

Strategic Integrated Transport for growth and development strategy in South Africa: A focus on Rea Vaya BRT.

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Abstract

South African transportation still faces quite a few challenges despite the implementation of BRT systems across various metropolitan cities. These include, “lack of public transport accessibility in semi-urban areas, low ridership, equity imbalances and traffic congestion”. Observations have revealed that the BRT has not been effective in meeting all its objectives. This paper evaluates the strategic integrated transport growth and development in South Africa and particularly focuses on the City of Johannesburg based Rea Vaya. A qualitative research design using one-on-one semi-structured interviews was used for data collection. Twelve participants were purposefully selected, which included the commuters, drivers, cleaners, fare collectors, security officers, and managers who had been working or using the BRT transport system for not less than a year. Qualitative content analysis techniques were used for analysing the data and providing an audit trail; the writing of thick descriptions and a reflexive journal were used to attain research quality. The findings suggest that there is a high number of car ownership, overpopulation, large BRT lanes, road renovations and traffic light malfunctioning which are all factors responsible for traffic congestion in the City of Johannesburg, despite the introduction of the BRT system that was developed to foster integrated transport particularly to encourage sustainable growth and development. Furthermore, findings revealed that the impact of the BRT transport system in the City of Johannesburg was positive in terms of saving travelling time, low-prices and creating job opportunities. The negative impact, however, is that the advent of BRT has led to the closure of small businesses that are located on the road. Poor service delivery, corruption, resistance by taxi drivers, disrespectful passengers, inadequate number of buses, and poor remuneration for the employees and interference by road users, were found to be the challenges of the BRT operational system.

Keywords

Strategic integrated transport, strategy development, BRT, sustainable growth and development, operational system.

1. Introduction

Public transport systems face a multitude of challenges despite its development as a mechanism to encourage growth and perpetuate development through Transit-Oriented Development (TOD). These challenges range from lack of affordability, lack of accessibility often with long lines of waiting and insecurity. These are among the real problems in the province. In perspective, the management of the provincial public transport has the intent of improving the efficiency of the system to correct the past inequalities and transport challenges (Walters, 2013:26). Urban Public Transport systems such as the BRT was a project established in many urban cities in South Africa owing to its ostensible success in places such as Curitiba and Bogota. BRT systems become operational in the year 2009 in Johannesburg and Cape Town in 2011 (Wood, 2015:568). Rea Vaya, the Johannesburg BRT, was the first comprehensive project to be developed as a case study on the African continent and tested during the

2010 Soccer World Cup, and serves as a learning experience that can be replicated in other cities (Allen, 2013:3).

Levinson, Zimmerman, Clinger, Rutherford, Smith and Cracknell (2003:2) state that BRT is “flexible, rubber-tired rapid transit mode that combines running way, Intelligent Transportation System (ITS) elements, stations, vehicles and services into an integrated system with a strong positive image and identity”. BRT is a “comprehensive term given to a different mode of transportation systems that, through developments to infrastructure, vehicles and scheduling, attempt to use buses to provide a service that is of a higher quality than an ordinary bus line” (Arrive Alive, 2019:2). BRT could also be described as “a rapid mode of transportation that can coalesce the quality of rail transit and flexibility of buses” (Thomas, 2001:2). Adewumi and Allopi (2013:1) reveal that in Gauteng Province commuters use the BRT system. In the year 2009 BRT occurred to be the first of its kind in South Africa. On the 30th of August 2009, “phase one of the BRT systems came into effect, linking Soweto to the centre of Johannesburg” (Moswane & Gumbo, 2017:205).

BRT is a “bus-based mass transit system” that provides “comfortable, cost-effective and fast urban mobility” (Wright, 2004:11). The short-term objectives of a BRT are integrated transport that connects townships with micro-city centres which provide efficient, accessible, affordable, safe, convenient, frequent and reliable public transport services (Rahim, 2014: v-iv). Furthermore, the concept of BRT is equally aimed at providing “people with disabilities and mothers with children with accessible public transport with a decrease in traffic congestion, fuel consumption, vehicle emissions, and recapitalisation of the public transport fleet” and enhanced urban environment (Rahim, 2014:iv). Similarly, the medium-term aims of BRT system involve providing a more effective transportation system, helping to reduce traffic on roads, creating jobs and promoting social inclusion (Rahim, 2014:85). The long term goal of BRT is “improved journey times for all public transport users which will play a leading role in transforming public transport within cities to a situation where it will become the preferred mode of travel for the majority of residents” (Arrive Alive, 2019:2).

