

Examining the role of Braamfontein's bike lanes: A potential infrastructural asset for waste reclaimers

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Declaration

I declare that this research report is my own unaided work, except where I have explicitly indicated otherwise. I have followed the required conventions in referencing the ideas of others.

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Signature:



Date: 15 November 2024

Abstract

The research sought to address the mobility challenges that street reclaimers encountered and the misuse of bike lanes. Street reclaimers depend on their mobility to earn a sustainable income. Their mobility allows them to work from the early hours of the day, salvaging recyclables to sell to the buy-back centres in the late afternoons.

The roads used by reclaimers are a territory for vehicles where street reclaimers are often stigmatised and not viewed as the rightful users of this infrastructure. On the other hand, to encourage cycling, the City of Johannesburg implemented bike lanes that have since been used by vehicles for parking and to bypass traffic, and by informal traders as a trading spots. Bike lanes are a potential infrastructural asset for street reclaimers as they can ease their mobility challenges and include them on the road space.

With the concepts of Infrastructure Re-adaptation, Informal Economies and Non-Motorised Transport (NMT), the research discovered that street reclaimers had found ways to move around the roads and that transportation was at the bottom of their hierarchy of necessities. Furthermore, the city implemented bike lanes with reclaimers in mind; however, this form of the cycle lane infrastructure cannot be appropriated by physically modifying the material construction.

Finally, the study concluded that with a bottom-up approach including reclaimers and other stakeholders, the city could consider converting bike lanes to NMT lanes, and the routes used by reclaimers can frame targeted interventions for future lanes.

Key Words: Street reclaimers; Infrastructure Re-adaptation; Infrastructure Re-appropriation; Informal Economies, Non-Motorised Transport.

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List of Acronyms

FNMT: Framework for Non-Motorised Transport

IME: Informal Mobile Economies

JMPD: Johannesburg Metropolitan Police Department

JUCA: Joburg Urban Cyclists Association

NMT: Non-Motorized Transport

OCS: Operation Clean Sweep

S@S: Separation at Source

UJ: University of Johannesburg

Wits: University of the Witwatersrand

Chapter 1: Mapping the Study Roadway

1.1 Introduction and Study Motives

One day, I saw a street reclaimer pulling his cart that seemed heavy and full of collected plastic objects while cars were hooting behind him, pressuring him to rush as he was obstructing traffic. Empathy is what I felt for him because the load on the trolley was heavy and he could not move any faster than he did. This scenario is a depiction of one of the many challenges that street reclaimers encounter daily. From witnessing this, I had an interest in finding out how street reclaimers move around the city and if there were safe alternative spaces for them to use? Bike lanes, which appeared to be under-utilised seemed like a fitting space that could be accommodative of their mobility challenges. An interest for this research was then sparked. This research study investigated how existing bicycle lanes can be re-adapted to include street reclaimers and other informal Non-Motorised Transport (NMT) users.

This research seeks to address two challenges. First, the poor utilization of bike lanes in Johannesburg, Braamfontein, which is argued to result from the city's failure to adopt a mobility policy (Wood, 2020). Secondly, the reclaimer's road safety compromised as they share these roads with impatient motorists. With this in mind, the research aims to address the insufficient use of bike lanes by investigating if the current lanes can accommodate the mobility needs of reclaimers. The research follows a qualitative case study methodology, and Braamfontein is the study area. Street reclaimers collect recyclables from the study area and travel through Jan Smuts/Bertha Rd from the northern suburbs to the buy-back centres in the inner city. This research aims to uncover strategies to address the inefficient use of cycle lanes while also helping to address the mobility challenges that reclaimers encounter.

Braamfontein, the study area, is located in the City of Johannesburg (CoJ) municipal area as indicated below in figure 1. It is an institutional node of Johannesburg and is known for its bustling street culture. At the street network's core are bicycle lanes installed to attract students, as indicated by Morgan (2017). Wood (2020:1) outlines that the City of Johannesburg is a "city typically influenced by the circulation of transport solutions", which in this case, did not play to the city's advantage as cycling turned out to be not the primary use of bike lanes. Street waste pickers also referred to as street reclaimers also occupy the road-spaces in search of recyclables. At face value, bike lanes are a potential infrastructural tool that street reclaimers can use. Reclaimers are consequently viewed as a nuisance and criminals, and as a result, their existence in particular urban areas is unwelcome and frequently results in them being ridiculed. Despite these lanes being a potential asset that could accommodate their mobility challenges, many still do not seem to utilise them. Yet this infrastructure may ease the reclaimers' ability to navigate the city.

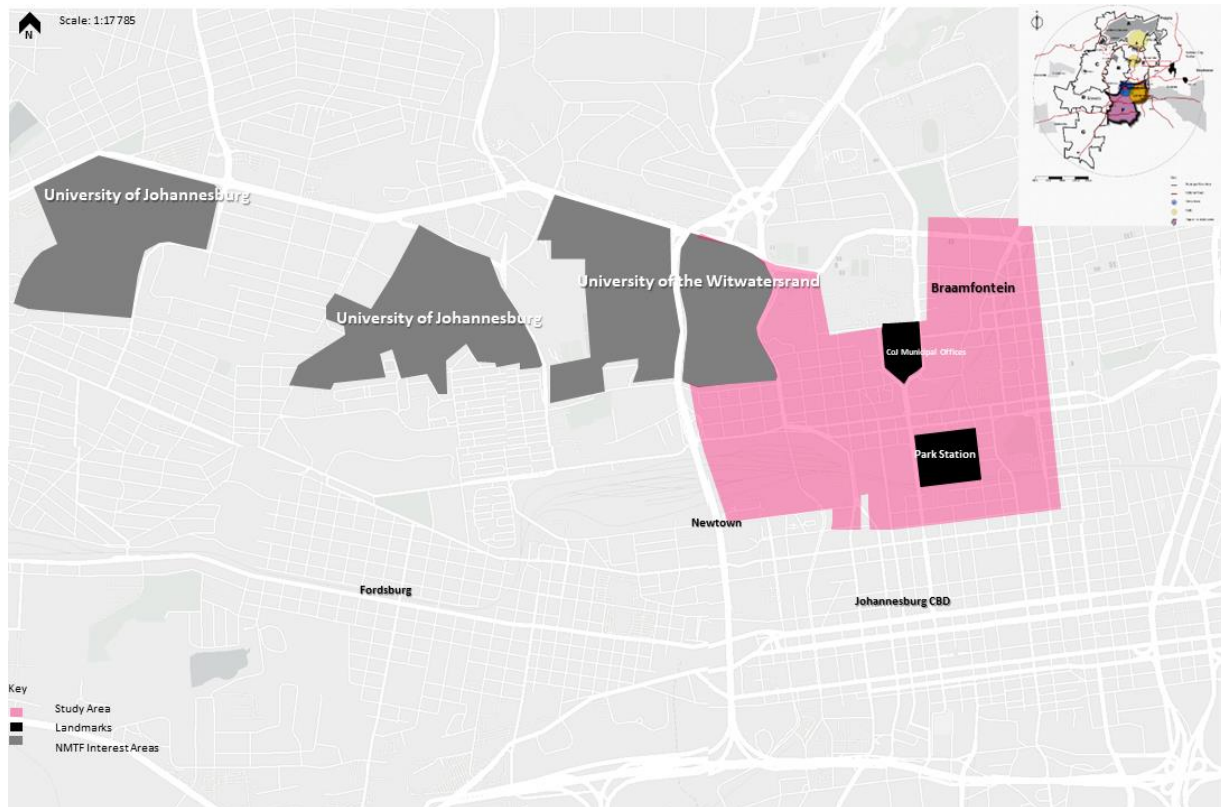


Figure 1 Study area map in relation to the CoJ. Source: Esri Map, modified by Author, 2024

1.2 Background

The enthusiasm for cycling in Johannesburg was reignited in the years leading up to the 2010 World Cup since South Africa was the first African country to host the World Cup and a lot of infrastructural investments were made. The installation of bike lanes took place in 2007 as road safety solutions for cyclists; however, their use has yet to materialise as intended (Morgan, 2017). The first cycle lane built in Johannesburg, post-apartheid, was 750m long (Morgan, 2017). In 2014 a 5km bike lane was launched in Soweto, which linked schools and public transport facilities. Later, a 4km cycle lane connecting the University of Johannesburg and Wits University was realised (Wood, 2020). Areas like Alexandra, Sandton, Rosebank and Melrose Arch form part of Johannesburg's cycling route (City of Johannesburg, 2014). The city's limited knowledge at the time and low levels of bicycle ownership led to decayed and unutilised bike lanes (Morgan, 2017). The 2013 Strategic Integrated Transport Plan outlines that 1 in every 500 trips consists of cyclists, where the city has 3,5 million trips daily (City Johannesburg, 2013). The cycling culture in Joburg consists of 90% of leisure cyclists, while the remaining 10% are utility cyclists who cannot afford motorised transport (City of Johannesburg, 2013).



Figure 2 A car parked in a cycle lane Source: Liphoto, 2022

Bike lanes in Johannesburg have been deemed unsafe by cyclists as they often end on busy road intersections that have high traffic volumes. Street trading and parking invade bike lanes, stripping away this space from cyclists and leaving them to share the road with cars. Figure 2 shows a bike lane along Seimert road in Ellis Park where two cyclists are pushed to share the road with a mini-bus taxi, because the lanes are used as a parking space by motorists, also notice the shadow of the third cyclist in the foreground. This goes to show how motorists do not put the road-space allocated to bike lanes on a high esteem. And this infrastructure has the potential to serve a valuable purpose for NMT users and street reclaimers.

The common names used to refer to street reclaimers are waste collectors, scavengers or trolley pushers; these names often bring negative connotations to their line of work. This research cautiously adheres to terms that bring a high esteem to the informal recycling economy. Samson *et al* (2022) distinguishes between different types of reclaimers. First are landfill reclaimers who are located in waste landfill sites, they; rely on the recyclables that are deposited by the municipal waste management system. They only interact with the streets on their way to buy-back centres. Second, as is the case on this study are the street reclaimers who rely on the recyclables they pick on the pavements, bins of the local residents and any other source they access. In both cases the street is used by both types of reclaimers. The terms; street reclaimers and informal waste pickers will be two terms that will be used throughout the report. An elaborated outline and explanation of both these terms is outlined in the second chapter. This term reflects how individuals in this sector salvage and extract valuable and often neglected recyclable materials from bins and resell them at buy-back centres (Samson *et al* , 2022).

Residents and city officials undermine street reclaimers by attaching negative connotations to their line of work. However, the local municipality needs to recognise the role played by street reclaimers in contributing to the reduction of the city's solid waste (Samson, 2020). The local municipality needs to adequately support this waste economy, which has not only played a role in combatting the high unemployment rate, as reclaimers are self-employed, but has also reduced the adverse impact of waste pollution within the city. According to Samson (2020), the city's dumping sites would have been full if it was not for the city's waste reclaimers.

The informal recycling economy is characterised by low unstable income coupled with poor working conditions (Samson, 2020). Furthermore, their job relies on them being mobile, moving from one neighbourhood to another, reclaiming waste and then walking to a buy-back centre (Samson, 2020). Institutionally and physically, reclaimers operate in-between places and spaces, meaning that they do not have spaces they can freely use as theirs (Charlton, 2014). Reclaimers struggle to navigate the city as they often cramp to the side of the road attempting to move away from impatient cars and trucks (Charlton, 2014). Bike lanes present an opportunity that stands to ease the mobility challenges that reclaimers have.

1.3 Problem Statement

The problem this research is responding to is twofold. First, reclaimers struggle with safely navigating the city as the local municipality still needs to formally recognise their line of work, there is almost no facilitation or support provided that acknowledges the role they play in the city. Pik-it-up, the CoJ's waste management entity attempted to intergrade street reclaimers into the city's waste management system. Pik-it-up's Separation at Source (S@S) programme sought to include reclaimers by encouraging them to formulate cooperatives to reclaim waste and resell their recyclables to buy-backs stationed at landfill sites. The S@S was not as successful as anticipated since Samson (2020) critiqued this programme as one that dehumanised and stigmatised reclaimers. This integration strategy did not work as reclaimers struggled to get paid and were not listened to in terms of what this "integration" meant to them (Samson, 2020). While the S@S initiative does not directly correlate with the relationship between street reclaimers and bike lanes, it sheds light on the municipality's attempt at recognising the role of street reclaimers and demonstrates a possibility for street reclaimers to be integrated and recognised as part of the rightful users of the lanes.



Figure 3 Rubbles and ingrown vegetation on a cycle lane along the intersection of Enoch Sontonga Avenue and Solomon Street. Source: Google Images, 2022

The second problem underpinning this research is that cycle lanes are underutilised due to their current condition. When cycle lanes were introduced, cyclists were enthusiastic towards them that is until they started to notice their defects. Fragments of broken glass and rubble as illustrated in Figure 3 were often spotted in the lanes and the municipality over time stopped maintaining them. Motorists who drive in cycle lanes are also a contributing factor. Many motorists do not respect the

purpose of these lanes and often use them to cut through traffic or for parking. Secondly, these lanes are used as informal trading spots. The design of cycle lanes is described by a scholar, Huchzermeyer (2016) as unsafe. The misuse, unsafety and lack of maintenance of these lanes are some of the reasons that discourage cyclists from using cycle lanes.

This research seeks to bring innovative ideas to include reclaimers in the road-space. Bike lanes are a key infrastructural asset that can be re-appropriated whether physically or through policy to recognise and include reclaimers. To enquire of the extent on which the “integration and re-appropriation” can take place, firstly, the study investigates aspects of the mobility challenges that reclaimers face. Secondly, the research attempts to revive the utilization of bike lanes by unpacking the challenges that hinder their use for both reclaimers and cyclists. Essentially the research brings together two subjects being street reclaiming and bike lanes with the intention of contributing to the literature of both phenomenon’s. A majority of the literature exists on why and how bike lanes in the context of the CoJ have not worked, this research brings the integration of street reclaimer as a solution that could increase the uptake of the infrastructure for both cyclists and reclaimers. A more detailed literature review and conceptual framework will be detailed in the second chapter.

