

# POTENTIAL BENEFITS OF CLOSE PROXIMITY OF TAXI RANKS TO RETAIL DEVELOPMENTS

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Taxi ranks within retail developments (RD) in South Africa are usually situated far from RD. Owners of RD regard taxi ranks as a nuisance. This is because the noise and traffic congestions associated with taxi ranks. The aim of this paper to investigate the potential benefits of bringing taxi ranks in closer proximity to RD. Interviews with built-environment consultants were conducted and a thematic data analysis was conducted to analyse the data. The findings reveal that the benefit of bringing taxi ranks closer to RD include increased in-store footprints in RD, potential increased employment, and social responsibility for the local community. There are, however, hindrances that prevent the development of taxi-ranks closer to RD. They include municipal by-laws and lack of users' involvement in the planning phase of RD. Integration of sustainability and regenerative design principles have the potential to eliminate some of the nuisances from by taxi ranks. Unless taxi ranks are brought closer to RD, businesses within those developments will continue to lose out on the benefits that closer proximity of taxi ranks to RD could bring to businesses within those developments.

Keywords: benefits, hindrances, infrastructure, retail developments, taxi ranks

## INTRODUCTION

Minibus taxis are one of the most common modes of transport in South Africa. The mini-bus taxi transportation system is a system where 10-20 passengers traveling in the same general proximity travel together in a mini-bus for (Mckay *et al.*, 2017). Most Black people use minibus taxis to travel to their areas of work (Simpson *et al.*, 2014).

In South African, the built environment is still defined by the spatial developments of the apartheid era, where communities were separated according to race (Hindson, 1996; Moffat *et al.*, 2021). The migration of Blacks to urban areas was controlled through legislation (Hindson, 1996). Blacks were allocated townships on the periphery of cities (Hindson, 1996). These underdeveloped urban areas were located far away from the city's central business district (CBD) and suburban areas, where Whites lived. With insufficient public transportation in South Africa, minibus taxis soon became one of the most used forms of transportation for Blacks in townships (Schalkwyk, 2008).

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According to a study by Stats SA (2021), 80.2% of the South African population depend on minibus taxis to travel from work to home. This is why mini-bus taxi ranks in RD need to be carefully planned for as most people depend on taxis as a mode of transport. Currently, taxi ranks are not sufficiently integrated within the RD.

This paper aims to answer the question what are potential benefits of bringing taxi ranks in closer proximity to RD? A narrative literature study and interviews with built-environment consultants were conducted to answer this question. Thematic data analysis was conducted to analyze the data. This paper is divided into a literature review, methodology, findings, and conclusion.

## **LITERATURE REVIEW**

This literature review is not a state-of-the-art review but rather a short overview of the current challenges of taxi rank's location in relation to RD and potential benefits of their closer proximity to RD. Google Scholar and the University of Pretoria's library were the main search engines used to source relevant articles. Main keywords used in the search included sustainability, transport infrastructure, public transport, public transport policies, retail developments and green buildings. Only articles relevant to the study were included in this paper.

Literature points out to several challenges facing the current location of taxi ranks in RD. Congestion is one of the challenges. Congestion is defined as the intense overload of the road network capacity due to regular or irregular service quality reductions that are further intensified by travel times or a variation thereof (Chakwizira, 2007). Figure 1 shows a typical taxi rank in Sandton, Johannesburg Gauteng, South Africa.

Gauteng Province is regarded as the economic hub of South Africa. Stats SA (2018a), reports that the province contributes a third to the country's gross domestic product (GDP). With an area of 18,176 km<sup>2</sup>, Gauteng is the smallest province in South Africa (Stats SA, 2020). With a 14.7 million population, the Gauteng is also the province with the biggest population (Stats SA, 2018b). Gauteng's population relative to its size is arguably one of the reasons for traffic congestion. This traffic congestion can be a nuisance around RDs. This is because taxi ranks are often not included in the design of the RD.

Most shopping centres do not make adequate provision for minibus taxis (Pillay, 2001) This inadequacy often results in informal taxi ranks mushrooming outside of RD, thereby causing congestion in adjacent roads, and blocking pedestrian walkways. There is also inadequate provision of waste bins and ablution facilities which results in unhygienic conditions (Mathikhi and Ramukumba, 2020; Schenck *et al.*, 2022).