In so portrayed, the Rea Vaya BRT aims at providing integrated transport that connects townships with micro-city centres and provides convenient, reliable and affordable urban public transport to the public, according to Rahim (2014:85). Also, Rea Vaya BRT was set up to provide an accessible, safe and reliable public transport system that targets middle-class individuals who mostly use it from home to workplace, school, recreational areas, and public service centres (Chakwizira, Bikam, Dayomi, & Adeboyejo, 2011:57; Moswane & Gumbo, 2017:198). Allen (2013:3) further states that the key objectives of BRT such as Rea Vaya are to unlock economic growth, poverty alleviation, low-emission vehicle technologies, restructuring apartheid cities, sustain development and implement good governance. Moreover, the Rea Vaya BRT extends its services to several townships around the City of Johannesburg since 2010 and continues to expand the services to areas of need within Johannesburg to achieve its objectives. Likewise, other cities in South Africa such as Durban, Tshwane, Port Elizabeth, and Cape Town have embarked on an on-going implementation of the BRT systems.

2. Related Works

The Gauteng Province is well-known for being the largest business hub in the sub-Saharan region comprising of several production industries ranging from small to large industrial types of commerce. The province is the scene of multiple events, influxes, and high effluxes, especially in the city of Johannesburg, the heart of the province, which transcends serious traffic jams. To alleviate these traffic jams and ahead of the 2010 Soccer World Cup hosted in South Africa, a BRT project was initiated, adopted, and integrated into the public transport system in 2009 to curb the traffic menace bedevilling the then transport system. Other reasons for its adoption include providing efficient, accessible, affordable, safe, convenient, reliable and frequent public transport services. However, despite the introduction of BRT into the transport system, the traffic seems unabated.