1.4 Aim of the Research

Having stated in the previous section the challenges in the informal recycling economy and bike lanes infrastructure, the overarching purpose of the research aims at:

- Exploring the issue of existing bicycle lanes concerning the needs of informal reclaimers in Braamfontein, Johannesburg.
- Understanding whether the pre-existing cycling infrastructure can be re-appropriated to accommodate reclaimers
- Exploring the contestations that exist in roads and bicycle lanes for reclaimers
- Understanding what would be required for bike users and reclaimers to coexist and each utilise bike lanes.

In order to fulfil the aims of this research a set of research questions are indicated in the following section.

1.5 Research Questions and Sub-Questions

This research will make use of the research questions and sub-question in order to fulfil the research aims that steer the study. The main research question is outlined below:

In what ways and to what extent can Braamfontein's cycle lanes play a role in supporting the activities of street reclaimers?

Research Sub-questions:

- What are the everyday mobility challenges encountered/experienced by informal street reclaimers?
- How do bicycle lanes' design parameters and routes affect their utilization by street reclaimers?
- How can bike lanes be appropriated to suit the needs of informal street reclaimers and whilst still being accommodative to cyclists?

1.6 Chapter Outline

The overall report has seven chapters. Theories, concepts that influence street reclaiming are discussed followed by an approach that is focused on the study area of this research, being Braamfontein in Johannesburg. The outline of each chapter is in this manner:

Chapter 1 of the research has introduced the context of the research where the research aims and questions that guide the study were outlined. The problem statement which the research aims to address has also been discussed.

Chapter 2 will outline the key literature on street reclaimers and bike lanes. Importantly, Infrastructure Re-Adaptation, Informal economies and Non-Motorised Transport which together form a key conceptual framework underpinning the research, are outlined.

Chapter 3 will present the research methodologies where the qualitative case study method, with the focus of Braamfontein as the study area will be justified. Primary data collection strategies deployed for the purpose of the study along with the limitations for this method will be outlined.

Chapter 4 will outline an overview of the study area, Braamfontein in the context of the CoJ. Importantly, the research will discuss the observations made on street reclaiming and bike lanes in the study area with the aid of primary data in the form of images.

Chapter 5 will discuss the research key findings in detail. The findings gathered from the semi-structured interviews and observations will be discussed in detail.

Chapter 6 will be an analysis of the key findings. First the needs and necessities of reclaiming, as outlined by street reclaimers during the interviews, will be indicated. The remaining part of the chapter proceeds to discuss the implications of the re-appropriation of infrastructure.

Chapter 7 draws the research paper to a close by reflecting on the research questions. The research's findings are discussed in detail. The research proceeds to recommend future research topics in relation to the study with practical examples on the inclusion of street reclaimers within the road-space.

Chapter 2: The Conceptual Lens

2.1 Introduction

The previous chapter outlined what the research was about. This chapter contains a literature review along with a conceptual framework and a discussion on street reclaiming. This chapter starts off by exploring on the key theme of Infrastructure Re-Adaptation and the role it plays in fulfilling spatial justice in cities. This section is then followed by Informal Economies in cities where special attention is paid towards understanding informal businesses that depend on mobility, being the Informal Mobile Economies (IME). To contextualise the discussion of this research, more attention is paid towards defining street reclaiming and exploring authority-trader relationships that affect the IME. Non-Motorised Transport (NMT) is the last key concept that is discussed which is followed by the conceptual framework guiding this study. The chapter then concludes.

2.2 Infrastructure Re-adaptation

Infrastructure plays a vital role in the growth and development of cities. The level of development in cities is usually measured by the infrastructure available in that city. One of the important roles of infrastructure is to connect households to higher quality opportunities of healthcare, employment and education (Puentes, 2015). In addition, infrastructure plays a key role in physically and technically organizing public spaces in cities (Mascaro and Yoshinaga, 2005). Infrastructure such as bridges and walkways enable the social, economic and the territorial exchange of cities. This further means that apart from these spaces being used for economic purposes, and enhancing social cohesion, a set of territorial characteristics are also linked to these forms of infrastructure. Lefebvre (1991/2004) states that the notion of territory extends to dimensions and meanings that people attach to certain spaces.

The infrastructure re-adaptation concept, which is also known as infrastructure re-appropriation, speaks about the re-make of infrastructure to enhance its use. Infrastructural re-adaptation, a core concept for this research, pertains to the manner in which infrastructure created for one purpose can be broadened to include other uses or users. This can occur in instances where the infrastructure can be amended to replace the original use of the original infrastructure. Importantly re-adaptation is justified when perhaps there is a lack in the uptake of infrastructure as it was originally meant to be used. In a study by Grub *et al* (2022), re-adaptation of infrastructure was understood as the deconstruction of the inception meanings of infrastructure into new propositions. To deconstruct, according to the Oxford University Press (2024) is to reduce something to its essential parts with the intention of reinterpreting it. Bearing the deconstruct element in mind, this study aims at researching if the meaning of bike lanes can be deconstructed to be inclusive of other forms of Non-Motorised Transport (NMT), besides the ascribed meaning, which suggests that these lanes are reserved

only for cyclists. The lanes are labelled as “bike lanes” which ascribe the expected use and users of this infrastructure therefore subconsciously influencing the original meaning of these lanes to the potential users. In this research the desired re-appropriation of these lanes envisions seeing the lanes being utilised by not only cyclists, but street reclaimers, itinerant traders, and any user which falls under the informal NMT spectrum.

Grub *et al* (2022), continue to expatiate that infrastructure re-appropriation is a means of reviewing uses of infrastructure and concepts and lastly, exploring new applications. The concept of infrastructure re-appropriation speaks about the re-make of infrastructure to enhance its use. An understanding of re-appropriation of infrastructure can further be extracted from Steven *et al* (2010) who see re-appropriation as a means of giving infrastructure another form by literally modifying its material construction. In the context of the adaptation of bike lanes, adopting this form of appropriation might entail the physical reconstruction of bike lanes. In order to accommodate both cyclists and reclaimers widening the lanes would seem like part of the solution, though the impacts of this on adjacent space usage would need careful consideration. The second understanding offered by Steven *et al* (2010) states that infrastructural re-appropriation is giving an item another meaning by altering its symbolic construction. Symbolic construction, in the context of the research, extends to changing how bike lanes are perceived by the public and readapting them symbolically as spaces for all other makeshift NMT users referring to informal traders that use self-made trolleys and carts and street reclaimers.

Both Grub *et al* (2022) and Steven *et al* (2010) share a perspective that the re-adaptation of infrastructure does not only include a physical alteration which could refer to a change of users and not necessarily construction but also the symbolic construction and deconstruction of the inception meaning of infrastructure. The physical rebuilding is not inherent to the definition. The symbolic construction and meaning of infrastructure influence the common connotations that play a role in influencing the uptake of space. The common connotations are the symbolic meanings that are attached to certain public spaces. These common connotations are also assessed by the researcher in observing how the various users interact with the bike lanes. To better illustrate these “common connotations” Grant Avenue in Norwood, Johannesburg will be used as an example.

To give context about Grant Avenue, Lee’s (2014) review of the Avenue was that it had a selection of “quaint restaurants” that vary from serving Chinese food, to Shwarmas to Italian Cuisines. Figure 4 below shows the various land uses on Grant Avenue, indicating an abundance in commercial activities. Besides the food spots, Grant Avenue also offers specialised stores, day spars and a hotel (Lee, 2014). This review shows the various restaurants on Grant Avenue. Along Grant Avenue and Ivy Road lies a bare Norwood Park, as illustrated on the map below. In 2018, while doing

my first Urban Design project I visited the site on a Saturday. I observed that a group of domestic workers residing in Norwood, still in their work apparel enjoyed their breaks by gathering together in the park, one man, who had two dogs on a stopped by for a chat. This public park is where the domestic workers who reside in the neighbourhood often get their leisure time. However, while I walked along the avenue from Point A, heading towards Point B, the on-street parking was full of cars while, along the park, not a single car was there. The spatial differentiation was vast and the park was sort of left for the domestic workers while the “quaint restaurant” that serve diverse cuisines were for those who could afford them. There was sort of an invisible border or boundary demarcating the spaces. There was no board or text that distinguished the park for the workers however, it was common, unsaid, embedded on their conscious that the park was their territory.

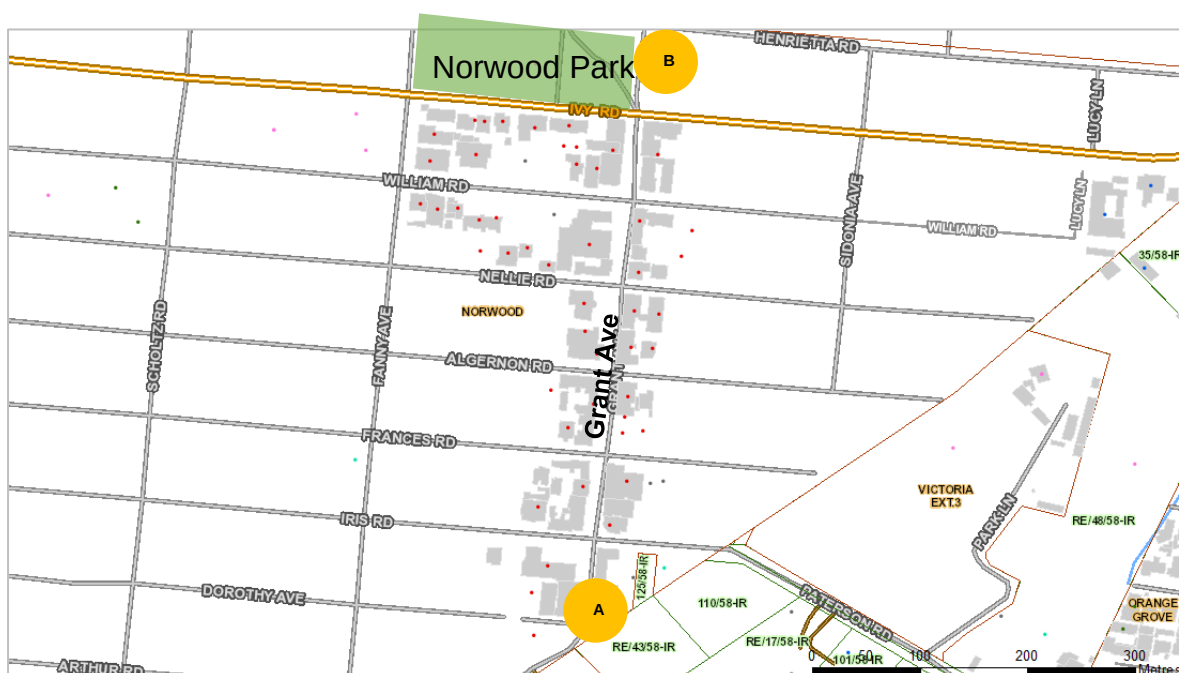


Figure 4 The vibrant Grant Avenue with a bare public park Red dots represents the commercial activities on Grant Avenue. Source: CoJ GIS Services, 2024

In the context of this current study, the researcher will assess whether an invisible boundary or demarcation exists in the perception of bike lanes, which impacts the manner in which the various users interact with this infrastructure. Bike lanes will also be observed for who the various users are and if there are unspoken connotations attached to them that impact the overall experience of their use. Importantly, the unspoken territories that are attached to bike lanes will also be observed.

The intangible spatial dynamics that influence the uptake of public spaces can further be extracted from Lefebvre who assessed the relationship of the producers of space against that of the users of space. Lefebvre (1991/ 2004: 44-43) better assessed this relationship as one where “producers of space have always acted in accordance with a representation, while the “users” passively experienced whatever was imposed upon

them". This means that the users of space generally experience and use space according to the representation imposed upon them by the producers. If the representation of space does not encourage all users to take up space, or in the instance of this research, infrastructure, then an intangible motivation for adaptation can occur. So, intangible connotations refer to the representations of space that are embedded to people's conscious, they are never explicit or tangible instead they are implied hence the word intangible is used to speak of them.

The research takes a stance and sees that the re-appropriation of infrastructure can also be used as a socio-ethical tool which seeks to maintain inclusivity within the urban realm. In cases where there are groups within society that are excluded, the notion of spatial justice is embodied as a tool to facilitate the appropriation of infrastructure. To offer a better understanding, spatial justice is "the fair and equitable distribution in space of socially valued resources and the opportunities to use them" (Soja, 2009:2). This research maintains a standpoint that street reclaimers are also deserving to be recognised as the users of bike lanes. By fair and equitable, the research argues for reclaimers to also be given an opportunity to use and interact with the bike lanes. Currently, they share the road space with motorists increasing their vulnerability to injuries and even a loss of their lives. For this research that is a motivation enough for the inception meaning of bike lanes to be deconstructed if the research proves that this infrastructure is desired to them. The research is yet to unfold if street reclaimers even want or need bike lanes. Spatial justice does not entail the exclusion of those who are already included in space but rather the realisation of a "just space in which basic requirement of just distribution [...] according to the greatest benefit to the least advantaged are met" (Rawls 2001: 42, 43). In simpler terms, everyone whose needs can be alleviated by the infrastructure particularly those that are disadvantaged or marginalised in some way, must be prioritised. Adegeye and Coetzee (2018: 382) maintain that Rawl's theory applied in the following situation: "inequality in a society would only be accepted if it favours the disadvantaged people in the society". Bike lanes are a public space where pedestrians and NMT users are meant to be catered for, and where these spaces are currently unable to meet their needs, spatial justice is a tool that can be used provide the moral justification to facilitate the appropriation of infrastructure.

