubiwa who explain,

> "Another notable symptom of poorly integrated transport planning is the uncoordinated nature of public transport services, even the ones subsidised by the government. For example, a person can stand on the side of the road waiting to use public transport to reach some destination in the city. In the space of an hour, a state subsidised PUTCO bus, a city owned bus, a Gautrain bus and a bus operated by the Passenger Rail Agency of South Africa may all go past empty, one after another, without picking up the person. This bears testimony to the fact that the phrase 'integrated transport' is used very loosely (Mokonyama and Mubiwa, 2014, 211)."

5.3 Research Relative to Theory

The literature that focused around the conceptual framework discussed ideas that had the opportunity to be critically analysed and discussed. The notions of access, adaptability, integration, resilience and transformation can all be subjected to and measured in order to decipher the scale at which they have met the conditions that are being required, which vary in their own environment. From the background and literature, it has also been established that the legacy of apartheid spatial planning has had regressive forms of segregation that are cloned and branded in different ways. There is a contention that the interactions between racial relations, the interpretation of space and urban development have not changed significantly due to the divides that are experienced in public transport systems (Donaldson, 2006).

There is an element of urban development and implementation that takes place that displays such divisions. I further argue that one of the main reasons that public transportation is not making the necessary progress that it needs to is because it is mostly utilised and depended on by black people. The way in which development is aligned is for those who already have the means to use alternative methods and consider public transportation as a choice rather than a necessity. Whether this is at the forefront or in hindsight cannot be stipulated, but it does exist. There are elements of exclusion that are perpetuated. In an unfortunate move, these contradictions move away from the concepts that have been outlined. In addition to this, the policies themselves have elements of these forms of exclusion.

When focusing specifically on the Rea Vaya, studies by Vaz and Venter (2012) explain that the system has a similar accessibility index as Metrobus and PUTCO. The majority of households that were considered in this survey were located within a 15 minute walking radius from either the station or the feeder routes which were shared with the other bus systems. Having said that, it can be deduced that within these areas, the Rea Vaya does not necessarily provide better or more access into neighbourhoods than existing public transport services as the route shares the major road networks which are used by existing buses and taxi routes; an example of this being the Soweto Freeway. From a spatial analysis, this is not complex to comprehend and contemplate in that if these routes share arterioles and have similar access ranges, then notions of integration are fathomable (Vaz and Venter, 2012; Venter, 2013).

Stemming from the theory and the concepts that have been covered, in order to have practical results of access and integration, trade-offs will have to be made. This will be prevalent in the how space is used and navigated through the

developed infrastructure as well as how negotiations are deliberated on and delivered in the political sphere. One of the leading trade-offs as highlighted by Cervero (2001) is that the voice of the public needs to be taken seriously and acted on because they are the ones that use these services. This can be noted as a challenge for government. However, as Albrechts (2004; 750, 751) argues, the development towards more direct forms of debate and civic engagement-even with the best intentions- holds the danger of making such involvement more dependent on those who have the skills and knowledge to put their views across.

Returning to the notion of a compact city and high densification of certain areas, it is also important to consider the cost ratio of these developments in relation to who will be able to afford and live in those areas and how they will access public transport networks. This speaks towards being able to measure the strategies that are developed and implemented for cities, which in turn, speaks towards the notions that have been identified in the conceptual framework.

Another aspect of analysis is considering where the planners are when such developments are done and what input they provide to the ground root level of concept and design of new public transport systems. Although this is discussed in the final chapter, planners play a key role in the transformation of cities and spaces. This is extended into society and even economics. Where planners are not taking responsibility for the city's development, there will be shortcomings from all angles. Developing compact cities that will once again uproot people from their societies may not always have the best results. There must be critical thought processes when considering notions such as access and mobility; because even when mobility is realised, most times, there is no access (Mokonyama and Mubiwa, 2014).

The research done in this report justifies the difficulties that are considered in the literature. Using public transport, specifically in Johannesburg, is a complex and complicated task to undertake when one has not been taught or advised on how to navigate the city. The theory provides many suggestions, some of which are not completely fixed and direct. This shows the flexible nature of transport systems in general and how there are no correct responses on how to conceptualise them, develop and implement the systems.

> "When a project underperforms, this is often explained away as an isolated instance of unfortunate circumstances; it is typically not seen as the particular expression of a general pattern of underperformance in transportation infrastructure projects. Because knowledge is wanting in this area of research, until now,

> it has been impossible to validly refute or confirm whether underperformance is the exception or the rule (Flyvberg, Skamris Holm and Buhl, 2005; 131)."

The above quote from (Flyvberg et al, 2005) demonstrates one of the key factors of being able to measure what is said in theory and policy, with what is done in implementation, both from a spatial and political as well as social lens. The systems that are currently in place have elements of underperforming when compared to international contexts and aspirations. However, in the same manner, because there are blind spots in research and investigation, public transport systems in Johannesburg are looked up to in comparison to cities such as Nairobi or Addis Ababa.

The way in which these systems function addresses many concerns into how they are considered in terms of the debates that take place on how they can be redeveloped and retrofitted in order to be effective and efficient. There is danger in being complacent. It deprives the city and all industries that function within it because then it is held hostage. This is one of the attitudes that have been carried out with how the routes have effectively remained the same and how urban sprawl and the lack of transport systems have in effect, become more apparent.

5.4 Navigating the Existing Route

In seeking to have a more integrated form on public transport, one of the main points that was raised in the different discussions as well as the literature was that the different routes that are used in the city have not been thoroughly considered or changed unless there has been negotiations with the involved stakeholders. In its route development, Metrobus had to negotiate with taxi unions to have 22 buses running in the south of Johannesburg in order to extend their network line. Although this was first met with resistance, the lines were accepted where the general rule was that these buses would be for school purposes and to transport scholars and teachers going to the north. There was little to no resistance that was generally met from the PUTCO stakeholders as their position within the southern suburbs and Soweto in particular had already been established. Furthermore, many of the PUTCO routes that were in Soweto were not being affected by the infiltration of Metrobus, unlike those of the taxis (Seftel 2015).

Many of these network selections, as previously stated, had been developed during the apartheid era and thus these systems, (taxis and PUTCO) were the foundation of mobility for black people. From a personal and purely subjective opinion, it is only fair for the other stakeholders to have had reservations of a previously whites only bus service coming in to take their passengers. However, from the perspective of a planner that is

concerned with mobility, especially for black people, and those in lower income groups, having another system that would assist in the movement and access of the city is what needs to be aspired to. The way in which the response to the Rea Vaya came about from stakeholders was also met with resistance. In essence, the Rea Vaya would operate and have a catchment area that was almost parallel to the taxis.