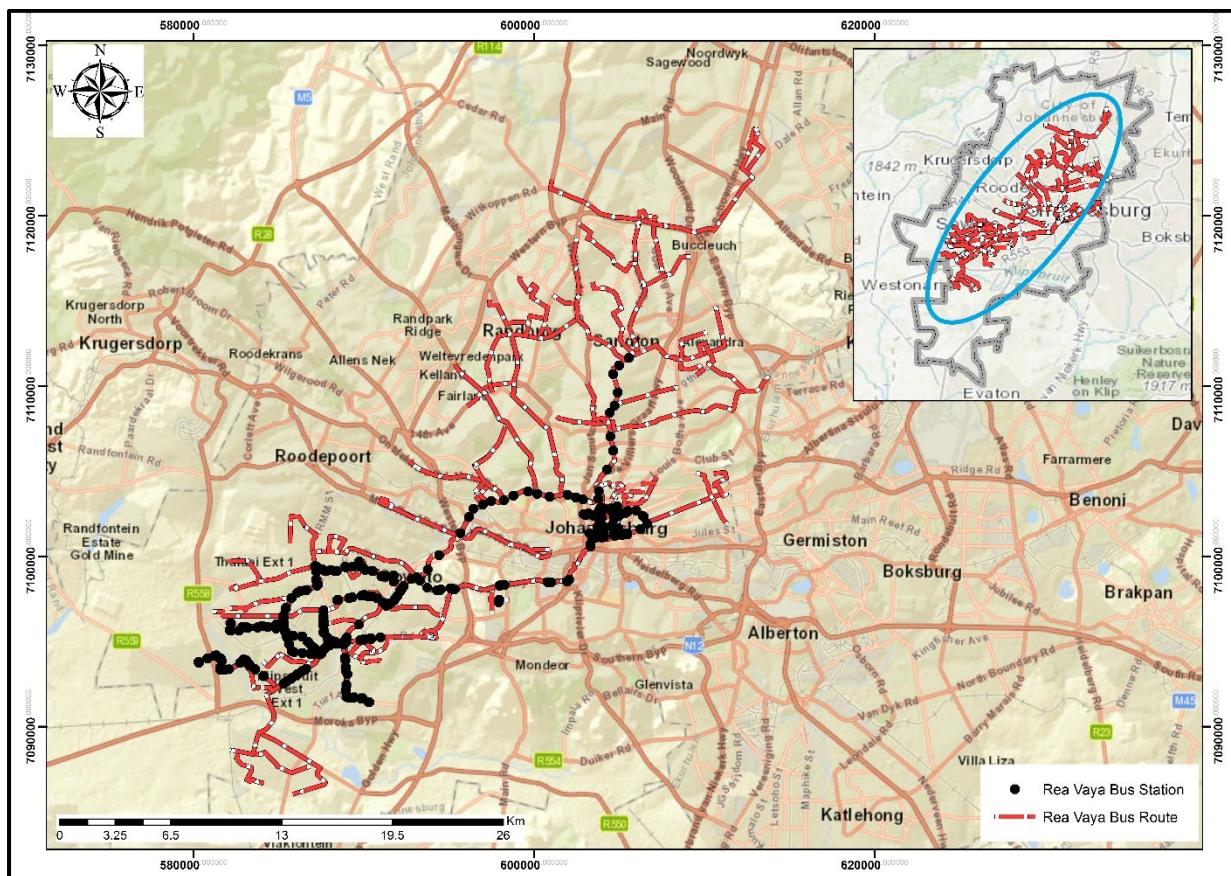


Figure 1: City of Johannesburg, Rea Vaya Routes (Source: Researcher, 2020)

The Rea Vaya is in the Johannesburg Metropolitan City of Gauteng province, South Africa (Figure 1). Johannesburg Metropolitan City is the most competitive economic hub of the country and the fastest-growing city in terms of the economy, development, and population. It is home to both the wealthy and poor, residents and refugees, global corporations, and emerging enterprises with diverse ethnic groups (COJ, 2013). Johannesburg has the largest population in South Africa with an estimated population of 4.4 million (Stats SA, 2016). The Rea Vaya only operate under the jurisdiction of the Johannesburg Metropolitan City across many communities and city centres.

2.1 An overview of the BRT

Ugo (2014:3) mentioned that the first BRT system in the world with an Integrated Transportation Network was developed in Curitiba (Brazil) in 1999/2000. As of 2005, BRT comprised of up to 70 systems around the world (Wright, 2004:698). Cain, Darido, Baltes, Rodriguez and Barrios (2007:1) assert that the “Trans-Milenio of Bogota, Colombia, is the highest-capacity BRT system in the world and one of the best examples of a high-level BRT system. The passengers of Gauteng province South Africa are using the BRT system called Rea Vaya, which means ‘we are going’. Phase one of the BRT system came into effect August 30, 2009, in Johannesburg, along the main routes linking Soweto to the centre of Johannesburg”. The BRT carries at least 16000 passengers per day (Adewumi, 2014:24).

The first modern-day BRT system can be seen in Brazil, Curitiba – where buses travel on dedicated lanes making numerous stops on designed routes ... buses keep millions of travellers moving fast around the city every year” (Kogdenko, 1982:39). Burgess and Ordiz (2010:np) affirm that successful BRT systems in Bogota and Brazil have improved commuter travelling times in these cities, reduced the number of accidents and contributed to improved air quality. The essential difference between a bus system and BRT is that BRT operates longer buses on dedicated bus lanes. Passengers get a regular, faster, and congestion-free ride. The Department of Transport has made it clear that the Bus Rapid

Transit System [BRT] is crucial to the success of South Africa's transport system. Without a good bus service that is accessible, affordable, and attractive to a broad range of people across society, local transport simply cannot work --- Arrive alive (2019:1).