Jacobs' (1961) perspective of diversity in cities is similar to the diversity evident in Johannesburg, specifically for this research in light of the diverse modes of NMT's (that will be discussed in the following section). However, each of these modes are in a sense their own ecosystem, and in the context of this research, Jacobs (1961) arguably does not share practical tools that can be used to strike a balance for each of these ecosystems that exist within cities. She explains that 'city diversity' (that is programmatic, spatial, social, economic multiplicity) produces self-sufficient urban cores; a contained 'pool' of use (Jacobs, 1961). While Jacob's offers compelling reason for a wide range of activities in urban settings, the previously mentioned spatial

justice lens also makes it easier to identify who is more marginalized and included in any given circumstance. This can help support the argument for street reclaimers to be more accommodated or included in the bike lanes.

Public infrastructure is a key component of the city that can help ensure an equal distribution of resources to everyone, regardless of their socio-economic standing. Therefore, this study further views appropriation as a socio-ethical instrument that determines people's access to space while taking into account the types of activities people engage in and the reasons they require infrastructure. In the case of this research, it is important for reclaimers to have an equal opportunity of using bike lanes and moreover, to be seen as a group of the rightful beneficiaries to the infrastructure.

Infrastructure re-adaption is a tool used to give infrastructure and any other public space a new meaning and identity. Some economic activities like street trading often re-appropriate pedestrian movement space for trading. Bike lanes are also another domain in which street traders utilise to set up their stalls and operate. The informal economy relies on public spaces in order to operate.

2.3 Informal Economic Activity

The informal economy offers financial refuge when the formal economy cannot accommodate many people. When the formal economy struggles to generate enough jobs to employ the whole workforce, the informal economy expands (Khandan, 2017). The presence of informal economies is predominant in low to middle income countries (Fox and Goodfellow, 2016). With South Africa following the latter of low to middle income countries, a decline in the socio-economic profile and economy have led to increasing unemployment rates (Ranyane, 2015). This further leads to an increase in many depending on self-employment as a survival mechanism (Ranyane, 2015). Informal economic activities however are not always driven by survivalist motives but can in some instances be done by individuals who are financially well off, looking towards expanding their income pool. Importantly, the informal economy can also be characterised by being accommodative of skills that many attain outside the formal school system, which in the context of reclaimers can entail the sorting of recyclables (Fox and Goodfellow, 2016). Urban informal economies create a vibrant economic life in city streets. This further proves that informal economies have an influence on the urban fabric and influences how people interact with public spaces like streets, sidewalks and parks.

Informality symbolises a discrete sector contrary to the "organised" formal sector (Hodder, 2016). An understanding offered by Hodder (2016) outlines that informal economies are an economic sector that is unplanned, unordered, and perhaps disruptive to the regular order. Roy (2009) observes that informality is outside the boundaries of planning as it represents:

“...the failure of planning to regulate, manage, map, and control others that elude planning. The idea of informality also connotes casual and spontaneous interactions and personal affective ties among participants” (Roy, 2006:9)

It is commonplace to see forms of space-making, such as mobile economies existing outside the realm of planning (Roy, 2006). Urban managers, being the local authorities, often have negative connotations on informality. According to Kamete (2013a) municipal managers might believe that informal activities use municipal services for free. The collapse of municipal infrastructure and services due to overcrowding, unauthorized connections to utilities, illegal structures, and extensions could also be blamed on informality (Kamete, 2013a). Though it could also be argued that these problems are a result of poor urban provision and management. The local government, (CoJ in the case of this research) may charge unlicensed businesses with harming the environment (Kamete, 2013a).

Elsewhere, Kamete (2013b) further argues that authorities have a fetish regarding informality. Many authorities in countries found in Sub-Saharan Africa are on a quest to bring order to their cities. Informality is often seen as a stain that taints the desired order of urban modernity. To further add, authorities in cities have a narrowed perspective towards informality, which is believed to be spatially unruly and disorderly (Kamete, 2013b). In return informality is seen as an “abomination” (Kamete, 2013b:17) which must be got rid of from the city. The views and perspectives of modernity, drawn from the previous colonial systems tend to exclude the local types of accumulation and consumption. Kamete (2013b) maintains that urban modernity is desired, therefore catalysing the authorities’ actions in cities. Many authorities however lack to comprehend that the socio-economic circumstances of people in Sub-Saharan Cities rely on informality to make ends meet and the desired, orderly “modern city” fails to supply alternatives.

Economic circumstances in South Africa drive many to resort to the informal economy to sustain their livelihoods. In 1996, the Netshitenzhe (1996) recognised that poverty is the biggest problem South Africans are experiencing. In 2018, the World Bank (2018) estimated that at least 17 million individuals in South Africa were surviving below the Minimum Living Level. The urban nature of poverty has been an increasing feature in recent decades. Poverty is looming as a result of climate change conditions that result in droughts and a lack of green economic investments that will help people to gain economic prospects (Rogerson, 2014). Consequently, an accelerated pace of rural-urban migration and high rates of natural population growth in cities is evident. Because of this, South Africa’s big urban centres need help to economically accommodate an expanding population density. As eluded in the beginning of this section, the informal economic sector is the solution for many who reside in urban epicentres that have scarce economic prospects. Necessity truly becomes the mother of invention and the informal economic sector is a result of the “casual and

spontaneous interactions” that resulted from many needing alternative sources of income (Roy, 2006:9).

2.3.1 Informal Mobile Economies

IME are a result of the necessity that results from the informal economy’s utilisation of mobility to enhance the economy. Urban Mobility, (discussed below) is a critical component of the Informal Mobile Economies (IME). However, it is essential first to grasp an understanding of this latter concept. In the context of this research, IME are a set of economic activities where people trade their goods or services by being mobile. This includes but is not limited to those who walk selling their goods from house to house and those who move around offering manual labour for services such as gardening or cleaning. Those using trolleys, carts or baskets to carry their products symbolize mobile economic activities and these groups of individuals are not settled in one area or spot but instead rely on movement and hope to catch the attention of their customers in the different places they set their foot in. Mobile economies attain the “informal” part of it when an individual, who is not affiliated to any formal institution or company, independently carries out the act of selling goods or services. This understanding is crafted on the researcher’s observation on the relationship between informality and mobility.

An example of Gama, who sells his brooms in Parkhurst, demonstrates what informal mobile economic activities mean. In an interview with Gammell (2017), Gama outlines that he walks around all day with his brooms, convincing the everyday strangers he bumps in to to buy his brooms. People in this sector, like Gama, rely on mobility to trade their goods and services. When asked whether he would consider working a formal job, he outlined that he used to clean and wash the dishes at a nearby restaurant; however, the salary was not enough (Gammell, 2017). This further proves that formal jobs sometimes fail to meet the financial needs of people, and as such, the informal sector is a refuge that may provide better money. Luyanda Hlatshwayo, used to run a restaurant in Newtown however he turned to reclaiming as a full-time job (Pongweni, 2024).

It is necessary to set out a clear definition of mobility that will be adhered to in this research paper. The Havard Medical School defines mobility as a person’s ability to move purposefully throughout their day (Havard Health Publishing, n.d). Moreover, Cresswell (2010) adds that urban mobility is actual embodied movements that are derived from the resources of the individual. Because of its reliance on the individual, urban mobility is not evenly operationalised and accessed (Sheller, 2018). So, the movement of an individual is reliant on the resources one has at their disposal. These resources vary from a mobile vehicle, to a train, to makeshift NMT like a cart or trolley. As long as an item has the ability to either carry an individual or carry the items of an individual, then mobility is realised, since “physical movement is, if you like, the raw material for the production of movement” (Cresswell, 2010:19). This means that when

a person has the physical ability to easily move from one area to another, then the act of being mobile has been realised. Mobility further intersects with activities in people's everyday lives and generates the need for transportation, to carry both the person and/or their goods (Ellegård and Vilhelmson, 2004).

This research is concerned with informal economic activities that rely on mobility in order to have a consistent cash-flow. Many mobile workers, like Gama above, walk carrying their products; however, street reclaimers rely on the (often) self-made NMT carts to carry their recyclable. Street reclaimers depend on walking, where some often walk distances that span to 15km (Pongweni, 2024). What can be understood about this transportation mechanism is that it allows informal traders and street reclaimers to move around with their products targeting areas with high foot traffic. (Ndletyana, 2013). Street reclaimers sometimes rely on the presence of pedestrians to pick recyclables that are often discarded. And so, pedestrians offer reclaimers an access to recyclables. There are however, some spaces that do not encourage pedestrian movements, these spaces are sometimes avoided by reclaimers.

Furthermore, the potential life that individuals attain and the places of necessity they need to get to are all linked to the spatial order of the city and, importantly, urban mobility. Urban Mobility is also crucial to the functioning of cities. The ability of people to move around the city, and their routes, affect and influence the spaces that people who operate in the informal economic pick to trade their goods in. For instance, an informal trolley operator who sells fruits and vegetables might not operate his business in Paulshof, an area with gated communities, due to stringent security measures and a lack of a market and pedestrians to support his business. However, choosing to sell fruits and vegetables from a trolley in Hillbrow, an area with a lot of pedestrians and no private security, exemplifies how traders rely on the spatial order of cities to pick suitable areas for their businesses. The example shared shows how access to spaces influences the informal mobile economy. Mobility tools such as trolleys and carts enable individuals to move within different areas in the city while carrying their merchandise safely.

Thus an example of IME that relies on the movement and access to space is seen through itinerant traders that operate their businesses from either mobile objects such as trolleys, carts or any other items that aid them in navigating the city. In Durban, itinerant traders depend on NMTs and their strength to support their livelihoods (Heneck and Ottanelli-Gale, 2020). Itinerant street traders use makeshift vending carts and adapted shopping trolleys to sell goods, while, street reclaimers utilise makeshift trolleys and carts to carry recyclables and that are sold to buy-back centres as depicted in figure 5 and 6. Heneck and Ottanelli-Gale (2020) outline that reclaimers are individuals whose importance is not recognized as they support and offer practical, necessary and efficient services that support the inner-city economy. These mobile items allow them to move between various hotspots in the inner city

but also aid them in protecting themselves from law enforcement agencies that casually harass, threaten and strip them of the items they carry.

Item A	Item B
 Figure 5 Heneck and Ottaneli-Gale (2020). [Online Image] Available from: https://rb.gy/lmxoyb [Accessed: 06 June 2022]	 Figure 6 A makeshift cart/trolley with recyclables. Matafa (2021). [Online image] Available from: https://rb.gy/93wia1 [Accessed: 31 January 2024]

Informality is a site of innovation that people use to solve everyday challenges, demonstrating how people use resources they have to meet their immediate needs (Crush *et al*, 2015). Yet often this is overlooked. For example municipal officials have yet to recognize the role of street reclaimers and have thus not created an enabling platform to intergrade their work with the formal waste management system (Henneck and Ottanelli-Gale, 2020). However, municipal officials underestimate this sector as they see it as failing (Henneck and Ottanelli-Gale, 2020). The mobility tools. Which are a form of NMTs assists the informal economic sector to operate between places and spaces.

2.3.2 Waste Collectors vs Waste Reclaimers

According to the Samson *et al* (2022) street reclaimers are individuals who make a living through salvaging recyclable materials collecting, transporting, cleaning, sorting and selling them to the green economy to be utilised and reinvented into new raw materials. Waste collectors are also known as waste pickers and rubbish collectors. Samson (2019) distinguishes waste reclaiming from waste collection. Terming the informal recycling economy as ‘waste collecting’ is a narrowed understanding that reduces the value of reclaiming. It suggests that individuals in this sector collect any waste, typically making them no different from municipal garbage collectors (Samson, 2019). Terming this line of work as waste reclaiming first recognises waste as a resource and, secondly, illustrates that individuals salvage materials from bins, curb

sides and landfill sites (Sekhwela and Samson, 2020). Calling this line of work as waste reclaiming carries an added value as it shows how reclaimers pick recyclables and extract monetary value from discarded material (Sekhwela and Samson, 2020). However, this research recognises an understanding posed by the Samson *et al* (2022:3) which defines waste reclaiming as “a line of work where people create value through salvaging materials that can be recycled, reused, and make important contributions to the economy and environment”. Luyanda Hlatshwayo, a street reclaimers also shared the same sentiments when he said” We are not waste pickers. I don’t collect waste, I am a reclaimer” (Pongweni, 2024:01), This definition of waste reclaiming is used to mirror and understand the informal recycling economy; moreover, this research further sees this line of work as reclaiming not waste picking.

The SA context has reclaimers that pick recyclables either from streets or landfill sites. First are landfill reclaimers who solely pick recyclables from the municipal landfill sites and proceed to waste management centres to sell the picked recyclables. Those working in the landfill sites often encounter the challenges of accessing the landfills. They often lack Personal Protection Equipment to protect themselves from harmful methane gas fumes and germs (Samson, 2008). On the other side, street reclaimers often reclaim the value of recyclables from the roads, curb sides, bins and any other open sources they can lay a hand on except landfills (Samson, 2008). Street reclaimers race against the municipal collectors who empty the bins to ensure that they salvage any recyclables that might have been discarded.

Waking up early is pivotal if one wishes to attain as many recyclables as possible. A reclaimer shared that he sets up his trolley at 3AM in order to race for recyclables before they are collected by Pik-it-up and other reclaimers, because this line of work is very competitive even among street reclaimers themselves (Pongweni, 2024). A phenomenon that applies to both landfill reclaimers and street reclaimers is that the heavier the load, the more money one is likely to get. However, a waste collector from the African Reclaimers Organisation mentions that an empty cart weighs heavier than a full cart (Kögl, 2022). This is because the emptiness of the cart resembles the emptiness of their pockets since they would have not have reclaimed enough recyclables to make money for the day (Kögl, 2022). Simply put, if a reclaimer goes home with a small bag of recyclables, he/she will not be able to buy food because buy back-centres where reclaimers exchange recyclables for money pay by the kilogram (Pongweni, 2024).