Furthermore, what the Rea Vaya was proposing was something that was unfamiliar and foreign to the public transport network of South Africa and more specifically, Johannesburg. As an operational system today, Rea Vaya functions two Trunk routes with a catchment of 100 000 commuters daily, as advised in the graph and compared to the other bus systems that are discussed (Vadi, 2015). It has been hailed and applauded as more than just a bus service, as it not only provides a commuter service for the average commuter but also for those who have disabilities and limiting impairments. Although it has made headway in this industry, it is still far from reaching its predestined maturity in terms of coverage and ridership numbers (Lindau et al, 2014). Below are three graphs that have been provided to illustrate the commuter numbers, fare costs and experiences from using the bus systems between Soweto and Sunninghill. The fare costs and satisfactory experience were obtained during the practical research stage and conducting of interviews.

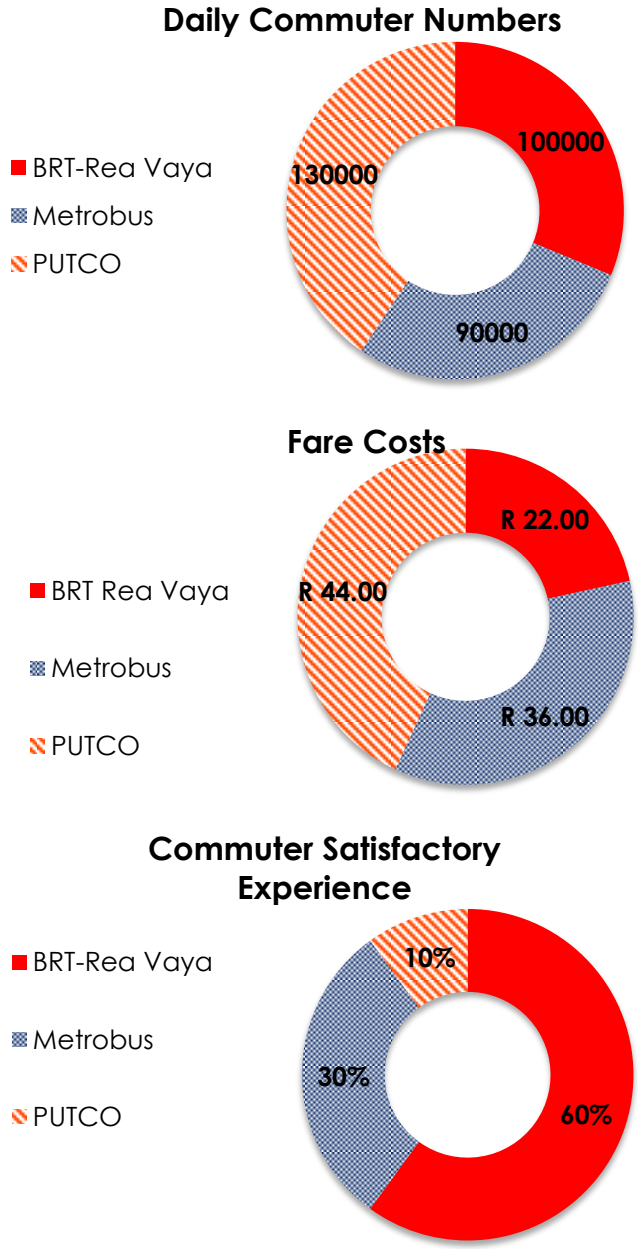


Figure 14: Doughnut Chart of research statistics (Vadi, 2015).

5.5 Capturing Interviews: Bus Conversations

Whether it is due to the location that the bus starts from, or other motivated issues, the one major factor that stands out is that there are no white people on these buses that take the Soweto to Sunninghill route and back. One would think that because these buses are going through different suburbs, there would be a change in the different demographics that are using the buses from one zone to the next. But this is not the case. Although this is one of the points that I noticed in my second week of participating in the daily commute, it was only when I had the opportunity to discuss it with one of the participants, Joshua where I realised that I was not the only one who had been perturbed by this issue. For Joshua, it was not a matter of racial division that unnerved him, rather, it was that we had to travel to the northern suburbs to work and once there, those who lived and worked between these suburbs did not consider using the buses between different areas.

> Joshua: We are going through Rivonia now from Sandton. But someone who is living there is going to take their car to Rivonia and use the same road as us.

During this interview, I had asked to travel with Joshua (whom I had met at the bus stop on Mooki Street) and he could show me where my stop was when we arrived in Sunninghill. This discussion occurred as I was discovering the different stops that the Metrobus was making through the journey. In addition to this, with the bus being mainly targeted at schools, it is only a few children, mostly those from the beginning of the route that use the bus. Children who live in close proximity of the schools continue to be driven instead of walking or using the Metrobus. From this perspective, it is difficult to promote notions of integrated spaces and societies when forms of social integration are not considered for using public transport systems.

In a conversation with Tumi, who works in Sunninghill and uses the PUTCO bus leaving Soweto at 5:45 and arriving in Sunninghill at 7:40, I was intrigued when I discovered that she used the bus because it was the most affordable mode of transport when she considered her budget for the month.

> Tumi: If I am earning R5500 take home… then I get a coupon and it's R460, it's not a lot. But if I am using the taxi everyday…it is double that amount. I can't afford more than R1000 for transport…but people are doing that but me I can't afford. That's too expensive. I can pay car instalment with that money. So for now I'm using the bus because at least it drops me at the gate at work and I know that it will take me straight home…for me I can't live close like Diepsloot because

then it is back to taking taxis, and I don't know the direction, if it is straight or you must connect. That is the problem, with taxis you must always connect and it is money from one to another… ya if the bus did connections but it wasn't charging again and again like taxis then it will maybe be better.

One of the questions I had asked Tumi was if she would consider moving from Soweto to the northern suburbs to be closer to her place of work and save costs. She advised that she had heard stories of the living conditions in Alexandra and Diepsloot where she confessed with a heavy heart that she had looked at apartments and flats in and around her place of work and some of them cost twice as much as her monthly earnings. For her, it did not make sense to live away from home (where she did not have to pay rent) and yet continue to have access to the already limited public transport networks. She also advised that where she lived was convenient in terms of accessing amenities and shops, while moving to the suburbs would make accessing these amenities require a vehicle which she would still not be able to purchase and maintain on her monthly salary. For her, the negative factors of moving closer to her work outweighed the positive but sparse factors of staying 35km away and commuting every day.