The Department of Transport has made it clear that the Bus Rapid Transit System [BRT] is crucial to the success of South Africa's transport system. Without a good bus service that is accessible, affordable, and attractive to a broad range of people across society, local transport simply cannot work --- Arrive alive (2019:1). Vaz and Venter (2012:619) explained that BRT “ has an effective way of delivering greatly improved public transport services to marginalised urban communities and thereby reducing exclusion-related poverty”. The BRT transport system creates job opportunities; furthermore, according to Jennings (2015:796), Rea Vaya contributes to poverty reduction; but, they concluded, note that Rea Vaya is priced higher than the cheapest available public transport alternative: commuter rail, which remains the mode of choice for the poorest commuters.

2.2 The impact of the Rea Vaya transportation system on society

According to Lewars (2007:6), in some cases, citizens oppose the building of a new BRT system simply because dedicated lanes can impact on private operators and cause hostility towards BRT. Jennings (2015:770) argues that despite the implementation of BRT, South African transportation still faces several challenges. The challenges include “low ridership, lack of public transport accessibility in rural areas, traffic congestion and equity imbalances”. However, any developed system shows limitations and encounters challenges. The impact of the BRT transport system in Gauteng were both positive and negative. The positive impact includes saving travelling time, low-prices and creating job opportunities. Commuters get to travel quicker using the BRT system. BRT is providing job opportunities to the people of South Africa and it also offers cheaper and affordable rides, while the negative impact is that the advent of BRT has led to the closure of small businesses that are located on the road. Street vendors and small business operations were affected because of the introduction of BRT, for example, bigger roads that occupy more space had to be built.

2.3 Safety in the use of Rea Vaya

Roux (2013:2) mentioned that in most African cities, privately owned vehicles and traffic is increasing at a faster rate. Scheduled or formal public transport systems are declining or have disappeared altogether and the unscheduled or informal Para-transit systems that have replaced them are unsafe and offer low-quality service. Adewumi and Allopi (2014:16) argue that BRT stations possess specific paint schemes, logos, CCTV, security, real-time arrival information and streamlined passenger shelter design. CCTV will help to detect if there is a crime --- for instance, if anything gets lost then they can trace it. The criminals will avoid committing criminal acts because of CCTV.

According to the APTA Standards Development Program (2010:1), “BRT stations are very important to the performance of the system and to define the BRT system. Good BRT station design can perform the following: attract new riders; promote visibility and facilitate branding of the system; ensure safe access for all, including people with disabilities; provide passengers with information, including real-time arrival information and system maps; provide shelter from the weather; enable precise berthing at designated stopping points. Enabling passengers to board through multiple doors provide passengers with a safe and secure environment by including such items such as CCTV cameras, a public address system, public and security telephones, fencing and lighting”. BRT stations are safer especially when there are bad weather conditions as it can always provide shelter for the commuters. It is safe and convenient for the commuters to obtain information from the stations. The Intelligent Transportation System is described as “the application of electronics, computer, and management strategies and communication technologies in an integrated manner to provide traveller information to increase the efficiency and safety of the road transportation systems” (Split, 2011:2). Rizvi (2014:13) mentioned that the benefits of BRT include its adaptability to various urban and suburban environments, its ability to be implemented rapidly and quickly, its suitability as a feeder service for rail and its ability to be integrated into urban development, its service quality and pedestrian-friendly environments.

2.4 Transportation Infrastructure

BRT adopts low-cost infrastructure elements that can increase reliability and speed of bus service and may include bus-boarding islands, bus turnouts, and curb realignments" (*ibid.*). According to (Roux 2013:35) public transport infrastructure consists of road and rail networks, public transport stops, terminals, depots, railway stations, workshops and NMT facilities. Most African cities do not have adequate public transport facilities and infrastructure, mostly due to a lack of financial resources. The roads in most African cities tend to also be in a poor condition with potholes and rough surfaces. The poor condition of the roads is due to unexpectedly large traffic volumes, roads that are under-designed, overloaded trucks and lack of proper maintenance. By keeping roads in good condition, the authorities of a city can benefit from large savings in their budgets (in the long run), extended lifecycles of roads, reduced vehicle operating cost and the reduced risk of traffic accidents.