However, certain stigmas are attached to this line of work, as waste reclaiming is viewed as undesirable and a societal problem. According to Samson (2008:3), “most people in South Africa prefer not to see the waste collectors and look down on them for doing such dirty work; many municipalities regard them as a nuisance and are trying to get rid of them.” According to Sentime (2012:82), waste reclaimers are viewed by the local authorities and the public “to be undesirable, posing problems to society.”

Moreover, waste reclaimers are at the bottom of the recycling economy hierarchy and are seen as a problem and an undesirable part of society (Mkhize, 2014; Sentime, 2012). Waste reclaiming has become a phenomenon often explored by 1% of the urban population, where these individuals survive by salvaging recyclables from waste (Medina, 2008). There is an estimate of about 60 000 to 215 00 people who reclaim as a means to sustain their livelihoods, and this is done in an economic climate where about 46,6% of South Africans in 2020 were unemployed (Samson *et al*, 2022).

Women in the waste reclaiming sector experience challenges that are intersectional (Dias and Ogando, 2015). Firstly, societal expectations from their ascribed roles as women decrease the time they spend working as waste reclaimers because they are responsible for the primary role of tending to their households and children (Dias and Fernandez, 2013). Women in this sector risk gender-based violence on landfill sites and streets (Dias and Fernandez, 2013).

In order to minimize their vulnerability, female reclaimers work with male spouses or friends. Moreover, they pick their collection routes to avoid areas they deem unsafe (Mokobane, 2019). Khoali, a female reclaimer stated that she always walks with male reclaimers because it was risky for her to walk alone in dark hours of the morning as a women (Pongweni, 2024). Women further reclaim lighter recyclables due to their limited physical strength, which restricts them from monopolizing the highest-value recyclables compared to their male counterparts (Nzeadibe and Adama, 2015). As a result of these, female reclaimers have lower incomes. This observation further adds to the dimension of gender inequality since the informal reclaiming domain favours male reclaimers more than female reclaimers.

Waste reclaimers have, throughout the years, come up with various strategies and techniques to assist and protect themselves in this line of work. The streets have always been a territory for waste reclaiming. Furthermore, the local authorities have missed an opportunity for policymakers to understand incorporating waste reclaiming into the formal waste management system. Samson (2020) investigated efforts by Pik-it-up to integrate street waste collectors into the formal waste management system, moving them from being informal street reclaimers. The integration proposed by Pik-it-up aimed at training reclaimers and encouraging them to formulate cooperatives. When reclaimers left the program, Pik-it-up hired private companies to collect recyclables, stripping them of their livelihoods. The current Municipal Finance Management Act of 2003 which guides the financial management of local municipalities has a contracting structure that still prioritises established companies over fostering lasting partnerships with communities. The S@S initiatives illustrates the failure of local municipalities in maintaining relations with communities as it did not include reclaimers in the conception stages of this initiative. As a result, reclaimers were dictated and not consulted on what integration would seem like to

them. This however, contrary to the then Pik-it-up's S@S initiative which sought to merge reclaimers with the formal waste management system.

Reclaimers are not only institutionally fighting for their place in society but are physically limited. Street reclaiming is reliant on NMT; however, these individuals do not have a physical and tangible space they operate within. This further means they must constantly be in a contest to use roads, pavements or any other infrastructure to navigate the city with other "rightful" users. The current South African road infrastructure has been in place only to support motorized transportation. At the same time, current non-motorized green infrastructure, which in this study's context refers to bike lanes, was installed to indicate a shift from the previous latter.

Waste reclaimers are still not considered through these designs, and recognized users of these facilities are known to be cyclists, skateboarders, pedestrians and any other user that uses a conventional NMT. Waste collectors often have no option but to opt for unsafe roads to navigate the city. This further yields friction between motorists and waste collectors, creating a stressful and life-threatening workspace (Henneck and Ottanelli-Gale, 2020). Waste reclaimers often endure harassment from other road users as they are viewed as an obstruction that inconveniences the rightful users of road spaces, motorists.

2.3.3 Authority-trader relations in informal economic activity

The relationship between the government and informal traders displays power dynamics. This is often seen when state officials exploit the ambiguous legal status of informal traders (Roever, 2016). Fixed trader and itinerant traders choose these different forms of informality for specific reasons. The difference lies in the trading spots: itinerant traders sell their goods to the public with no built up structures to trade from (Bhowmik, 2005). Fixed traders, for instance, might find comfort in owning or renting a property that protects their businesses and merchandise, in contrast itinerant traders are not spatially rooted and settled in one area. In cases, where law enforcement agencies, such as police threaten to take the items sold by both these traders, itinerant traders can quickly run and navigate places with ease, while fixed traders are more likely to lose most of their merchandise. These traders constantly contest for space with the city's law enforcement agencies and the government. Turner and Owsin (2015) noted that both fixed and itinerant traders are often harshly clamped down by police. The police and government officials are known to misuse their power to dispossess traders of their trading stock. Reclaimers too are constantly harassed, and their trolleys can be permanently confiscated (Benit-Gbaffou, 2016).

In Johannesburg, informal traders in the streets experienced the exploitation of these law enforcement agencies when the CoJ's Operation Clean Sweep (OCS) was introduced in 2013. OCS was a government-led initiative that struck a variety of traders in Johannesburg CBD, leading them to lose their goods. The Mayoral OCS

initiative started when the CoJ addressed illegal trading, littering, and other city by-law contraventions, such as illegal dumping and building invasions (Nicolson and Lekgowa, 2013). OCS was described by the then Mayor, Parks Tau, as a “coordinated crime and safety enforcement effort to improve the liveability of the inner city” (Nicolson and Lekgowa:2013:1). However, this was soon an act that led to many being deprived of their ability to sustain their livelihoods. During the enforcement of OCS, Johannesburg Metro Police Department (JMPD) police confiscated the stock of the informal business owners and told them to leave the streets until further notice (Nicolson and Lekgowa, 2013). The JMPD did not even spare the traders with official permits from the rod of eviction (Beni-Gbaffou, 2016).

The OCS demonstrates the uneven distribution of power between the state and law enforcement agencies. Instances like OCS are often used to put informal traders at a disadvantage whereby they are constantly harassed and have their stock confiscated. This further illustrates that informality, in the context of Joburg, was at the time viewed as a problem that could only be ridden with through dispossessing, confiscating, and harassing informal traders. Moreover, the traders who had appropriated the City’s streets for profit had been displaced because they simply did not fit into the entrepreneurial identity that the CoJ honed at the time (Beni-Gbaffou, 2016). Many traders in the global South, like those in Johannesburg, are constantly victimized and harassed by formal institutions (Turner and Oswin, 2015).

The OCS was a top-down strategy to get rid of informality. This top-down strategy was an attempt to eradicate, relocate and de-informalize the informal traders in downtown Johannesburg (Kamete, 2013a). Kamete (2013b) notes this, as indicated above, as the local authorities’ quest for a modern city. Because informality sprouts out unplanned by local authorities, its aftermaths tend to disrupt the urban management systems such as waste management. OCS was attempting to deal with the negative aftermaths of informality in a top-down manner which did not involve the traders. The approach taken by the OCS was fixated on sweeping away the informal operators because they were believed to be the cause of the decaying infrastructure, hijacked buildings and large amounts of rubbish on the streets (Pezzano, 2016). These strategies did not attempt to improve the lives of the informal traders but instead they were a reflection of authorities who acted on their impulses. Pezzano (2016) further points out the impulses of the authorities in the manner in which all traders irrespective of their trading status were removed.

The relationship between informal traders and city officials has not always been negative. There was a move to organise the City since the Municipality noticed a dip in investments, and informal trading was noted to be a contributor to this decline. In order to restore the city, the CoJ dealt with informal street trading, in doing so, the City set out trading and non-trading zones in the CBD (Bantubonse, 2008). Stalls along pavements and markets in certain trading zones were set out (Bantubonse,

2008). The Central Johannesburg Partnership worked with the CoJ Municipality to establish a linear pedestrian friendly street market for informal traders. One of the markets that were birthed out of the City's efforts to control informal street trading were Kerk Street in figure 7, a street market that was established in 1995. This market according to Bantubonse (2008) has contributed immensely to organising informal trading. In the context of this study it proves that the authority-trader relations can be realised in a way that both parties can benefit from.

Authority trader relations can both be positive and negative, as indicated above. The importance of this topic sheds light to difficult situations that many reclaimers find themselves in with authorities, especially law enforcement agencies. Some reclaimers are harassed by police officers, as they are sometimes misunderstood as criminals. Reclaimers operate in-between spaces, feelings of being unsure and feeling at risk whenever a police van or officer passes them by, being scared of being harassed and loosing their recyclables are imagined by the author to be how reclaimers feel. On the contrary, authority trader relationships are can be positive which sometimes lead to the re-appropriations of certain spaces, aimed at integrating new uses that will meet the needs of traders. Furthermore, the CoJ's (2009) by-law permits for trading that occurs from a public road, with a permit from the municipality. This by-law can be closely associated with street reclaiming, itinerant trading and informal trading. The re-appropriation of Kerk street to designated a space for informal traders and pedestrians shows a result of the good relationships between authorities and informal traders, moreover, it is an initiative to include the previously displaced traders into space. Kerk street is a designated trading area for informal street trading. Moreover. The re-appropriation of Kerk street as a designated pedestrian street market for informal traders is in support of the above-mentioned by-law.



Figure 7 Kerk Street pedestrian market, intact. 2Summers, 2023. [Online Image] Available from: <https://rb.gy/7hf795> Accessed: 31 January 2024

2.4 Non-Motorised Transport

Johannesburg had a vibrant utility cycling culture in the 1900s (Morgan, 2019). The start of Johannesburg as a city was realised when gold was first discovered in 1886 which saw many people from other parts of the world arriving into this city. The then economic boom saw many residents affording consumer products that conveyed modernity where bicycles were included (Morgan, 2019). Bicycles were a symbol of status, consumer goods reserved for the affluent who often used this means of transportation for sports and to tour around the city. In 1903, the city had a high number of cyclists when compared to other parts of the world, where a third of the then population cycled. This can be credited to the colonial authorities who developed policies that encouraged cycling. Furthermore, government officials were paid subsidies every time they cycled to work (Morgan, 2019).

Nearly centuries later, the move towards cycling was encouraged by the CoJ municipality after the realisation that over time, transport planning in the city had been car centric and this reflected also on the user patterns in 2006. A survey conducted in 2002 further illustrated cycling levels to be less than 1% while car centric levels between private cars and public transport constituted 81% (CoJ, 2013). The Non-Motorised Transport Framework was introduced in 2009 in Johannesburg because NMTs had “been identified as a priority area at National, Provincial and Local Government levels” and had “the potential to become a feasible and sustainable mode in the City” (CoJ, 2009). The City further advocated for the introduction of NMT transportation because it would give individuals staying in out-lying areas of the city, with limited access to public transport an opportunity to cycle to transportation nodes much faster than walking (CoJ, 2009). Moreover, this form of transport would play an

important role of providing a sustainable alternative to the vehicles, minimising carbon emissions, congestion all contributing to meeting the targets set by the Kyoto Agreement (CoJ, 2009). With all these motivations for the nudge towards NMTs in the City, the municipality then commenced with the construction of cycle lanes following the commencement of the coJ's transportation strategy. Key events that led to the formulation of the strategy are outlined in figure 8 below:

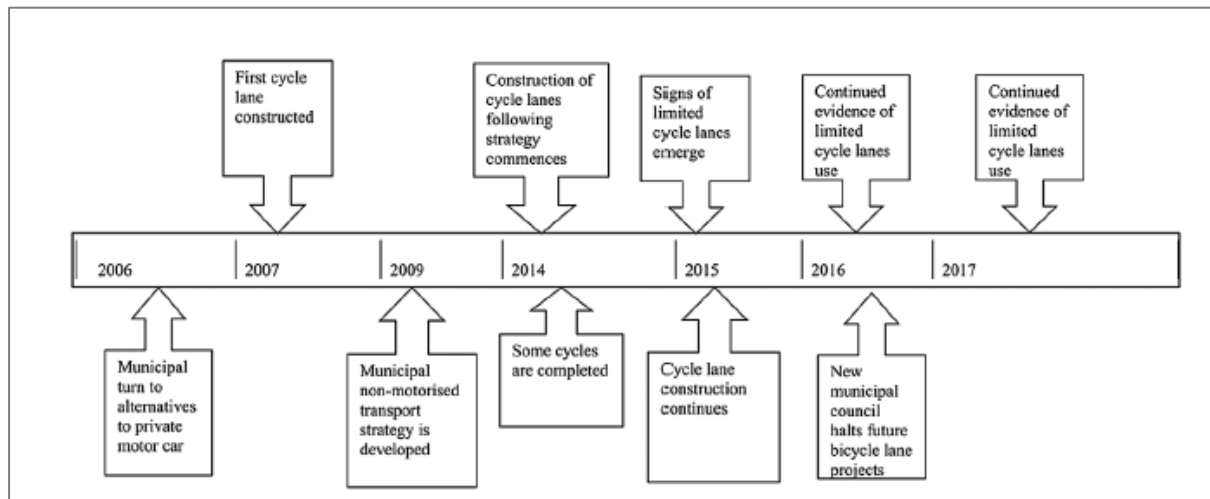


Figure 8 A timeline of the key events in the NMT domain. Source: Morgan, 2017

In the FNMT the CoJ (2009:1) defined Non-Motorized Transport as a transport typology that “includes all means of transport that are human powered”. This definition further mentioned “walking, cycling, rickshaws, wheelchairs, animal-drawn carts and recreational activities” (CoJ, 2009:1). This definition further recognises other unconventional NMTs, like rickshaws, unique to the context of Johannesburg. This is encouraging since it shows the possibility of perhaps the inclusion of the trolleys and makeshift carts used by street reclaimers and other Informal Mobile Economies as forms of NMTs possibly being realised in future City policies.