Although the Rea Vaya does not as yet travel to the outlined destination, it was vital to discuss this with people to gain knowledge on what their views were for the expansion of the route. There were important points that I found within speaking to Sindi* who was using the bus at a very different time to the other interviews I had conducted.

Sindi*: I'm going to campus now; this is the easiest way for me. Even when I know that I have to wait for a taxi to get full with people, I don't have that issue with the buses (Rea Vaya). I always wait for the full buses to pass so that I am not in the full bus at that busy time (peak time). I also see that it charges me less when I get off, did you know… If they go to Sandton and that side then yes I will use them, of course I'm going to use them because as long as my card has the money, then I can just stay on the bus from the location to Sandton…on the bus you don't have to worry about busy moving up and down for people to get off like in the taxi, no one is bothering you.

There were many points that stood out for Sindi* in using the Rea Vaya. A highlight for her was that although the buses do not always arrive at their scheduled time, they do run at off peak hours and there is no need to wait for the bus to have a standard number of passengers before it departs from the

station. Furthermore, when asked about her concerns with regards to the Rea Vaya and Metrobus, she advised that one of her biggest issues was that the systems did not always work, but it was better than having to wait for change that was not available in the taxi or the bus, she lamented that she had forgone her fare change more than once because she had needed to get off the taxi at the specific stop. She advised that this was not an issue with the Rea Vaya.

In seeking to analyse the conversations that took place with the different individuals, I made sure to engage with them on a level that assumed me to be new to the bus network, seeking advice on times, fares and different routes. It was fascinating and eye opening to be exposed to how people understand and negotiate the systems that they use. People knew that if they used an earlier bus, it was more likely to use a straight route that did not connect to other suburbs, whereas other buses, usually after 6:30 went around most of the city to reach other routes before arriving at the destination. Although the PUTCO and Metrobus systems have fixed fares for the route, people admitted to sometimes bypassing the system, especially towards the end of the month where they knew that there was not enough money on their cards. However, with the Rea Vaya, people advised that they had more than one card for the different distances that also allowed them to use their cards to bypass the system.

5.6 Pertinent Debates

In speaking to different stakeholders of the bus systems, one of the greatest debates that I found was that there were those who were against the idea of integrated systems due cost risks and what needed to be traded off, in contrast to those who campaigned for the commuter to be the focus of any public transport initiative that was developed. There are two perspectives that are developed; one is from the way in which the bus systems are operated. The other is the way in which commuters experiences are considered. There has been a stark contrast in the manner in which the two views have been interpreted as previously outlined. In addition to this, bureaucracy and spatial strategy come into effect where they create greater tensions. Below, I seek to contrast and compare as well as unpack the debates that have taken place within the qualitative research.

In an interview with Councillor Christine Walters, the current Member of the Mayoral Committee (MMC) for the city of Johannesburg's Transport Department, she advised that her greatest interest for how public transport was being implemented in the city focused around how people were responding to the Metrobus, which was her project to run and look after. In discussions with her, she advised that one of the most tragic incidents of the bus system was when there were two accidents with the buses that resulted in serious casualties.

For her, it was important to restore the image and reliance of bus system in order to make it an effective part of the city. She explained that when it was decided that the bus company was going to be removed as a public transport network and facility in the city, she took it upon herself and her team (which she restructured through new appointments) to manage the company so that it would be a means for people who relied on it to continue using it. Her initiatives promoted cleaner bus systems, extended routes and a new fleet which was approved by the mayor of the city in July 2015.

During this interview, she exemplified the idea and notion that it is possible for people to be put first when seeking to make the city and the public transport system as well as the network on which it runs, more sustainable and adaptable. From this perspective, the MMC made it clear that in seeking to make a concerted effort to consider and emphasise commuter's viewpoints, it was important to listen to them and make difficult decisions on how to move forward, with or without support from the rest of the department. Furthermore, from a political angle, she made it clear that after having been part of the department for 21 years, it was easier for her to interact with the different political parties in order to provide perspective and gain support where needed. In her endeavour to develop a bus system that reached greater distances and more routes, she advised that these buses would have to be retrofitted and become more advanced so that the aspect of promoting a sustainable environment could be achieved.

This was a fundamental point that she made that spoke towards the future of how buses will operate in the city in the next 20 years. This links in with the concept of resilience and how a possible way to do this would be through adaptability. However, with space being a highly contested topic and public transport in itself being a realm of public space, there are motives and aspirations that do not always work well together, especially in the context of sustainable efforts. This is explained succinctly where "it is better to have an equitable and environmentally unfriendly space than an environmental friendly but inequitable space (Vasconcellos, 1997; 9)" Here, an impasse develops in the two perspectives. On the one hand, techniques that are considered for developing sustainable systems require money and heavy costs, and on the other hand, these initiatives will, as a result, increase costs and tariffs of public transport or any other system that is linked (Donaldson 2006).

In her opening response, which is similar to that of (Moosajee, 2015), Seftel (2015) advises that there inherent evidence of a perpetuated apartheid spatial legacy that continues to exist where "social formation characterised by dominant-dependency relationships between population groups and a

system of social relations that resembles a race-class like stratification, has persisted and intensified over time (Davies, 1981; 71). However, it is possible to mitigate the effects of this modernised apartheid legacy with well-connected public transport networks over periods of time, but the city is not there yet.

5.7 Concluding Thoughts

From the analysis aspect of this chapter, it can be concluded that bus systems are valuable in all aspects. People rely on them and are heavily dependent on the systems which they use. This section of the report has focused around connecting the discussions and debates that have been carried out in the research report. They have considered the personal perspectives of daily commuters and passengers and how they are affected by issues such as fare increases and strikes as well as modal reach.

We cannot shy away from the fact that public transport in the city has had to change and retrofit into the requirements of the city but only with certain modes. One of the greatest challenges that have been debated is that of urban sprawl and people living far away from their work areas. As mentioned by Seftel (2015) there is an apartheid legacy that has transformed into modernisation legacy where growth is taking place in the north but people continue to live in the south.