Bus Rapid Transit (BRT) is a broad term given to a variety of transportation systems that, through improvements to infrastructure, vehicles and scheduling, attempt to use buses to provide a service that is of a higher quality than an ordinary bus line --- Arrive alive (2019:1). Burgess and Ordiz (2010:14) mentioned that public transportation became a priority for Curitiba and was used to promote development along the structural roadways. The first bus terminals were implemented as passenger boarding stations and fully equipped bus stop shelters. Stations, typically bearing the name of the neighbourhood or street crossing nearby, were to be perceived as a vital part of the city. The express lines that run on the central thoroughfare of the ternary system, transport 54,000 passengers per day. Roux (2013:27) identifies areas of public transport regulation as 1) the **quality** of service regulation which is primarily intended to ensure the safety of the public transport users and to protect the road system and other infrastructure from damage. 2) Secondly it is also identified as the **quantity** of service regulation which controls the number of public transport vehicles operating on a route and the frequency of the vehicle trips on the route (amount of passenger capacity provided).

2.5 Evaluation of the Rea Vaya strategic integrated transport for growth and development strategy

Rea Vaya operates in Region A to F in the Johannesburg Metropolitan City. It operates in different phases and has systematic hierarchical routes which connect micro-city centres in the Johannesburg Metropolitan City. It has completed the construction of Phase 1A and 1B and is currently developing Phase 1C. Rea Vaya's Phase 1A has a trunk route operating between Ellis Park in Doornfontein and Thokoza Park in Soweto, linking with several feeder routes in Soweto (Rea Vaya, 2015). Feeder buses run from Protea Glen to Thokoza Park and from Eldorado Park to Lakeview (Rea Vaya, 2015). The route covers 325 kilometres of special lanes and intersections, while feeder and complementary buses carry passengers to the trunk route stations. The inner-city circular route travels around the CBD see figure 2, from Hillbrow and Braamfontein to Ellis Park in the east and Chancellor House on the western edge of the city (Rea Vaya, 2015).

The Phase 1B has routes that operate through Cresta, Windsor West, Parktown, and Yeoville. Also, routes that operate to and from the University of Johannesburg and Soweto are being added. The route starts in Noordgesig in Soweto and travels through Pennyville, New Canada, Highgate, Auckland Park and Braamfontein to Parktown, Metro Centre and Rissik Street in the CBD.



Figure 2: Rea Vaya Inner City routes (Source: Rea Vaya, 2015)

The route has made it possible for commuters to reach key public healthcare centres such as the Rahima Moosa, Helen Joseph and Charlotte Maxeke hospitals as well as educational institutions such as the University of Johannesburg, Wits University, Milpark College, Parktown Boys' High School and Barnato Park High School. Feeders run to and from Leaglen, Stormhill, Florida, Cresta, Yeoville and Parktown. There are also additional feeders in Soweto from Pimville and Mapetla. These routes now link to the Metro Centre Rea Vaya loop, which travels to the inner city through Braamfontein.

2.5.1 Causes of traffic congestion in Gauteng

Traffic congestion in the City of Johannesburg is one of the findings of the study. According to the findings, a high number of car ownership in the City of Johannesburg is responsible for traffic congestion in the environment. The data showed that too many individuals own cars. In some cases, families owned more than one car. The data also indicated that people are not willing to make use of public transport for ease of movement and convenience. It occurs that most people want to make a few stopovers either before getting to work or after work to run errands. People are not willing to use public transport due to security reasons (for fear of being attacked at the stations or on their way to the stations); privacy plays a major role (private calls and personal belongings); convenience and easier movement.