Bike lanes were then implemented as part of the FNMT (2009). This policy framework targeted two groups of NMT users. First, NMT users who depend on this form of transportation for causes related to basic need and cost, and the second, NMT users for health, leisure, fitness and the environment. The overall vision of this policy was “for Johannesburg to be a cycle and pedestrian friendly city where everyone has access to urban opportunities and mobility, walking and cycling are safe and convenient and are the preferred modes for short distance and convenience related trips ” (COJ, 2009:13). This policy sought to integrate bike lanes with public transport facilities like Rea-Vaya, Major Taxi Ranks, Gautrain and Metro Rail Stations (COJ, 2009). A series of priority areas were identified throughout the city where Braamfontein was one of the 10 identified areas.

The implementation of cycle policy in the context of African cities is not only limited to Johannesburg but Nairobi as well. Nairobi is in Kenya, an African city which also has recently implemented NMT policies which led to the construction of NMT infrastructure. The studies conducted by Mitullah and Opiyo (2016) demonstrate that NMT infrastructure provision improved, but the kinds of infrastructure offered vary and did not entirely adhere to NMT design principles (Mitullah and Opiyo, 2016). They observed that some routes have NMT infrastructure that was excellent, spacious, and well-maintained, others were either poorly maintained or blocked by other activities (Mitullah and Opiyo, 2016). They further noted that poor design and inappropriate location of bike lanes contributed to them not being utilised (Mitullah and Opiyo, 2016). Pedestrians profited, whereas cyclists and those with disabilities have either received insufficient consideration or felt ignored in the design of NMT infrastructure (Mitullah and Opiyo, 2016). The authors pointed out that the infrastructure was mostly ignored when it came to how NMT were used to link origins and destinations as a full mode, and that the facilities were occasionally provided, indicating a conception of bike lanes in Nairobi as a mere path for other modes of transportation (Mitullah and Opiyo, 2016). The new Nairobi NMT policy, which was introduced in 2015 aimed at facilitating the standard provision of NMT infrastructure in the city. Mitullah and Opiyo (2016) advised for the modification of standard infrastructure rules where they don't already exist and expanding facilities to accommodate all NMT users. This observation on cycle infrastructure mirrored the current state of bike lanes on Braamfontein.

The effectiveness of NMT infrastructure varies widely, which has an influence on the effectiveness and safety of NMT trips (Baufeldt and Vanderschuren, 2017). NMT is advantageous and sustainable for both developing and developed nations, but it should be emphasized that its users experience a number of difficulties that make it less desirable as a mode of transportation (Baufeldt and Vanderschuren, 2017). The primary issue is the insufficient provision of NMT facilities, which makes NMT trips unsafe and ineffective (Baufeldt and Vanderschuren, 2017). More can be done to enhance NMT facility implementations in the CoJ so that regional issues and NMT users' requirements can be better met in a more reliable way. The emphasis moving forward should be on increasing the consistency and quality of the NMT infrastructure that are maintained and improved as well as expanding the network's reach and connectivity for both cyclists and pedestrians in accordance (Baufeldt and Vanderschuren, 2017).

2.5 Conceptual Framework

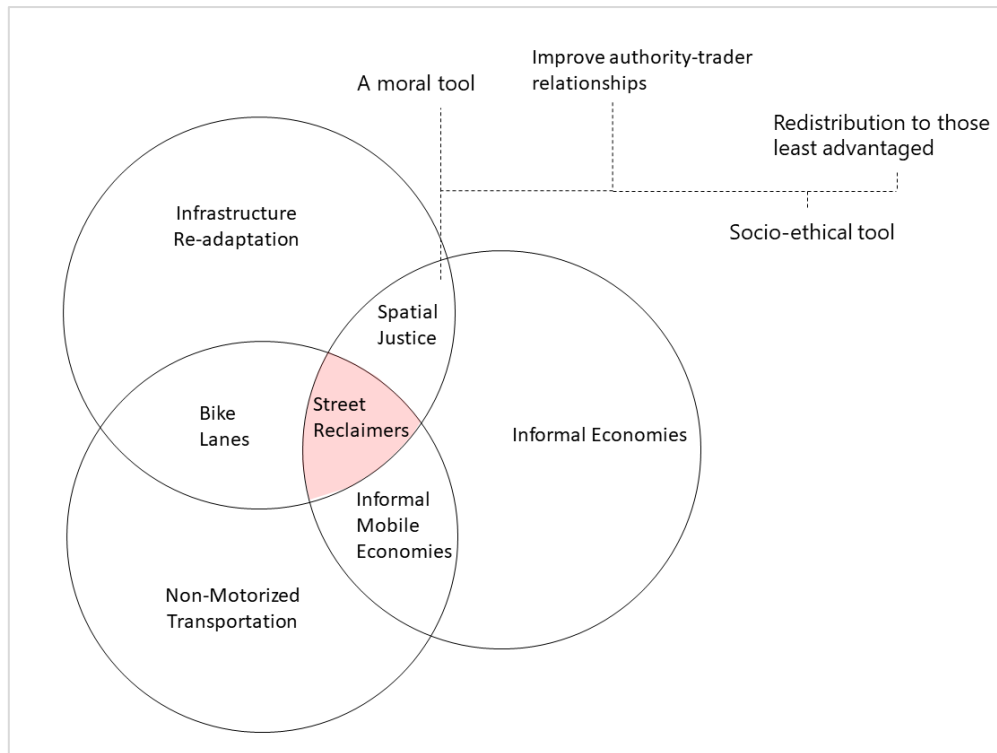


Figure 9 Conceptual Framework. Diagram: Author, 2024

I have discussed a number of themes in this chapter, which I have grouped in the conceptual framework according to the relationships between them relevant to this research topic. Three main concepts being Infrastructure Re-adaption, Non-Motorised Transportation and informal economies were explored. Informal economic activity but more specifically within this, informal mobile economies are the dimension relevant to the particular grouping of waste reclaimers at the centre of this study. While street reclaimers make use of NMTs in the form of trolleys they use, the dimension of NMT most relevant to the study is the infrastructure that supports it. This study is interested in an existing form of NMT infrastructure the study area, bike lanes, and in particular whether these can be adapted (materially or symbolically), to support the mobility of street reclaimers. Infrastructure re-adaptation entails the remake of infrastructure and infrastructure re-appropriation can also be used as a socio-ethical tool that is used to achieve spatial justice. A form of spatial justice can also be achieved, in the context of informal traders contesting for space, through good relations between authorities and traders as seen through the Kerk Street initiative. However this requires space to be made available to informal economic actors such as traders or reclaimers. Moreover, spatial justice is embodied as a mechanism to promote the re-appropriation of infrastructure. Re-appropriation and spatial justice further merge to formulate a socio-ethical tool that morally facilitates the redistribution of resources to those in need.

2.7 Conclusion

This section was the conceptual component of the research. The chapter uncovered through Grub *et al* (2022) that infrastructure re-adaptation does not only entail the physical alteration of infrastructure but the alteration of the symbolic construction of infrastructure as well. IME rely on mobility where, importantly, the definition of mobility in the context of this research was explained. Since waste reclaiming was understood as a form of IME, a clear definition of this line of work was explored. Lastly, the relationship between authority trader relations were explored where various municipal interventions by the COJ were outlined. NMTs in the context of Johannesburg were explored. A clear outline of the research methodologies that informed this research follows next.

Chapter 3: Research Methodologies

3.1 Introduction

This chapter will delve into the research methodology utilised, emphasising on the chosen qualitative case study research methodology. The two data collection strategies that were embodied in this research will follow. An acknowledgement of the research limitation for this particular study will be outlined. Lastly, this chapter will close off with a guideline of how the findings and analysis chapter will be written. Below is a tabulation of the data that was required for this research drawn from the research aims, the data sources along with the used research methods.

Data Required	Data Source	Research Method
Insight on the everyday uses of bike lanes and the relationships between the users	- City of Johannesburg Online Map Viewer (GeoLIS) - Google Maps - Site Visits - Online news articles - Street Reclaimers - Cyclists	- Desktop analysis - Photography - Observe Participants - Transact Walks - Semi Structured Interviews
Response to the cycle lane challenges and proposed infrastructural re-adaptation method	- CoJ Officials - Academic Scholars - Street Reclaimers - Cyclists	- Semi Structured Interviews

*Table 1 An outline of the research methods that will be used to gather the required data from the various sources.
Table: Author, 2023*

3.2 Qualitative Research

According to Suffon (2015) the gathering and analysis of non-numerical scientific data is known as a qualitative research methodology. Qualitative research illustrates and describes an individual's social context, behaviour and experiences (Strauss and Corbin, 1990). For Bhandari (2020) qualitative research is used to comprehend how people experience and perceive the world around them. In the context of this report, qualitative methods assist in gathering narrated perspectives of the participant's knowledge on and interactions with bike lanes daily. This study sheds light on the context of the research subjects by authentically representing the participants' perspectives in the data's interpretations (Mertens, 2015). Qualitative research can be used to observe and interpret people and their perception of different activities within their natural setting (Mohajan, 2018).

The research made use of the case study method which is referred by Yin (1994) cited in Gerring (2004) as a method that can encompass participant-observation and entails a person being in the field. This research methodology requires researchers to observe complex phenomena in its real-life surroundings (Drew, 2023). In addition, the case study method was selected for its nature, allowing the researcher to explore the relationship between people, context and the subject topic. This research relied on the observation of how street reclaimers interacted with bike lanes and interviews. The case study method helped the researcher to focus on the street reclaimers and their challenge of navigating the city safely. Importantly, this method helped the researcher to evaluate the complex challenge of whether the bike lanes could suit the needs of informal street reclaimers whilst still being accommodative to cyclists, as stated in the last research sub-question in Chapter One. A disadvantage of this method however is that the results were context driven and could not be generalised.

An advantage of this method is that it allowed the research to target two study subjects (Drew, 2023). Street reclaiming and bike lanes are free standing phenomenon that are usually studied individually. This method allowed the researcher to contribute to the field of street reclaimers and address the key challenges around the minimal use of bike lanes. This rendered the researcher an ability to bring practical solutions to address the challenges in both these fields. However, a disadvantage of this method was the lack of generalising the research findings as they are unique to the context of the study (Drew, 2023). The findings, which apply to the context of the CoJ and study area might not easily be applied to the context of another city in South Africa and any other African city or country. This limits the usage of these findings by other researchers in other place, however case study research can be used to speak back to theory.

3.3 Data Collection

This section will first outline the various data collection strategies utilised. A desktop study was carried out first before the semi-structured interviews. Soon after, semi-structured interviews were conducted. This research gathered perspectives from scholars, waste reclaimers and municipal officials on whether bike lanes could be re-appropriated to accommodate waste reclaimers. Along with observing the use of NMT and the state of the bike lanes at the study site, the researcher had to comprehend how the people in the study area interacted with the lanes on a daily basis.

In order to gather an understanding on Braamfontein and the complexities surrounding the study subjects, secondary data was utilised. The research made use of both primary and secondary data. Primary data was gathered from first hand interviews with reclaimers, academics and municipal officials. Sarantakos (2012) outlines that one of the essential criteria for a case study is for respondents to be perceived as experts rather than data sources, the researcher took this advice into account when participants were engaged. Information on secondary data was extracted from

newspaper articles, academic journals, policy documents and any other grey data that had verified information. This data assisted by shedding light on the context of the study area and various debates about the current state of bike lanes. They also assisted in understanding the interventions that have been introduced to include reclaimers in the formal waste management system. In the section that follows, data collection methods will be outlined. A detailed outline of the secondary and primary data collection methodologies follows in the subsections below.

3.3.1 Desktop Study

The desktop study was utilised to gather and analyse secondary data. The researcher investigated policies, newspaper articles, and previous research studies. The CoJ municipal policies that are outlined in table two assisted the researcher in understanding how the CoJ municipality and its officials understood the uses of cycle lanes and the role of waste reclaimers.

Policy	Year	Relevance to Research Report
City of Johannesburg Complete Streets Design Guideline	2010	This policy shed light on the CoJ's guidelines that were used in the design of bike lanes,
Integrated Public Transportation Network	2013	Policy shed on how NMT and bike lanes formed part of the CoJ's public transport network,
Framework for Non-Motorised Transport	2009	The policy to gather an insight of how the CoJ defined NMT. Secondly, it helped to understand reasons for the introduction of bike lanes. Lastly, the decisions on why the specific bike lane routes were chosen were highlighted.

Table 2 An outline of the policies studies by the author.

Previous research studies were utilised to understand the debates on bicycle lanes and waste reclaimers. The work of scholars such as Prof Melanie Samson assisted in painting a picture of the perceptions around the presence of informal street reclaimers.

This scholar's research highlighted efforts by the city's waste management entity, Pik-it-up, put forward in attempting to absorb waste reclaimers. Secondly, Dr Njogu Morgan's literature assisted by shedding light on the background of bicycle lanes, the challenges surrounding them and their current state.