The next chapter of this research focuses on the concluding thoughts and recommendations on how we can move forward with transport and planning. Public transport integration has its strengths and challenges where lessons can be drawn in order to resolve issues of transport. There are many opportunities that can be taken in order to have more people using public transport if challenges of procurement are targeted. Below, an image from the Transport for London initiative depicts the value of bus systems on road networks especially if there are quality buses (TFL, 2015).

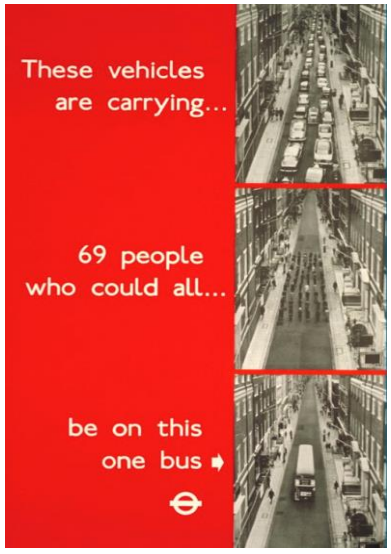
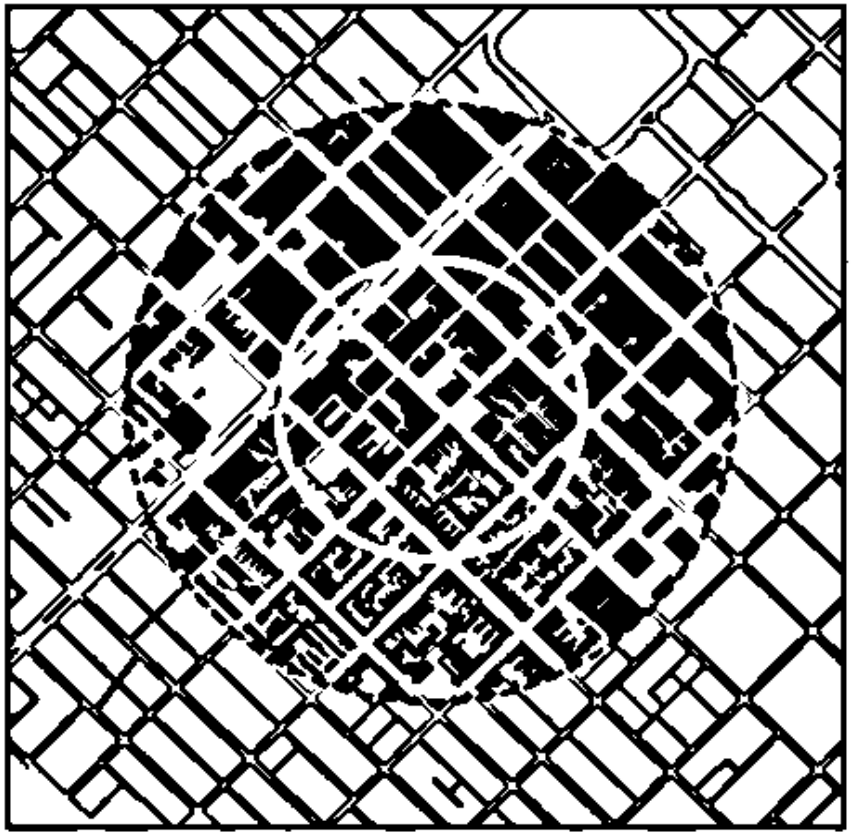


Figure 15: Transport for London, showing how many people can use the bus system and be moved from their vehicles (TFL, 2015).



Chapter Six:

Coda:

Recommendations and Resolutions

6.1 Introduction

There is a need for radical interventions of how we consider public transport and in what condition we use if for. Do we use it because we have no other choice, or as an alternative? Or do we consider it as the priority and preference for accessing the city. In his speech on the State of the City, Mayor Parks Tau advises all road users to seek alternative means of public transportation in the duration of major routes being upgraded in the city. He does not, however, label the alternative modes that are available in the city for people to use as alternatives (SOCA, 2015). His speech is saturated with ideas of a transformative city, one that bases its new programme of action with promoting access and integration within the city and embarks to move the city forward. Nonetheless, he does not link much of this transformative action to public transportation besides the corridors of freedom element- which has been labelled as a game changer for access and mobility.

The State of the City address in 2014 held more ideas of promoting public transport access and development in the city in order to improve mobility and the idea of transformation through public transport infrastructure. Concepts that are discussed in the literature review and extended into the policy interpretation are clear and apparent as to how they fit in the future development of the city (SOCA, 2014).

In re-examining the research report and what it is essentially about, it is important to revisit the question that was a catalyst for the research to take place. In attempting to decipher whether bus systems in Johannesburg are compatible in being part of the city's urban fabric, it was vital to consider a vast array of concepts that would seek to answer the question.

It was crucial to discuss the value that these systems have and their need to be part of a city that is in continuous transformation. Their link to how they are operated at political and bureaucratic levels is clear and apparent within the spatial form of the city.

In establishing the context, I found that many more questions developed for the research report. It became evident from the onset that this notion of modal reach and the way in which bus routes continued to function in the city were part of the remnants of the apartheid legacy, one that would need to be changed in order to provide people with more justified and acceptable forms of public transport. By developing this platform of historical evidence that public transport has always been on the back burner for the state, it was vital to build a case that exemplified how many of the ideas they had tried to implement had never been for the benefit of the commuter.

The way in which public transport has been implemented has gone about in a different way to what I believe it should be.

On the one hand, transport policies that came with the new dispensation were aimed at decongesting traffic, moving people from their vehicles into alternative modes of transport and learning from international communities on how to do this.

However, they were not providing these alternatives at the required rate. On the other hand, the same policies were proposing extended highway plans, additional road lanes and conceiving new arterioles, ultimately perpetuating the struggle of the car oriented city, limiting access and integration and further dividing an already segregated spatial fabric.

The mandates that were set out to deliver efficient public transport were only placed under immense pressure where the first phase of the Rea Vaya was implemented in just over 3 years and the plans of the Gautrain became the only focus of construction and development for a number of companies. From this perspective, it is clear that if there is a common goal and certain levels of external as well as internal pressure, strides of translating policy into practice become tangible in space.

Having said that, do we then only become serious with the implementation of good quality public transport that is not restricted by bureaucracies when we face pressures? In the meantime, we label small interventions and retrofitted ideas with words that only a certain number of people can understand; here I refer to the concept of corridors of freedom.