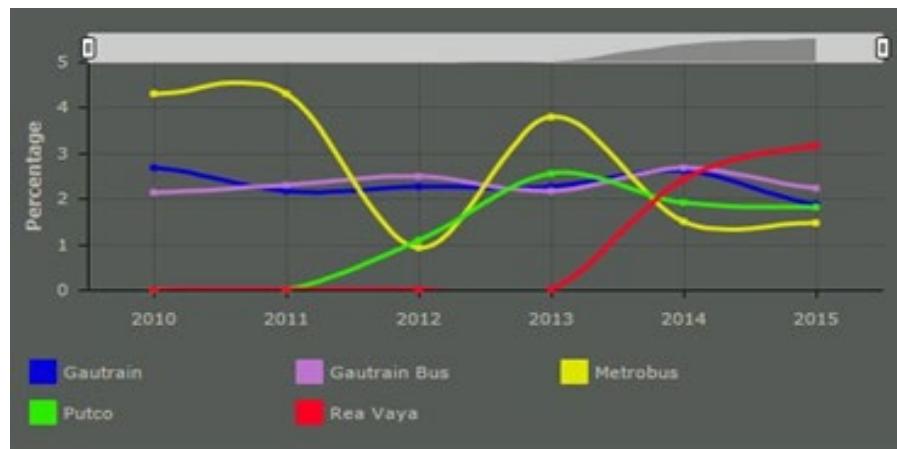


Figure 3: Work (Source: Moswane, 2018)

Overpopulation in the City of Johannesburg has led to traffic congestion. The inflow of people from different places in search of greener pasture, academic pursuit, good health care, high birth rate, administrative reasons and uncontrolled immigration has led to exponential population growth in Gauteng Province. Travel time is almost similar as people move to and from work almost at the same time and in doing so; they use the same roadways throughout. Continuous road renovation causes traffic congestion. During road renovation, vehicular movement is restricted or prohibited from the road; as a result, the government redirect all vehicles that usually use the road to use the suggested road.

2.5.2 Impact of BRT in the City of Johannesburg

The finding showed that one of the positive impacts of BRT is saving travel time of the commuters as BRT travels faster than other road vehicles because it has a dedicated lane where no other road user is allowed to interfere. The introduction of BRT helped create job opportunities and reduce poverty for the City of Johannesburg citizens. The negative impact of BRT is closing down small businesses that are located close to the road where BRT lanes were constructed, which resulted in job losses and economic hardship for those who were affected by the demolishing exercise.

2.5.3 Challenges of BRT strategy for integrated transport for growth and development

Poor service delivery is a major challenge which includes the payment system constantly going offline which causes the commuters to pay more for a single trip. Bus drivers arriving late at the picking station makes the commuters to get late to work. Another challenge is that drivers were described as reckless in their driving as well as some staff members being rude at the station because of negligence.

Data reveals that corruption was found as sabotage to the BRT operational system. Contracts are at times awarded to unqualified contractors. Because of corruption, constructions do run behind schedule or abandoned, unsatisfactory job execution, delay in payment and inactive unions.

2.5.4 How BRT strategy for integrated transport for growth and development can be improved

To improve BRT service delivery participants suggested an upgrade of the computer system to avoid frequent breakdown. For safety purposes, the participants suggested that more security personnel should be employed. Drivers were advised to avoid speeding and reckless driving. Moreover, the participants suggested that students, senior citizens and the disabled be given a cheaper rate for utilising BRT.

For BRT to improve and be more effective and successful in meeting the needs of the commuters more buses must be provided. This will help resolve the problem of commuters waiting for a longer period

at the bus station. Construction of additional roads should be considered to link some part of Gauteng that does not have access to the BRT lane. Participants suggested that top management should not take decisions for all stakeholders but instead allow all stakeholders to be involved in the decision-making process.

3. Conclusion

The study seeks to examine the Strategic Integrated Transport for growth and development strategy in South Africa particularly to compare BRT systems in metropolitan areas that have implemented integrated development strategies such as the City of Johannesburg. The investigation disclosed that a high number of car ownership, large BRT lanes, road renovation and traffic light malfunctioning are the major causes of traffic congestion in Gauteng Province. Poor service delivery such as constant system offline, an unprofessional attitude of some employees, reckless driving, overcrowding, late arrival of buses, corruption, resistance by the taxi drivers, disrespectful passengers, inadequate number of buses, interference by road users and poor remuneration for the employees are all factors which contribute to the malfunctioning of this system.

To examine the Strategic Integrated Transport for growth and development strategy in South Africa, particularly to compare BRT systems in metropolitan areas that have implemented integrated development strategies such as the City of Johannesburg, I, therefore, recommend that BRT stations, routes and more buses be allocated and allow all stakeholders involved in the decision making process.

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