3.3.2 Semi-Structured Interviews

The researcher utilised the purposive sampling method to select the participants that would form part of the semi-structured interviews. According to Polit and Beck (2017) purposeful sampling occurs when the researcher intentionally chooses interview participants knowledgeable about the subject being studied. Purposeful sampling was an excellent choice since it allowed the researcher to target the specific people who had a unique experience and knowledge on informal waste reclaiming and bike lanes (Grad Coach, 2023). The selected participants were chosen to undergo semi-structured interviews to gather the primary data component of the research. This method was beneficial because it allowed the researcher to gather rich data that came from participants who had diverse a background and different relationship with the bike lanes. A challenge for this sampling method however was the difficulty in locating information rich participants for the set interviews.

Cresswell (2009) understands semi-structured method as an opportunity for the identified research participants to voice out their perceptions verbally. This interview method was advantageous since it allowed the researcher the freedom to control the kind of data that was produced since the research questions were formulated by her (Quad, 2016). The researcher made sure to ask unbiased, impartial and encouraged participants to be honest with their answers to mitigate biasness, a disadvantage of the semi-structured interview methodology (Quad, 2016). However, the researcher also had to be sure to not impose her biasness towards the participants as that could affect the reputation of the overall results of the research. As such, semi-structured interviews were one way in which raw data on the re-appropriation of bike lanes for the inclusion of reclaimers could be gathered from the various interview participants.

	Anticipated interviewees	Actual interviews
Reclaimer Interviews	A total of eight street reclaimers were expected to be interviewed: - Four street reclaimers picking recyclables in Braamfontein. - Four street reclaimers picking recyclables outside Braamfontein.	A total of seven reclaimers were interviewed: - Six reclaimers picking recyclables in Braamfontein, - One reclaimer picking recyclables from Parkhurst, outside Braamfontein

Municipal Official Interviews	A total of three municipal officials: - One official from Pik-it-up - One official from the Johannesburg Roads Agency - One town planner	A total of two officials from the city of Johannesburg were interviewed: - CoJ Official One: a planner - CoJ Official Two: an engineer
Key Informant Interviews	A total of three key informant interviews: - One academic scholar on to be interviewed on the subject of street reclaimers. - One academic scholar on to be interviewed on the subject of bike lanes. - A cycling organization	A total of two key informant interviews were conducted: - One academic scholar was interviewed on the subject of bike lanes, - A cycling organisation

Table 3 A breakdown of the interview participants. Author, 2023

While the expected interview participants indicated in table three above were the researcher's interest, some of them were not available. The researcher hoped to interview Prof Melanie Samson as a key informant participant however she was not available. The researcher also had an interest in City officials from the Johannesburg Development Agency to know what informed the design parameters of bike lanes, Pik-it-up the City's waste management entity to understand why the Separation at Source (S@S) did not succeed in including street reclaimers. Fortunately, the researcher interviewed a planner and an engineer, which were key for the research because the study investigated a NMTs, a transport typology the City invested in through bicycle infrastructure.

The researcher protected the anonymity of the key informant interviewees because their occupations and details could be easily looked up online and they could be found. The anonymity and confidentiality of key respondents was maintained. Reclaimers on the other hand were open with giving me their first names had no problem with being mentioned in the report. However, the researcher still chose to not disclose the names of the reclaimers. They also stressed that their problems needed to be addressed, verbal consent from reclaimers was obtained as mentioned above.

3.4 Experience of Data Collection, Limitations, Strengths and Ethics

In this section I reflect on the challenges I encountered on-site. The purposive sampling method posed as a limitation in terms of accessing reclaimers from outside

Braamfontein. This was because the researcher was specific in wanting to get their perspective on how they navigated the city on the roads with no cycle lanes. Many of the reclaimers operating outside Braamfontein often passed by Jan Smuts Avenue and Bertha Street with their trolleys at high speed, so walking and talking with them was challenging. Moreover, I could not approach them because they were often walking in-between cars. The only reclaimer from outside Braamfontein that was interviewed was accessible because he did not have a trolley and was taking a break under a tree.

The first official site visit to the study area was on a Friday morning at 09:00AM. This is a day where the interviews with reclaimers took place. Upon my visit, there was no reclaimer on the streets apart from street sweepers from a private company cleaning sidewalks, clearing bins and going about with their everyday activities. Reclaimers on the other hand were not spotted. The norm, especially for reclaimers, is for them to emerge at dawn to reclaim as many recyclables as possible. So, it was disappointing to see no reclaimers on the streets during the late morning hours. The researcher spotted the street reclaimers from midday to late afternoon (4PM). Reclaimers picking recyclables from Braamfontein around this time were spotted walking on sidewalks, casually stopping to check for recyclables inside bins, picking recyclables on curb sides that were discarded by pedestrians and a few empty reclaimer trolleys were spotted on either sidewalks or bike lanes while their owners would often walk into alleyways to look for recyclables.

The researcher occasionally went back to the study area for reasons unrelated to the research however these are the instances where reclaimers were occasionally spotted and observed. These are the many times in which the researcher would take to observe reclaimer interactions with cycle lanes, if there were any and how they shared the road-space with motorists. The familiarity that the researcher had with the study was an advantage since routine quests to the study area led to impromptu site visits for the research, depending on the availability of reclaimers on the day. The author would then document these spontaneous visits in pictures where the location was tagged for each picture. It might be estimated that the researcher visited the study more than 5 times in the duration of the research often on weekdays between 08:00AM and 5PM and observed the presence of reclaimers both in the late mornings and afternoons.

Speaking multiple languages was an added advantage to the interviewing process. After all, it made it easy for the researcher to approach the reclaimers because most reclaimers responded in vernacular languages, making it easy for a conversation. Furthermore, the researcher was able to probe their responses and gather much more context. The researcher approached and spoke to the various reclaimers in Sesotho, Sepedi, IsiZulu and English. Due to some reclaimers not being comfortable with signing consent forms the researcher opted for verbal consent. Government officials

and key participants were required to sign consent forms. The study area was safe because of the presence of private security. Streets were mostly overtaken by the student population during the day.

The researcher obtained an ethics clearance letter from Wits to conduct interviews. The ethics clearance letter was however, obtained late which delayed the commencement of the interview sessions. The researcher experienced a challenge with getting interview sessions from municipality officials. It was hard to first get a permission letter from the City of Johannesburg, attached as annexure 2, to interview City officials. From there onwards, the researcher found it hard to secure interviews from the City officials as they did not respond to requests for interviews. As a result, the researcher had to request for an extension. When the researcher finally got a hold of officials from the City's Transport Department, an interview with the CoJ Official One was carried out virtually while an interview with CoJ Official Two was conducted in person.

3.5 Analysis and Findings Chapter Guideline

The author struggled with writing these two chapters as interrogating the data was intimidating. Two contending subjects were street reclaiming and cycle lanes, and the author wanted to represent findings gathered for each equally. The author utilised thematic analysis as it assisted in categorizing patterns or themes in the qualitative data gathered, which assisted with capturing significant or interesting aspects of the data gathered (Maguire and Delahunt, 2017). Semantic and Latent themes are the two forms of thematic analysis that one can use as an analytical framing. Semantic themes are where the researcher is only interested in what participants said, the explicit or surface meanings of the data (Maguire and Delahunt, 2017). This thematic typology was limiting as it did not probe the researcher to go beyond the data gathered and explore existing debates. On the other hand, latent themes begin to identify or investigate the underlying concepts, ideologies, and ideas that are thought to shape or influence the semantic content of the data (Maguire and Delahunt, 2017). The author used a latent thematic analysis as it allowed for her to utilise the conceptual framework and explore the current debates.

Chapter 4: Contextualizing the setting of the study

4.1 Introduction

This chapter will outline the factors that played a part in Braamfontein being chosen as the designated study site. Importantly, this chapter of the report will establish the background in which Braamfontein exists in within the CoJ and importantly, paint a picture of Braamfontein to give an overall sense of the study area. The last section of this chapter will discuss the observations on street reclaimers and bike lanes that were made by the researcher while in the study area.

4.2 Braamfontein in Relation to the Larger Johannesburg

Braamfontein's location in relation to the City of Johannesburg's regions

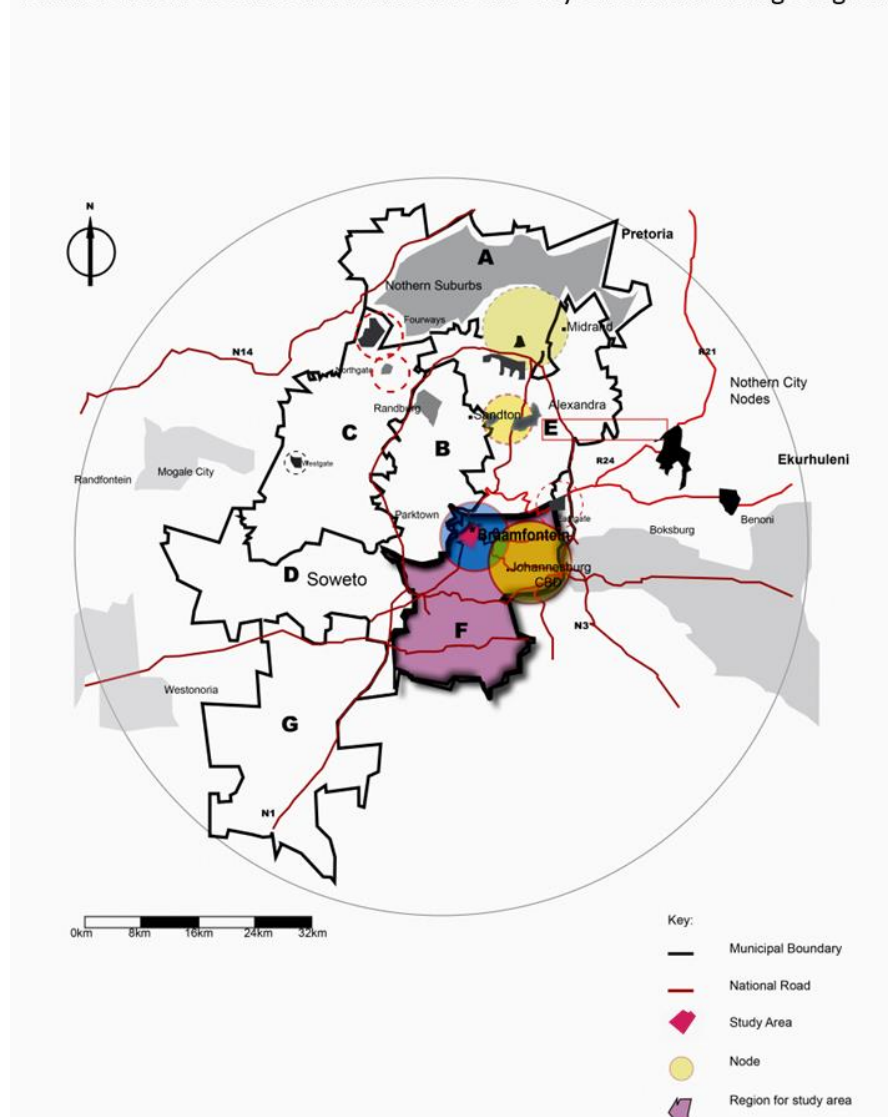


Figure 10 Study area in relation to the other nodes in the City. Source: Mandyanda, 2019 (amended)

Braamfontein is located in the city of Johannesburg (as seen in figure 10 above), a city that accounts for a population growth rate that is faster than the built up area

footprint (CoJ, 2017). As a result of the rapid growth rate, the CoJ is plagued with urban management challenges noted to be hijacked buildings, decaying bridges, potholes on roads, the limited availability for waste landfill sites and so on. It is in this city context where Johannesburg's waste reclaimers operate their businesses. The diagram below articulates the city's statistics which will outline the socio-economic status of Johannesburg.

The City of Johannesburg's Framework for Non-Motorised Transport (FNMT) (2009) recognised the importance of supporting movement of people and goods to and from educational nodes. This strategy also recognised a high movement pattern presented by students moving to and from these academic spaces. Auckland Park, Milpark, and Doornfontein were identified as areas that have a tertiary institution with a high concentration of student accommodations. Part of a chain of these institutional nodes, Braamfontein, which is home to the University of the Witwatersrand was identified as a neighbourhood that would require the provision of cycle infrastructure. The city's policy framework on NMT recognised the designated study site as strategic location for the installation of bike lanes.

In 2015 the Johannesburg Development Agency, a CoJ entity that manages and facilitates infrastructure installed cycle lanes between Ellis Park and Park Station (JDA, 2015). This was a move towards the realisation of the strategy noted above. Almost a decade later, the lanes in Braamfontein have not been used to their full potential despite the city's investment with the hopes of establishing NMT transportation network (Morgan, 2017). A corridor made of the cycle lane lanes was formed to connect Auckland Park, Braamfontein and Doornfontein by the means of cycling. Braamfontein forms part of the corridor that was intended to attract student cyclists from Wits University and the University of Johannesburg and some of the bike lanes that form part of this corridor are shown in figure 11 above (Morgan, 2017).

Over time, Heutzhofmeyer (2016) observed that the targeted users of cycle lanes were not utilising the lanes as they were unsafe for cycling. It is noted that the cycle lanes were unsafe because they tended to discontinue before busy road intersections, which often inconvenienced and compromised on the safety of cyclists (Heutzhofmeyer, 2016). As a result of this, cyclists tended to not be interested in using these lanes.