6.2 The Research Experience

In seeking to explore this research report, I did not consider the twists and turns that would take part in my research in order to make it succinct and valuable in the context of planning and at a more specific point, transport planning. Here, I wish to provide my account of thoughts and questions in the journey of writing this research. When I first began noting what I wanted to focus on, I was sure that I needed to focus on how people perceive public transportation in the different experiences and contexts that they find themselves in.

This transcended into how people consider bus transport systems and what value these systems hold in the transformation of the city and what it aspires to be in terms of being a world class city, one that works with a fully functional integrated public transport network. One of my greatest struggles was a personal revelation of why I wanted to do this research, why I wanted to focus on buses, a system that is often disregarded and not discussed on any influential platform.

When I would use the Rea Vaya bus, with its individual lane, I would notice how (understandably because of the system) no other bus system was allowed to use it, but how the PUTCO

system would use it to avoid traffic in the Booysens area. However, what I did realise is that people would not necessarily switch bus systems because of traffic and distance without considering routes and connectivity as well as if the bus was convenient for them. When I was on the PUTCO bus that waited with the rest of peak hour traffic, I remember one lady lamenting that she wishes the Rea Vaya was closer to her work so that she could use it because of its access and the time it took her to get into the city. For her, using the Rea Vaya meant using double transport to connect to the East Rand.

One of the deliberations I had with my supervisor and mentor factored in a sensitive perspective to how public transport is developed and implemented in the city. I was perplexed as to why public transport was so highly focused on in the north, how there was always an initiative to design, plan and develop systems that would make it easier for people who had their own vehicles to get more modes of transport to support their movement. When the Gautrain came into effect, I was confused as to how the province had invested billions into a network that would only benefit a minority of people, those who could afford the prices of the commute. I do not consider the relative distance as being a factor of access to the Gautrain because of its proximity to the Alexandra Township where people cannot afford to use the system.

I was further perplexed by the efficiency that took place in order to implement the system, the chronological order and how issues of bureaucracy were dealt with and how the project moved on in order to have it operational in the required time. I compared this to the public transport system in the South of Johannesburg, how although the same issues of public transport have been considered and noted by different academics for over 30 years, they continue to be part of the apartheid legacy.

When I conducted the informal interviews on the buses, people were hesitant to speak about the availability of public transport nodes and the amount of buses on any given route at any given time. For them, not having a bus running in the middle of the day was not a great issue as most of them would generally be at work at that time. The concept of mobility and the freedom to move however you want was solely based on ones access to car. Many of my perceptions were questioned, not only did I realise that commuters are unaware of their rights, I also took note that the sense of dependency on the bus systems that run the different routes is what will keep them as part of the city's urban fabric, whether they are running in and effective and efficient manner or not. This is emphasised in the literature as to why there are different branches of resilience and why it may not always be an aspirational concept.

6.3 Implications

The implications that are found under the scope of each of these bus systems should be directed towards how we approach the idea of implementing policies that discuss and focus on public transport systems. If we are to perceive the city as a building that is being renovated, then public transport should be considered as the scaffolding of our city. One of the main implications for retrofitting new bus systems in the city and making them a functional and valuable part of the city is that there needs to be more that is done to move towards more sustainable and eco-friendly bus fleets that consider not only the difference they are making with carrying passengers, but also the difference they are able to make with buses that emit less emissions. With Metrobus introducing the range of Green buses that have cleaner engine emissions, there is hope and a positive outlook that buses will continue to be an inherent part of the city's urban structure. With this move, Metrobus has demonstrated a commitment of change and leading the way for other bus systems.

6.4 Recommendations and Resolutions

One of the very important lessons I have taken from this research report is that in order to fulfil the aspirations of a more transformed and resilient city and public transport system, we need to go beyond the boundaries of best practice or keeping components as they are. We need to start moving away from how things have always been done and become radical in our efforts to revolutionise concepts such as public transportation and what it is about. Public transport is a service that needs to be delivered in the most effective ways and needs to be considerate of everyone who uses it and those who consider using it.

Having said that, one of my greatest focuses on the reforming of public transport is to change the perceptions that are carried with public transport infrastructure and how people interact with it. In order for more people to be receptive to the idea of using public transport, there needs to be public infrastructure that is interesting and speaks to what people are looking for.

An example of this is how the Metrobus stop areas are haphazard and not uniform mainly because there are only a few bus stops, all of which do not explain which bus will be stopping, which route it is taking and what the schedule is for its departure and arrival time, in a nutshell, one of the ways we can help these bus systems better adapt into the city is to provide accessible information as to their movement around the city and the greater Johannesburg area. Having previously mentioned it, it is important to work towards concepts of integration and transformation only if that is what we want to express in space. If we are to be restricted by ideas of funds

and costs for integrated or shared card systems, then we should find more investments to share the cost of having universal tariffs for commuters, after all, anything we strive to do must be to make the commuter more responsive towards their mode of transport. Our perceptions make a difference in how we interact with spaces; if we do not feel safe, there is a high possibility we will not interact with the space, whether it is internal or external.

In her discussion at the Eco mobility dialogues, Camilla Ween, an architect and Urban planner who was the head advisor for the Transport for London initiative to completely change the public transport system advised that when they started, they began by targeting buses in order to bring back peoples dignity in public transport.



Figure 16: An image of the London Oyster card system that can be used to access any mode of public transport. http://www.visitlondon.com/traveller-information/getting-around-london/oyster

London has also adopted a one ticketing system to facilitate the concept integration within its public transport network in the figure below. This is similar to the one province one ticket concept in Gauteng.

Thus it is important to change the image of buses and their recent perceptions in the media with regards to accidents, PUTCO and Metrobus respectively as well as with failed engines and worn-out buses, all the bus systems being prone to being stuck at any given time. Metrobus and its new fleet of green buses address this resolution directly. Public transport must cater for everyone and all their different needs. The 8 year old who has had to learn to commute to get to school needs to be considered along with the 80 year old who needs to commute for a hospital check-up.

At a more practical level, having travelled on the buses, it is important to consider the times and the intervals at which bus systems run. I admit that this is an administrative issue, but it is one that needs to be considered in order have more buses running at different times in order to cater for those who wish to use the bus during off peak or late into the evening. Public transport that has end times is not all practical or effective. “Ideas matter. Ideas are indispensable for interpreting what is wrong in our cities, how it can be fixed and what is better than what we are settling for at the moment. Ideas can ignite

creative energy, resistance and movements for change" (Pieterse, 2006, 289). This quote by Pieterse depicts the opportunity that is available if we believe in what we are working towards. Some recommendations are possible and achievable.