Congestion is closely linked with greenhouse gas emissions (GHG). The transport sector in South Africa is responsible for 10.8% of greenhouse gas emissions (GHG) in the country (DoT, 2019). 91.2% of GHG emissions are from road transportation (DoT, 2019). Taxis being the most widely used form of transportation in South Africa are arguably one of the main contributors to these emissions. There is, however, no evidence in literature to support that this is the reason taxis in RD are not situated near RD.

Coupled with GHG emissions is the noise pollution emanating from high traffic volume (Moroe and Mabaso, 2022) and the taxi drivers' behaviour (Sinclair and Imaniranzi, 2015). Taxis are an informal business in South Africa (Moroe and Mabaso, 2022). Although taxi routes are allocated to taxi drivers, there are no formal

timetables for taxi rides. As a result, taxis often hoot to get the attention of possible commuters even though this hooting is sometimes regarded as unnecessary (Sinclair and Imaniranzi, 2015). This noise pollution is possibly one of the reasons why RD developers exclude taxis in the RD plans.

Despite these challenges, this paper argues that there are several benefits that can be derived from taxi ranks closer proximity to RD. For instance, by implementing some principles of sustainability and regenerative design within the life cycle of RD, some of these challenges may be addressed.



Figure 1: An informal taxi rank in Sandton, Johannesburg (Not Dated)

Sustainability in construction is defined as “...the ways in which built assets are procured and erected, used and operated, maintained, and repaired, modernised, and rehabilitated and reused or demolished and recycled constitutes the complete life cycle of sustainable construction activities’ (Cartlidge, 2009: 29). Most people perceive sustainability as environmentalism, but sustainability includes also social equity and economic development (University of Alberta, 2013).

Understanding the needs of taxis and taxi commuters will ensure that RD are planned, designed, and constructed with the needs of the stakeholders in mind. For instance, RD developers should provide proper well maintained ablution facilities for taxi ranks. Enough waste bins that are services regularly should also be provided (Schenck *et al.*, 2022). Some of the waste from these taxi ranks may be recycled thereby providing some economic benefit and contributing positively towards the sustainability agenda (Schenck *et al.*, 2022)

Roads within the taxi ranks could be planned, designed, and constructed in such way that there is a proper flow of traffic. This will ensure that congestion within RD premises is minimized. Developers and relevant taxi stakeholders can also make rules that prohibits noise pollution such as hooting to get potential taxi commuters within proximity of RD. All stakeholders will benefit from the reduced traffic congestion and noise pollution. It is thus possible to bring taxi ranks within closer proximity to RD.

Another strategy that may be implemented and that might have potential benefits for RD is regenerative design. The aim of regenerative design is to “regenerate and/or restore the environment by improving the mutual relationships of the building, nature and human development processes within the context of place” (Mang and Reed, 2012b; Girardet, 2017; Trombetta, 2018; Axinte *et al.*, 2019 in Mbadugha *et al.*, 2019). RD and taxi rank’s broken relationship can, thus, be potentially mended by applying some of the regenerative strategies.

The literature lists several regenerative strategies that may be implemented in a project lifecycle (Mbadugha *et al.*, 2019). In this paper only three strategies are discussed. Firstly, stakeholder and community participation and integration (Zari, 2010; Haggard, 2002; Litman, 2009; Gabel, 2009; Orr, 2018; Mang and Reed 2012a). In most infrastructure projects community engagement is missing, or it is superficial thus resulting in developments don’t fully integrate the needs of the community into project.

In the South African taxi industry this lack of integration has resulted in the mushrooming of a number of informal taxi ranks next to RD. This lack of integration has made taxi ranks to be a nuisance in RD because there are no adequate amenities in RD to cater for their needs. Taxis and commuters, thus, find other means to cater for their own needs. These means may be unhygienic and detrimental to the environment. By engaging with all stakeholders and commuters, this oversight can be avoided in future RD.

The second strategy is conservation, restoration, and recycling (Thayer,1994; Zari, 2010). Regenerative design’s main premise on biophilia. Biophilia refers to humans’ innate love of nature (Planteria Group, Not Dated). RD developers can capitalize on this by incorporating the principles of conservation, restoration, and recycling in developing taxi ranks within their RD. In addition to providing waste bins and ablution blocks, by planting and maintaining plants that reflects the cultural identity of the community (Thayer, 1994; Zari, 2010; Litman ,2009; Hes *et al.*, 2017) may enhance the relationship between taxi ranks and RD.