4.3 Braamfontein in a Clear Perspective

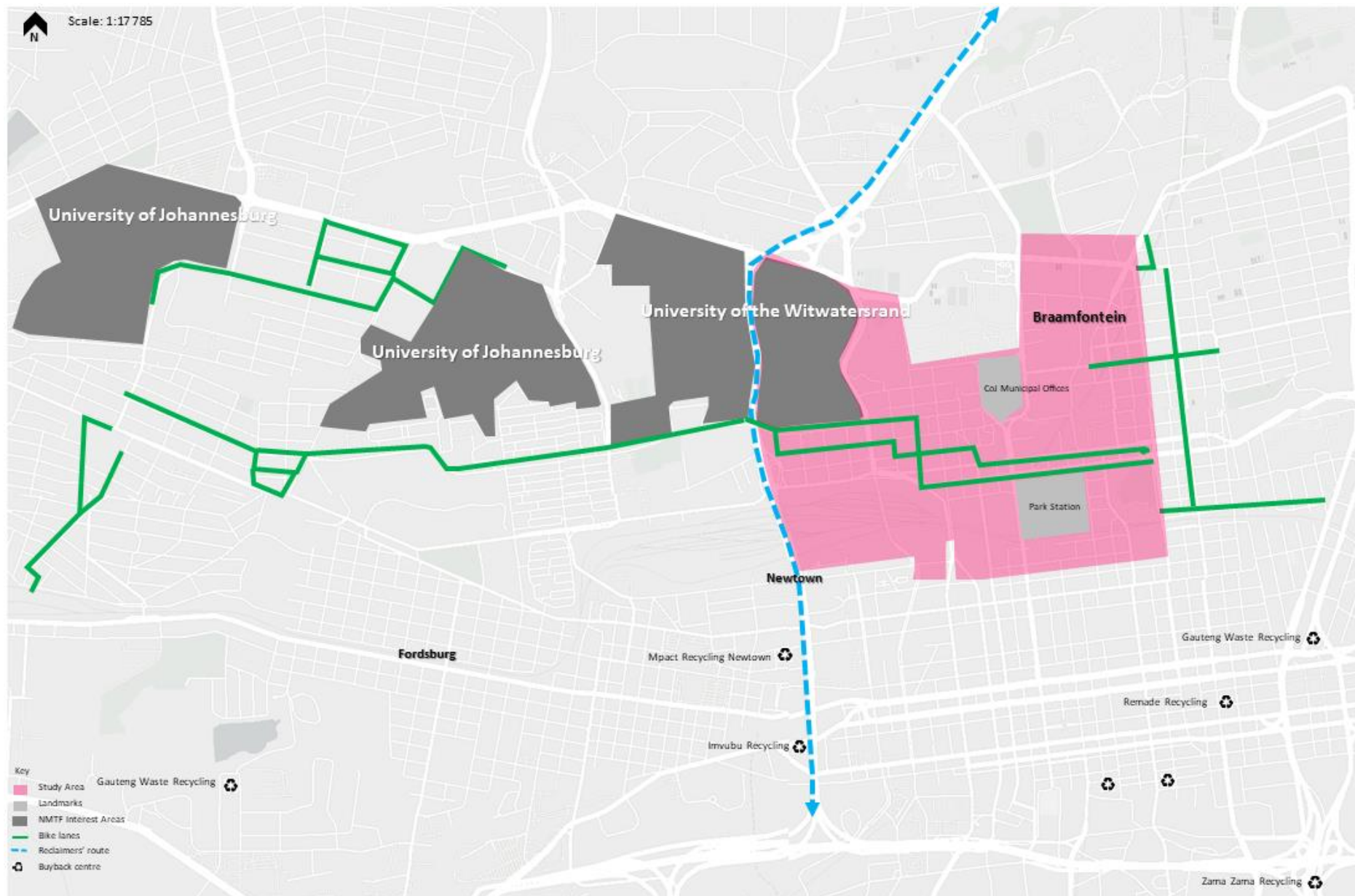


Figure 11 Study area in relation to buy-back centers. Source: Esri maps, modified by author, 2024



Figure 12 Dense office skyscraper. Source: Author, 2023

Braamfontein is located in ward 60 of the City of Johannesburg. It is currently a home to a student population where 43% of the population group is between 20 to 29 years old (Stats SA, 2011). 87% of the population live in rented property (Stats SA, 2011). The buildings are typical dense skyscrapers, which are mixed use between residential, retail and office use (Stats SA, 2011). The study area is made up of dense sky scraper buildings. An example of a dense office building is illustrated in figure 12.

Braamfontein, particularly Juta street is a creative hub that hosts a variety of activities that cater and accommodate different types of recreational purposes. Restaurants, pubs, music shops, plant shops, tattoo and piercing parlour and seasonal thrift stalls dominate Juta Street as seen . The presence of these spaces has also opened the gap to creative spaces such as a tattoo and piercing parlour, a music store, and 99 Juta, which hosts a design boutique. Juta street sustains a night life and is not busy during the day. There not many reclaimers that were spotted by the researcher. Adjacent to Juta street is De Beer street in figure 13, which also forms part of Braamfontein's night life precinct.



Figure 13 De Beer Street, the pulse of Braamfontein that sustains the night life. Source: Author, 2022

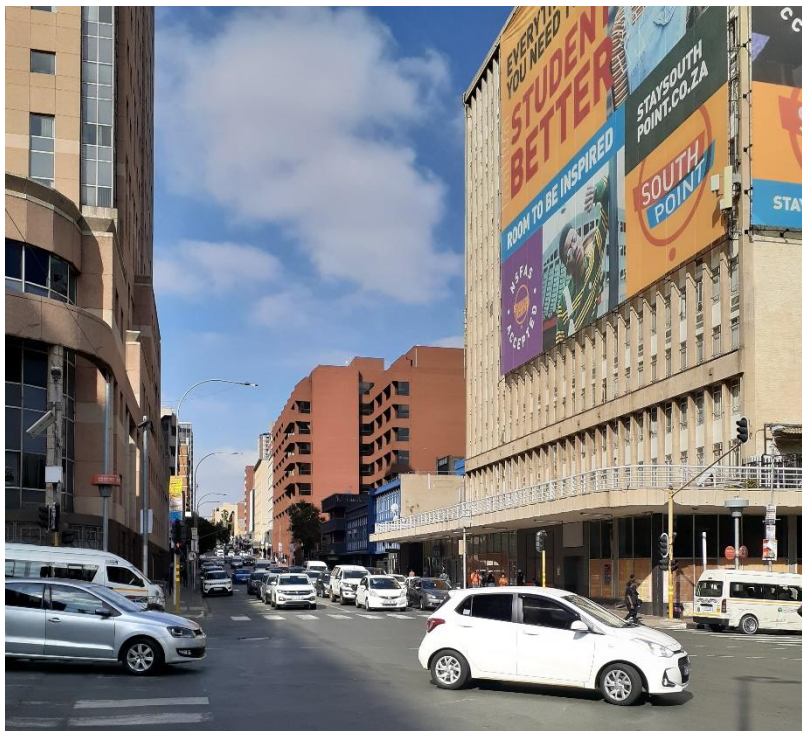


Figure 14 One of the 13 other South Point student accommodation buildings. Source: Author, 2023

Braamfontein is also known as an academic hub of Johannesburg. It is at a walking distance from a high school, Wits University and more than five colleges. The presence of the student population generated from the educational institutions has created an opportunity for the property market, this in turn has led to the regeneration of some buildings which have been adapted from their initial use as offices to accommodation as seen in

figure 15. Moreover, three dense student accommodation buildings have been constructed since 2020 to date.

4.4 Reclamer and Cycle Lane Observations On-Site

This section of this chapter is only limited to the observations of reclaimers and cycle lanes in Braamfontein. The rest of the observations will be discussed in the findings chapter. It was important for the researcher to observe how the reclaimers interacted with the cycle lanes, importantly, observe the state of the lanes.

4.4.1 Waste Reclaimers and other Forms of Makeshift NMTs

Friday is a day in which many reclaimers were observed by the researcher. An important observation however was that most reclaimers did not have a trolley or self-made carts but instead carried their recyclables with plastic bags. Reclaimers made use of the bins found on the sidewalks to pick recyclables. No female reclaimers were observed in the study area which shows that reclaiming is generally a male dominated field of work.

The presence of private recycling companies is contributing to Braamfontein lacking a dominant presence of reclaimers. The corporate sector is mostly closed off from reclaimers. Figure 15 illustrates how Jorissen Place, a sixteen floored office building with a retail outlet and a bank on its ground floor, has a private company that comes regularly to collect shredded paper, closing off a potential source of income for reclaimers that recycle paper. Another example is seen with McDonalds which has a private company that collects recyclables and any other solid waste from the restaurant. Similarly, Braamfontein Centre which hosts Rosebank College, Wits University's student accommodation and retail outlets such as Pick and Pay depend on a private company that collects recyclables. The extent in which the corporate and some retailers are closed off to street reclaimers has an impact on the lack of reclaimers in the study area.



Figure 15 Jorissen Place's service provider collecting white paper. Source: Author, 2022

Waste reclaimers in Braamfontein are not often present. However, the few active in the area have formulated relations with the various retail stores which are. Beneficial since they provide a reliable source of recyclables. Another source of recyclables that reclaimers can depend on is that presented by some student accommodation buildings and small scaled retailers that still rely on the municipality's waste

management entity, Pik-it-up. Reclaimers compete for the recyclables available from bins that wait to be collected by Pik-it-up. Companies that rely on the private sector block out reclaimers from tapping into the office market, leaving them with the few recyclables. The Northern suburbs attract a high volume of reclaimers and many interact with the site when they pass through, to the buy centres in and around Johannesburg CBD.



Figure 16 Reclaimers passing from the northern suburbs to buy back centers. Source: Author, 2022

As street reclaimers pass by Braamfontein from the northern suburbs, the study area serves as a catchment area for the different types of reclaimers. Braamfontein, particularly Jan Smuts Avenue, indicated with a blue dotted line in the map (figure 11) above, is a critical road that connects reclaimers to the various buy-back centres in the Johannesburg CBD and areas rich in recyclables. Jan Smuts is a route that links the northern suburbs and areas such as Fourways and to the southern parts of the city like Braamfontein and Johannesburg CBD (Van Wyngaart, 2018). This road carries an estimate of around 3 500 cars during its peak hours where there is a total of 15 intersection along this route (Van Wyngaart, 2018). This road, with its high traffic volumes is also utilised by reclaimers to reach the various buy-back centres that are located in the Johannesburg CBD. Many reclaimers share this road-space by travelling in between cars, risking their overall safety as seen in figure 16. A catalogue of reclaiming in the study area is indicated in table 4 below.



Figure 17 An itinerant trader's trolley on-site. Source: Author, 2022

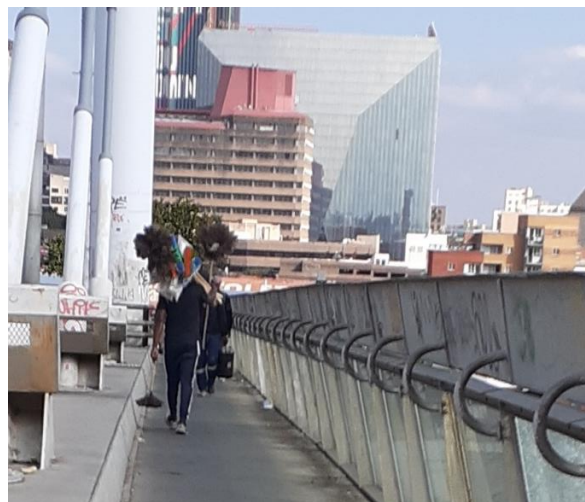


Figure 18 Users of other makeshift trolleys on-site. Source: Author, 2022

The researcher also witnessed the presence of the Informal Mobile Economies (IME) that were operating in the study area. An itinerant selling from a trolley indicated in figure 17 selling cooked rice, salads and meat was spotted walking around selling to the pedestrians and occasionally walking into the salons and other small establishments. He like other reclaimers already had relationships with salon owners. Later, his trolley was spotted near a shop. Secondly, a man dragging a makeshift trolley, as seen in figure 18 above, carried sacks of oranges was spotted walking along Bertha Street. It seemed as though he was delivering the oranges to one of the tuck shops in the study area. Braamfontein hosted street reclaimers and itinerant traders that are part of the IME.

Table 4 Catalogue of reclaiming and informal mobile traders in the study area.

Source: Author, 2022/23



4.4.2 Current State of Bike Lanes

This section discusses the observed state of the bike lanes in Braamfontein. The state of bike lanes along with their uses varied across the different parts of the study area. However, in general, bike lanes observed on-site were in a fair condition but there were particular problems with how they were being treated. Two bike lanes were in different conditions, and this trend was prevalent in the lanes in the study area. Either the lanes were badly damaged or in a fairly good condition. For instance, the bike lanes along Jorissen Street (figure 19) were compared with the ones along Biccard Street. Bike lanes along Biccard Street, as seen in figure 19, still had the yellow buffers intact, and the green floor painting with a yellow bicycle icon was still intact.



Figure 19 Damaged bike lane along Jorissen Street. Source: Author, 2023



Figure 20 Cycle lane along Biccard in good condition. Source: Author, 2023

The dilapidated condition of the lanes along Jorisson Street as seen in figure 21 was caused by the misuse of bike lanes. First, drivers of minibus taxis would park in the bike lane that ran along Jorisson Street and Station Street. In addition to serving as car wash areas for their vehicles, these lanes were used as rest stops for taxi drivers when they were not operating. The bike lanes suffered damage and as a result the infrastructure separating them from the road was no longer being visible. It was also

impossible to see the green paint that was also used to mark the separation between the bike lanes and regular traffic.



Figure 21 Jorissen street's bike lane, used for parking and as taxi stop, behind the parked car. Source: Author, 2022

Secondly, minibus and taxi stops were mostly located in the bike lanes along the intersection of Jorissen Street and Bertha Street. There was a lot of foot traffic in this area from both pedestrians and people using public transportation. During one of my site visits, a taxi was waiting for commuters at the area that was used as a taxi stop, and during rush hour there was frequently a long line of commuters waiting to enter the taxi. Buses used this lane when stopping to pick up passengers. Finally, drivers who headed to the shops along Jorissen Street parked their cars in these lanes. These lanes were also used for parking. Due to this, the bike lane along Jorissen suffered damage as well because it was not utilised for cycling as intended.