Figure 17: The interactive bus stop on Boulevard Diderot, Paris.
http://urban-obs.com/osmose-public-spaces-become-living-spaces/

6.5 Lessons for [Transport] Planners

If you want to deliver and implement plans that encompass people's lives and livelihoods, it goes without saying that you should immerse yourself in the context in which you are planning for. Paulo Coelho says that "there is only one way to learn. It's through action. Everything you need to know you have learned through your journey" and I agree with him entirely. Another author says that a person essentially needs to experience in order to create greatness. When aspiring towards a city that accommodates its people, we should consider this from a holistic approach.

The economy, peoples livelihoods, informal settlement upgrading and housing developments, sustainability, space and policy interpretation are all connected to public transport. None can be developed without considering the other. From the perspective of an urban planner, I would insist that one of the lessons for other planners should be to not play it safe when considering how to develop and shape a city. No one benefits from uncertainty and hesitation. There are many platforms for urban planners to take the lead role and assume responsibility for the shaping of the city, especially in a time and place where the possibilities are seemingly endless.

International practices are leading in their respective themes because they have become unapologetic with the way they envision the future of the city and what needs to be done to change and transform the city. We cannot deny that there will be failures along the way but if we continue to motivate our aspirations with hard work and common goals then we will achieve the successes that not only communicate consideration to the inhabitants, but the city will remain resilient in a positive way. We need to always consider what the experience was for us when we have had to struggle and

move around the urban form and how we would implement change, whether through urban design concepts or policy and governance strategies. Each of us in our own capacities has been equipped with these skills.

Furthermore, another vital lesson that can be drawn from this research is that autonomy is important in seeking to understand what a system requires and how it can be improved. The notions of dependency assume that someone else will do it; the job will be passed on to the most qualifying professional. Also in some cases this is true, planners should understand that not every opportunity that presents itself will have a title that they are looking for. One of the outstanding things about public transport in this city is that not all the systems are labelled as to where they are going and what routes they are taking or the destination that they are headed to.

Although it has been put in the recommendations, sometimes, signs and labels are misleading. One needs to have a sense of certainty and assurance about what role they want to play within the planning community. This provides a foothold for future ideas and ways to make the city more liveable in all aspects and forms. Planners should aspire to critique the spaces in which they exist, and apply their minds in the multifaceted and complex societies that are present in this city. As planners, if we discuss ideas of integration, transformation and resilience of space, then we should be able to adapt in such a way that these notions are constant points of reference and values that we carry and live by. We, in the planning community should abide by the notions we put out to the world.

6.6 Limitations to the Research

In pursuit of understanding the way in which bus networks operate, although many positive notions were brought forward, there were also some that restricted the idea of further developing the research. From a spatial perspective, navigating the city during off peak hours was a major concern as the public transport systems that ran at this time were only taxis. The bus systems between my study areas did not provide the service during this time. In addition to this, I found that although there was a bus schedule, none of the buses stuck to this time and so, if I happened to have missed the bus, there was no certainty that another one would come in time or even at all. Another limitation was that not all the companies were forthcoming with their information. Having stipulated more than once that this report was for research purposes, I was often told that some of the information, such a price changes and maps of routes were not for public consumption.

However, a revelation came about at the Eco Mobility talks where such information was used by international cities to improve the public transport networks and systems of the city. This led to the limits regarding the bureaucracy of public transport systems. As previously mentioned, public transport networks, and in this particular context, bus networks are laden with political affairs and bureaucratic red tape, mostly from within the companies themselves. These exist in many forms that can be negotiated when completely necessary.

One of the negotiations made in this research was to focus on a specific set of bus systems. This was a limitation in that it restricted knowledge to more silos of research into bus systems such as the compartments of services that other companies hold. Specifically, it was discovered during the research process that PUTCO sub-contracts different Small, Micro and Medium Enterprises (SMME) such as the Gauteng Women in Transport (GWIT) which is a great initiative for supporting this industry. Furthermore, in not exploring a greater spatial context, the protest action and impact of buses in Pretoria on the commuter and the non-commuter, including PUTCO, Autopax buses and the *A Re Yeng* BRT system, were not encompassed.

Finally, although it was stipulated that the research would not be investigating other systems, it was clear in the research that it is not a simple task to ignore other modes of public transport because they all paly different roles in how they function to move commuters around. A holistic approach to link these or find out if they work towards the concepts outlined in the literature may have added greater value.

6.7 Ideas for Further Research

A distinguishing factor about public transport in this city and in this country is that it is dynamic and exciting. International practices are moving towards redefined modes of public transport and a key element that can be taken from this is to start moving in the same direction. An idea for further research that may be linked to the current research is how other systems can operate in connection with bus systems. What value would taking a bicycle onto a bus system add? If taxis worked as feeders for the BRT lines, how the ridership might be affected would be an important study to undertake in seeking to improve the system.

There are different elements that can be considered in order to provide a better and more assured understanding of Integration. Below, figure 11 shows the different modes of public transport that operate in the city. A valuable study would be how people transition between the different modes and what their reasons are for doing so. Furthermore, one might investigate the most impactful mode and how this would affect the movement patterns and accessibility in and around

an additional idea for research stemming from this topic would be to find out how space and politics affects these other modes of public transport. It goes without saying that there would be different forms of negotiating space with a bicycle than with a meter taxi. Although there has been a great impact on meter taxis, could Uber taxis also affect minibus taxis if they were applied in the same context?

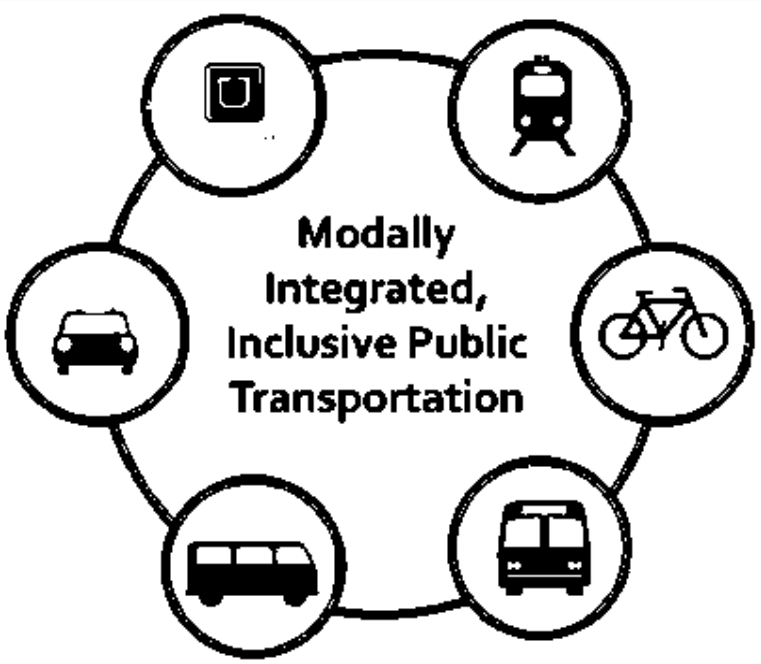


Figure 18: A linked diagram of the Public transport systems in Johannesburg (Seftel, 2015).