Thirdly, the third regenerative strategy is awareness, education, and transparency (Gabel, 2009; Hes *et al.*, 2017; Lyle, 1994). Sustainability in Africa is yet to gain as much traction as in other developed countries. Taxis can potentially assist in driving the sustainability agenda in Africa. Given the high number of commuters that use taxis, by partnering with taxis through awareness, education and transparency, the sustainability agenda in Africa might gain the needed traction.

This literature review identified potential benefits that the incorporation of principles and strategies of sustainability and regenerative design can bring in RD. To answer the main question of this paper, that is, what are the potential benefits of bringing taxi ranks in closer proximity to RD, interviews with built-environments consultants were conducted. The next section discusses the research methods for this paper.

## **METHOD**

Semi-structured interviews with five built-environment consultants were conducted to determine their perceptions on the potential benefits of the proximity of taxi-ranks to RD. By using semi-structured interviews, a predetermined questions can be explored fully through further probing (Saunders *et al.*, 2016). This in unlike in a structured interview where a phenomenon can only be explored according to the limits set by the interview schedule (Blumberg *et al.*, 2008) or an unstructured interview where a

researcher may ask any question that may arise during the interview as there are no predetermined questions (Kumar, 2014). A semi-structured interview has both the rigidity of the structured interview and the flexibility of the unstructured interview; hence they were chosen (Saunders *et al.*, 2016).

Participants in this study were selected through purposive sampling. Purposive sampling allows participants to be selected strategically (Bryman and Bell, 2014). Thus, in this paper, participants were chosen based on their previous participation in RD or similar developments. Given the time-consuming nature of interviews, this led to sample bias where only a few potential participants participated (Saunders *et al.*, 2016). Only five participants participated in this paper. Another constraint was that this study is part of a Masters' degree research with tight time limitations hence the number of participants was deemed sufficient for the purpose of this study.

Participant 1 (P1) is an urban planner with about 40 years' experience. Participant 3 (P3) is a quantity surveyor and participant 2 (P2) is an architect both with over 10 years' experience. Participant 4 (P4) is an electrical engineer with 14 years' experience in private practice. Participant 5 (P5) is a sustainability consultant in RD with 11 years' experience.

Upon receiving ethical clearance, all potential participants were contacted through email or telephone. Only participants residing in Gauteng Province of South Africa were contacted. Gauteng Province is used as a case study for other provinces in South Africa. Participants who could not participate in face-to-face interviews were sent the interview guide through email. Their responses were also through email and were recorded and included in the findings' discussion. Face to face discussions were recorded and transcribed.

Thematic data analysis was used to analyse the data. Using thematic data analysis "...factors underpinning human attitudes and actions" (Saunders *et al.*, 2016:579). In this paper, the actions and thoughts guiding consultants working on RD was important to determine as this could be the reasons for the current dysfunctional relationship between taxis and RD. The next section discusses the findings of the semi-structured interviews.

## **FINDINGS**

This section provides a summary of the findings from interviews semi-structured interviews with built-environment consultants. To answer the main question that this paper seeks to answer, "what are the potential benefits of bringing taxi ranks in closer proximity to RD?" it was important determine the consultants' perceptions about the influence of sustainability on transport infrastructure. Transport infrastructure in this paper refers to taxi ranks. Secondly, it was important to also determine what are the current practices of consultants in relation to transport infrastructure in RD. Lastly, participants were asked to identify potential benefits that sustainable transport infrastructure might bring to RD. The discussion in this section is thus divided into these three themes.

### **The Influence of Sustainability on Transport Infrastructure**

All participants agreed that sustainability could have an influence on transport infrastructure hence there is a need to incorporate sustainability and regenerative design in RD. According to P5 "...regenerative thinking needs to be implemented in transport infrastructure." If there is a consensus of the influence of sustainability on

transport infrastructure, then why is it not currently implemented in RD? The answer seems to stem from a misguided perception that incorporating sustainability design principles in RD is expensive (Coetzer and Brent, 2015). This misguided view was echoed by P3, "...substantial capital cost may be required to setup the infrastructure...."

The perception that sustainability or green buildings are expensive does not seem to be held by the younger BE consultants. According to P2, "younger professionals seem to be incorporating sustainability in retail designs." This means that there is hope for wider application of sustainability in RD in future. Currently, however, there are various ways that capital cost in sustainable RD can be reduced. P3 recommends the use of local community sub-contractors in non-specialised works. This strategy will not only reduce costs, but it will also provide economic benefits to the community.

### **Current Practices in RD in Relation to Sustainable Transport Infrastructure**

Current practices of RD do not adequately make provision for sustainable transport infrastructure. "Retail developers should stop designing from a place of privilege and provide public transport infrastructure... The public transport operators are forced to park on the sideways therefore it should be the responsibility of the retail" (P4). This inadequate lack of provision for taxi is baffling given that most South African use taxis as their means of transportation (Simpson *et al.*, 2014). This fact was echoed by P1 and P4. "Many people who visit malls arrive by public transport." (P1). P4 stated that "majority of South Africans who support RD use public transport therefore public transport infrastructure needs to be incorporated in retail developments."

There are many strategies that RD can implement to integrate taxi ranks within their developments. One the strategies that was emphasized by participants was the need to include taxi operators in the planning phases of RD (Zari, 2010; Haggard, 2002; Litman, 2009; Gabel, 2009; Orr, 2018; Mang and Reed 2012a). P3 concurred by saying "business partnering of retail developers and taxi association so that they can both be involved in the planning phases to avoid future problems such as congestion, noise etc".

Inadequate involvement of taxi stakeholders in the initial phases of the project might lead to the creation of White elephants. P3 provided an example of such an instance, "an example would be at the X Mall when the developer in conjunction with the municipality developed a taxi rank without proper consultation with the taxi association and for a long time the infrastructure was just a white elephant."

There were other strategies that participants said could possibly remedy the current practices such as to "... lessen the amount of parking bays for individual cars" (P2). P4 suggested the use of basement parking for taxis, "...mall basements are completely underutilised and should be compartmentalised to taxi/bus stations."

Another strategy was changing municipal by-laws that will include public transport infrastructure in RD (P4). The "Greening" of RD is another strategy supported by P1 and P4 (University of Alberta, 2013). "The Green Building Council of South Africa (GBCSA) should include a continuous inspection of sustainability practices of RDs as points are awarded to the transport category" (P4).

By incorporating sustainability and regenerative design strategies P4 perceives that there will be a proper RD that "... will ensure that a mixed class of people have access to the development and thus offering services from the low to high income earners" (P4). Participants envisage that by implementing these strategies some of the

supposed nuisance brought about by taxis would be lessened and perhaps change perceptions about taxis.

### **Potential Benefits That Sustainable Transport Infrastructure Might Create for Gauteng RD**

Participants listed several potential benefits that RD could derive from taxi rank closer proximity to RD. Some of the benefits include, "...increase footprints to the retail centres" (P2), "employment and business opportunities for local community," (P3), "an opportunity for retail developments as it increases the development's social responsibility" (P4) and "attract more customers / shoppers due to an attractive development that is easily accessible whether by public or private transport means" (P3).

P5 said that a Green Star certification by the Green Building Council of South Africa (GBCSA) might increase the profitability of RD as more people will visit the RD because of its accessibility and location efficiency. According to P5 if the specific areas within RD dedicated to public transport, it would be beneficial to commuters as this will be convenient than being dropped off far from the RD. In one RD mentioned by P5 the developers intentionally did not provide for more parking bays to encourage the use of public transport. The RD made provision for electric parking bays where in future, charging stations could be provided.

From the number of potential benefits mentioned by participants it is evident that closer proximity of taxi ranks to RD can be a viable option. By involving taxi stakeholders in the RD and incorporating several strategies such as sustainability and regenerative design, it is possible to minimise some of the nuisance caused by taxi ranks in RDs.

### **CONCLUSION.**

The aim of this paper was to investigate the potential benefits of bringing taxi ranks closer to RD. Findings from literature and interviews indicate that there are several potential benefits that can be derived from bringing taxi ranks closer to RD. Potential benefits to developers include increased footprint, increased employment and business opportunities, opportunity for increased social responsibility and profitability. For communities, potential benefits include convenience, increased opportunity for employment and business.

To derive these potential benefits, however, the perceived nuisance caused by taxi ranks such as congestion and noise pollution will need to be addressed through the implementation of many strategies such as changing municipal by-laws, involvement of stakeholders in the taxi industry and the incorporation of sustainable and regenerative design strategies in RD. Gauteng Province was used as a case study for other RD in South Africa. In this paper, only BE consultants were interviewed, the study recommends a similar study to be conducted where all stakeholders will participate in the study to gain a different perspective on this issue.

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