6.8 Reflections

Being on the bus from Mooki Street in Orlando East to Eglin Road in Sunninghill is long and strenuous on the body. It is a daily commute where you find yourself sitting and in the worst case scenario, standing in the bus from one point to another in the peak of rush hour traffic. Intending to change policies and systems and ideas around public transport is, in a similar manner like a bus route from one destination to another. People get on and off, while other people will tell that their on board when in actuality, they are indecisive about their getting on the bus. The driver is often times not passionate about what they are doing. And you are never quite certain whether you are going to get to your destination.

There are many turns and stops as well as unforeseen delays. All of your patience is tested when you use any form of limited public transport. It sheds light on how people struggle in order to get to their destinations and how you can make it better. Although the concept of better is subjective, it is a prerequisite for the concepts that that have been discussed in this research paper.

This research report has taken many unforeseen routes in order to come to this destination. At times, it has acted like a PUTCO bus, stuck in the middle of an important journey, willing but not able to continue. In the concluding chapter of this research

report, I seek to discuss the implications of what has been investigated throughout the paper and extract information on how planners and anyone with any interest in public transportation needs to start thinking about public transport in a different perspective. Under this scope of the concluding chapter, it has been vital to consider how the implications and decisions that are made without considering the participation and the experience of the user affect the holistic notion of public transport over and above that of bus transport systems.

More needs to be done in order to make the experience of using public transport a positive and valuable one. Policies need to translate into space and people who are in the driver's seat of these polices and implementation strategies need to be committed and passionate about what they are doing in order to deliver the best possible service, not only for the commuters, but also for those who consider using the public transport system.

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Annexures

Participant Information Sheet

Research Title

EVALUATING THE EFFECTS OF SPATIAL POLITICS OF PUBLIC TRANSPORT IN JOHANNESBURG: A FOCUS ON BUS SYSTEMS

Invitation

Hello, my name is Noluthando Mthimkulu. I am an honours student at the University of Witwatersrand and I appreciate your time in this research. You have been asked to take part in a research project on how people use buses in and around Johannesburg. The main aim for this project is to see if you as the participant use one bus or change the buses you use as you travel the city to different destinations.

What will happen

In this study, you will be asked to provide information on which bus you use and for what reason. You will be required to express how you feel when you are on the bus and what you would change if you could about the bus system- whether its times that the buses arrive or the amount of buses that are provided for people. You will also be asked to advise if you use more than one bus and what the reason for this is. In answering the question, you will be helping me understand why people choose the bus systems that they use and how they make these decisions.

Time Commitment

The study and answering the questions takes 10 minutes of your time. This will be done while you are on the bus or waiting for the bus. You only have to answer the questionnaire once.

Participants' Rights

You may decide to stop being a part of the research study at any time without explanation. You have the right to ask that any data you have supplied to that point be withdrawn or destroyed. There will be no loss of information if you refuse to answer a question or leave an answer out.

You have the right to have your questions about the procedures answered so that you are fully aware of what is required and how the information is going to be used. If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins.

Benefits and Risks

There are no known benefits or risks for you in this study.

Cost, Reimbursement and Compensation

Your participation in this research is completely voluntary. As I am a student, there is no reimbursement or compensation for answering these questions. You will not be paid.

Confidentiality/Anonymity

The data we collect do not contain any personal information about you except your name if you want to include it. No one will link the data you provided to the identifying information that you have provided to me. The information is going to be merged so that your individual answers inform a greater set of results.

For Further Information

Rashika Padarath will be glad to answer your questions about this research project during office hours. You may contact her on 082 330 5043 or email her at rashika@andira.co.

Thank you for your time.

Kind regards

Thando Mthimkulu

Consent Form

I, the undersigned, confirm that (please tick box as appropriate):

1. I have read and understood the information about the project, as provided in the Information Sheet dated _____. ☐

2. I have been given the opportunity to ask questions about the project and my participation. ☐

3. I voluntarily agree to participate in the project. ☐

4. I understand I can withdraw at any time without giving reasons and that I will not be penalised for withdrawing nor will I be questioned on why I have withdrawn. ☐

5. The procedures regarding confidentiality have been clearly explained to me. ☐

6. If applicable, separate terms of consent for interviews, audio, video or other forms of data collection have been explained and provided to me (for taking of photos and recording). ☐

7. The use of the data in research, publications, sharing and archiving has been explained to me. ☐

8. Select only one of the following:

• I would like my name used and understand what I have said or written as part of this study will be used in reports, publications and other research outputs so that anything I have contributed to this project can be recognised. ☐

•I do not want my name used in this project. ☐

9. I, along with the Researcher, agree to sign and date this informed consent form.

Participant:

_____ _____

_____

Name of Participant Signature
Date

Researcher:

_____ _____

_____

Name of Researcher Signature
Date

Quantitative Questionnaire

1. Which Bus system do you use?
2. Why do you use this bus system?
3. Do you change buses along your route?
4. If the bus system that you use is not working- which mode of transport do you alternatively use?
5. Are you happy with the bus system that you use?
6. What would you change about the bus system?
7. Would you consider changing buses during your travels?
8. Do you use any other mode of public transport?
9. Would you consider living closer to your place of work instead of travelling every day?
10. How much do you spend on public transport per month?

Dear Mrs Moosajee,

My name is Noluthando Mthimkulu and I am an honours student in the school of Architecture and Planning at the University of the Witwatersrand. I trust you are well and will be able to assist me in my request.

I am currently conducting a research report that will be submitted in October as a thesis to the school. My focus in this research is public transport systems and their modal reach both at a spatial and bureaucratic level and understanding, below is the working title for my report:

THE MODAL REACH OF BUS SYSTEMS IN JOHANNESBURG: EVALUATING THE BRT (BUS RAPID TRANSIT), METROBUS AND PUTCO (PUBLIC UTILITY TRANSPORT CORPORATION).

As mentioned in the title, my focus is exclusively on these 3 bus systems and their effectiveness in the city. My main question for this research is ***Can these bus systems adapt into Johannesburg's future urban fabric without being dispensable?*** And I would appreciate your help through an interview to help me answer this question. At first I was looking at just the general spatial notions that the buses operate in but my research has also piqued the social and bureaucratic elements under the topic.

I have followed your work in the city as well as your interests in the public transport sector with regards to the BRT and other projects you have worked on, something that is close to my heart as I opt to use public transport on my daily commutes in order to understand the system better and one day help in influencing its changes just as you have.

I would appreciate your time, your thoughts and value any information that you can impart to me in an interview. Any feedback will be greatly appreciated.

My contact details are 081 250 7845 or nolu.mthimkulu@gmail.com

Kind regards,

Noluthando Mthimkulu

Interview with Rehana Moosajee

Former MMC for Transport for COJ and leader of the team that implemented the BRT-Rea Vaya

Questions

1. As Stakeholders, what value do the Metrobus network and PUTCO add to the idea of integration when considered in relation to the Rea Vaya System?

2. How do we make public transport more attractive in a city that continues to become care orientated?

3. The idea of extending the Rea Vaya network to Sunninghill, do you support this extension as the most viable route to connect the north to the rest of the city?

4. What initiatives can be taken to make public transport more just?

5. As an aspiring transport planner and ambassador for all things related to making public transportation accessible for everyone, what advice do you have for me?

6. Do you think the Rea-Vaya is an engine of transformation for the City?

7. What were the political issues that you faced during the implementation and the introduction of the Rea Vaya? *Only if you're comfortable answering.*

Dear Ms Seftel,

My name is Noluthando Mthimkulu and I am an honours student in the school of Architecture and Planning at the University of the Witwatersrand. I trust you are well and will be able to assist me in my request.

I am currently conducting a research report that will be submitted in October as a thesis to the school. My focus in this research is public transport systems and their modal reach both at a spatial and bureaucratic level and understanding, below is the working title for my report:

THE MODAL REACH OF BUS SYSTEMS IN JOHANNESBURG: EVALUATING THE BRT (BUS RAPID TRANSIT), METROBUS AND PUTCO (PUBLIC UTILITY TRANSPORT CORPORATION).

As mentioned in the title, my focus is exclusively on these 3 bus systems and their effectiveness in the city. My main question for this research is ***Can these bus systems adapt into Johannesburg's future urban fabric without being dispensable?*** And I would appreciate your help through an interview to help me answer this question. At first I was looking at just the general spatial notions that the buses operate in but my research has also piqued the social and bureaucratic elements under the topic.

I have followed your work in the city as well as your interests in the public transport sector with regards to the resent work you have been involved in with the BRT, something that is close to my heart as I opt to use public transport on my daily commutes in order to understand the system better and one day help in influencing its changes just as you have.

I would appreciate your time, your thoughts and value any information that you can impart to me in an interview. Any feedback will be greatly appreciated.

My contact details are 081 250 7845 or nolu.mthimkulu@gmail.com

Kind regards,

Noluthando Mthimkulu

Interview with Lisa Seftel

Executive Director for Transport at City of Johannesburg

Questions

1. Why do you think there is still a fundamental problem of public transport connections and infrastructure knowing that the same issues existed more than 30 years ago?

2. What political or bureaucratic issues do you face in seeking to integrate public transport systems in Johannesburg?

3. What does the future of public transport look like in the city of Johannesburg?

4. How feasible is the notion of integrating of these three bus systems in the city?

5. How is the route choices impacted in terms of the three systems? Is there a policy that outlines operational zones?

6. As an aspiring transport planner and ambassador for all things related to making public transportation accessible for everyone, what advice do you have for me?

Interview with Mathetha Mokonyama

Specialist researcher on Passenger Transport at CSIR

Dear Mr Mokonyama,

My name is Noluthando Mthimkulu and I am an honours student in the school of Architecture and Planning at the University of the Witwatersrand. I trust you are well and will be able to assist me in my request.

I am currently conducting a research report that will be submitted in October as a thesis to the school. My focus in this research is public transport systems and their modal reach both at a spatial and bureaucratic level and understanding, below is the working title for my report:

THE MODAL REACH OF BUS SYSTEMS IN JOHANNESBURG: EVALUATING THE BRT (BUS RAPID TRANSIT), METROBUS AND PUTCO (PUBLIC UTILITY TRANSPORT CORPORATION).

As mentioned in the title, my focus is exclusively on these 3 bus systems and their effectiveness in the city. My main question for this research is ***Can these bus systems adapt into Johannesburg's future urban fabric without being dispensable?*** And I would appreciate your help through an interview to help me answer this question. At first I was looking at just the general spatial notions that the buses operate in but my research has also piqued the social and political elements under the topic.

I have read through some of your work and followed your interests in the public transport sector with regards to commuters and passengers, something that is close to my heart as I opt to use public transport on my daily commutes in order to understand the system better and one day, help in influencing its changes once I have obtained my profession.

I would appreciate your time, your thoughts and value any information that you can impart to me in an interview. Any feedback will be greatly appreciated.

My contact details are 081 250 7845 or nolu.mthimkulu@gmail.com

Kind regards,

Noluthando Mthimkulu

Questions

1. What does the future of public transport look like in the city of Johannesburg? Do you think there's a space for bus systems?
2. How do we change the mind-set of using public transport in a city where people want to be solely in their cars all the time? i.e. in spite of sitting in traffic?
3. Why do you think there is still a fundamental problem of public transport connections and infrastructure knowing that the same issues existed more than 30 years ago?
4. What does the future of public transport look like in the city of Johannesburg?
5. In terms of the Rea- Vaya, do you think it makes sense to have it implemented in the middle of the roadway instead of the kerbside like other systems?
6. How feasible is the notion of integrating of these three bus systems in the city?
7. What are some of the initiatives that can be developed to translate policy planning into effective implementation when it comes to transport?
8. What kinds of partnerships can be explored to facilitate effective public transport systems?
9. As an aspiring transport planner and ambassador for all things related to making public transportation accessible for everyone, what advice do you have for me?