Figure 22 A bike lane along Jorissen used by a reclaimer and cyclist. Source: Author, 2024

Both cyclists and pedestrians utilised the bike lanes on-site (figure 22). Cycling, walking, and reclaimers pulling carts were the main users of the lanes along De Beer Street and De Korte Street. Out of all the lanes that were examined, this part of the study was the only one where the lanes were really used for cycling and walking. Surprisingly, the lanes along this portion of the study area were in good shape, and the demarcations and painting separating them from the main road were all in good condition. The state of the lanes are

Braamfontein are indicated in Table 5 below.

Table 5 Bike Lane catalogue in the study area. Source: Author, 2022



4.6 Conclusion

Braamfontein was one of the first areas that had bike lanes installed. The researcher observed the impact of the positive student population on street reclaiming since they seemed, to be a reliable source of recyclables for the reclaimers in Braamfontein. Reclaimers that use trolleys to carry their recyclables and reclaimers that use plastic bags were observed. The overall status of bike lanes contrasted because some of them seem to be in a good condition while some are deteriorated (as seen in figure). Interestingly, the study area identified mobile informal economies and a form of NMT.

Chapter 5: Reporting on the Study Findings

5.1 Introduction

One argues that the build-up of the research leads up to this chapter as without it, the reader will not see the researcher's efforts, and there would be no data available for the researcher to analyse and draw conclusions from. This study utilised thematic analysis to extract commentary on the data gathered. The researcher identified six themes as part of this analysis typology. First, a theme focused on street reclaimers' everyday challenges and mobility needs. The second theme delves deep into the reclaimer and cyclist mobility challenges within the roads and cycle lanes. This is followed by a break down on the contestations for reclaimers within the cycle and road domain. Finally, the author will outline an effect caused by the design and cycle routes on street reclaimers. Lastly, there will be a discussion on the possibility of realizing infrastructural re-adaptation and the anticipated effects this will have on street reclaimer.

5.2 Street Reclaimers' Necessities

Interviewed street reclaimers outlined necessities that could ease their work conditions. The necessities identified were access to recyclables, absorption by the state into the waste management system, trolleys and transportation. Street reclaimers mostly rely on recyclables gathered from the streets. Reclaimer Seven who picks recyclables in Braamfontein indicated that picking few recyclables meant that he would not have made enough money for the day. "Access" according to the reclaimer's articulation, is the ability to enter spaces currently restricted from reclaimers. From the reclaimer's perspective, these spaces, such as high-end neighbourhoods, office parks have a lot of recyclables and can potentially alleviate the reclaimer's challenges of picking enough recyclables. Reclaimer Seven added that the scarcer the recyclables, the more he had to walk long distances scrambling for recyclables from household bins, sidewalk bins and curb-sides. As such, improved access would ease the burden of walking long distances almost daily. Improved access is the reclaimer's ability to collect recyclables from the buildings and institutions in Braamfontein. According to the interviewed reclaimers, these buildings have an excess amount of recyclables currently being collected by private recycling companies. Improved access would extend to reclaimers being permitted to attain these recyclables. Furthermore, Reclaimer Two outlined that it would be easier if they received certain referrals for specific areas with more recyclables. By referrals, he meant getting recommendations about suburbs that do not have enough reclaimers. The main contention made by Reclaimer Two was that accessing recyclables was a necessary aspect of reclaiming, and without this, street reclaiming would crumble.

Reclaimer Two said that a key necessity for street reclaiming in Braamfontein was access to some of the buildings rich in recyclables. Buildings rich in recyclables, according to Reclaimer Two, referred to buildings with offices, student

accommodations and retail outlets. Offices have a lot of white paper, which can be reclaimed to resell to buy-back centres. Student accommodations have student occupations that generate a valuable amount of recyclable material. An example of South Point, a private student accommodation provider with 15 high density buildings in Braamfontein, has the potential to supply all the reclaimer's needs of accessing recyclables. This creates job opportunities instead of giving such opportunities to private companies with a stream of clients.

Reclaimer Three, further indicated that his challenge had been getting recyclables from the retail outlets, the availability of which shifted throughout Covid 19. He said he had relationships with the shops, and they would arrange days for him to come and collect recyclables. Post the Covid-19 lockdown, the financial needs of people started to be dire, and employees from these shops no longer gave out recyclables but kept them for themselves and resold them for extra money. Employed people saw value in selling recyclables. So, he said that support would look like the establishment of partnerships between reclaimers and the buildings in Braamfontein where it becomes mandatory for each building to give out recyclables to informal reclaimers. A reclaimer would each be allocated a specific building that he would regularly go to for recyclables. Although the respondent, Reclaimer Three, initially referred to his biggest challenge as accessing recyclables, he also referred to the city's lack of recognising street reclaimers and Personal Protective Equipment as his biggest need.

Reclaimer Two noted absorption into the municipal waste management system as a second necessity. Absorption into the municipal waste management would result in reclaimers working for the City, receiving a basic income, regardless of the recyclables resold to the buy-back centre. This option also meant that reclaimers would not have to only depend on the recyclables they pick; however, the monthly income would at least alleviate their financial constraints. So, essentially Pik-it-up would give them a basic salary, and they would top up their salary with the reclaimed recyclables. He said this would at least guarantee them a regular source of income. He further mentioned that their work was characterised by many inconsistencies as it all hinged on whether they had enough recyclables. Reclaimer Two also added that being given Personal Protective Equipment (PPE) like masks and uniforms would also be part of the city's strategies that would include them.

Reclaimer Four, outlined that he does not have a trolley, making it hard to pick and transport enough recyclables. Reclaimer Four outlined that he currently picked recyclables in Parkview. He was one of the reclaimers that used Jan Smuts Avenue to access a buyback centre, which he noted to be in Fordsburg. Moreover, Reclaimer Four mentioned that his most significant need was a "trolley" (the self-made go-carts) because the recyclables were often heavy as indicated with a direct quote below, from his interview. He said this laying his load of two refuse bags on the ground while, drinking water under the shade of a small tree along Bertha Road. Since he did not

have a cart, the load was heavy, and unfortunately, he could not carry the many recyclables and could not be as mobile as his other counterparts with carts.

“Ho hloka trolley ke mathata ka hore o bea morwalo mokokotlong hape re tsamaya le baka le letelle”

Not having a trolley is a problem because I carry a load of recyclables on my back and walk long distances.”(Reclaimer Four, 2022)

He indicated that he could not reclaim well without a trolley. He said trolleys are a needed commodity within their line of work because they can carry as many recyclables as possible. The lack of a trolley further limited him regarding the areas he could access in a day. With a trolley, he could quickly move from one location to the next until he was satisfied that he had picked enough recyclables. When asked where his trolley was, he indicated it got stolen while he was sleeping.

5.2.1 The Necessity of Being Safely Mobile

Also amongst the reclaimer’s needs is the issue of safely being mobile in the city. As mentioned in the second chapter, mobility entails the purposeful physical movement of an individual as stated by Cresswell (2010), and so, in the case of this research, the purposeful movement of reclaimers is mobilising waste from pick-up-points, to buy-back centres. In essence, reclaimers are the bridge which connects recyclables to actual areas where value can be extracted these once neglected materials. Regardless of whether a reclaimer has access to a trolley or not, mobility within the informal recycling economy is realised. The real challenge that reclaimers experience however, is the risk they pose for themselves in the process of mobilising waste. The much-congested road-space is a medium in which they enact their mobility. A key critical component that this research is attempting to address is the need to create a safe space for reclaimers in the road while they enact their mobility. Since the domain in which street reclaimers enact their mobility on is the road-space, some reclaimers rely on their tools like handmade carts, trolleys or pulleys to carry both themselves and their load. Some reclaimers, like Reclaimer Four emphasised in the interview how crucial it was to move around safely while at work.

Reclaimers have their everyday strategies to ensure their road safety. Part of a strategy they use is pulling carts full of recyclables on the road centreline whenever there are high traffic volumes. Secondly, they also wear reflector bibs whenever they travel in the early hours of the morning or late evening ensure their visibility to other road users. One often finds them moving in the tiny, narrowed road reserves. The views of recycler respondents on the issue of bike lanes specifically is discussed further under section 5.5. While their strategies might at least get them through each day, their need to safely transport themselves and their goods clearly raises a set of issues to be addressed.

The often handmade carts or trolleys carry the recyclables and sometimes the reclaimers while they navigate the city. Reclaimers with recycling carts are able to extract more value from recyclables since they have enough capacity to carry more recyclables when compared to their colleagues that carry recyclables using plastic bags. Additionally, trolleys are not only used for recyclables but also as street reclaimers. When the trolley is empty, reclaimers push off the carts with one foot on the ground and the other on the cart's deck in a skateboard-like motion. When full, there is often space estimated to be 30cm where reclaimers stand in front of their load, allowing the heavy density from the bag to move on free flow, especially on downhill surfaces. The second CoJ official outlined the methods used by reclaimers on their mobility carts as unsafe since they posed a risk to themselves and other road users.

5.3 Threats to the Cycle Lanes, the Potential Assets

Cycling literature argues that for people to commute, firstly there needs to be safety as many people speak about lack of safety as a hindrance to cycling. By safety, cyclists are referring to being safe from impacts from cars and trucks. To address the fear around cycling, cities and towns need to provide well-designed infrastructure that is physically separated from traffic. For instance, the bike lanes in Braamfontein have mountable buffers making it easy for taxis or other motorists to jump into them, indicating a design flaw in that perspective because it makes the lanes unsafe and unprotected from vehicular traffic. On Enoch Sontonga, there have always been bricks, glass, rubbish and potholes which makes it unsafe and difficult to cycle as previously eluded in the problem statement. In addition, part of the safety dimension is having cycle lanes that are connected.

CoJ Official One indicated that the vegetation and rocks resulted from municipal construction workers digging up across the cycle paths in the process of installing a new service and leaving the dirt and rubble for months to a point where vegetation starts growing on the actual cycle path. It is not clear why no further action has been taken and where in the municipality responsibility lies.

During the interview, the Scholar indicated that people who cycle often chose to not use the lanes because of the risk of punctures on the wheels of their bikes or the possibility of encountering a rock, so it is dangerous and many therefore prefer to cycle on the roads. Broken glasses often come from people who break glass bottles. Secondly, there is also a lack of maintenance and the lanes have been sort of neglected and the yellow cones (mountable buffers) are getting loosened over time. It is important to highlight that the design of the lanes is something that can be criticised in hindsight although at the time the policymakers, and road engineers were learning. However, the lack of maintenance is harder to excuse since the current cycle lanes seem to be in a state of disrepair. In addition, the first CoJ official signalled that a case could be made that they as the CoJ municipality were not maintaining the bike lanes well enough. She further pointed out that at times the cycle lanes were not repainted

regularly and that a majority of cases, bike lanes were abandoned and just left to themselves. City Official One (2022) expressed that:

“internally in the City there becomes an attitude because what’s the point of going to maintain this infrastructure whilst there are no people that are using it anyway.”

“Ultimately, the fear of possibly encountering punctures and the unmaintained state of the lanes did not encourage their uptake and therefore led to low numbers of cyclists using the lanes” (CoJ Official One, 2022). The first CoJ Official (2022) continued to stress that maintaining the good condition of the cycle lanes would have left the cycle lanes attractive to anyone who would possibly be interested. But instead, boulders on the cycle paths led to cyclists being forced onto the roads risking their safety (CoJ Official One, 2023). An interviewed Cyclist (2022) further said that often when he and his crew cycle between Braamfontein and Maboneg, they encountered trading stalls on the bike lanes and parked cars. This further illustrates that other uses of cycle lanes are springing forth, making it hard for cyclists. The CoJ Official One (2022) continued to stress that maintenance budgets in the city were quite stretched and the city had not done a good job in maintaining the cycle paths to a sustainable standard in comparison to how they were when the city implemented them.

The Second CoJ Official (2023), on the other hand, identified crime and the lack of a cycling culture in the City’s residents as the inhibitors that were a threat to the cycle lanes. “Crime is the biggest deterrent” (CoJ Official Two, 2023). Criminal syndicates that target cyclists for their expensive cycle gear and phones have formed over the years (CoJ Official Two, 2023). Furthermore, it is especially unsafe for women to cycle alone as they are vulnerable and become targets for muggings (CoJ Official Two, 2023). On the one hand, safety contributed to the lack of the use of bike lanes while on the other hand the lack of a cycling culture was the second contributor. To demonstrate the lack of cycling culture CoJ Official Two proceeded with a scenario in a dialogue below, between himself and the researcher:

CoJ Official Two: *How do you get to campus from home?*

Author: *I use taxis. I get off along Bree Street and then walk to Braamfontein*

CoJ Official Two: *How long have you been using taxis?*

Author: *All my life.*

CoJ Official Two: *Let’s say you get a good-paying job, where you earn about R40 000 per month.*

What would be the first thing that you would buy?

Author: *A car!*

CoJ Official Two: *Why don’t you buy a bicycle instead of a car?*

This simple illustration demonstrates just how much cars are not bought only for their convenience but rather for the imprint they have on a person’s social status, he

continued to add (CoJ Official Two, 2023). He continued to add that “Cycling is not cool” and it is only reserved for people who cannot afford public transport or is a leisure activity (CoJ Official Two, 2023).

From undertaking this research is of the view that the inclusion of reclaimers will encourage the city in maintaining the poor state of the infrastructure. The presence of street reclaimers has the potential of increasing the visibility of people within the lanes thereby reducing the chances of muggings as the lanes would have high foot traffic. With this, cyclists would feel safer using the lanes.

5.4 Street Reclaimer’s Contestations

5.4.1 Within the Road Domain

Motorists and pedestrians have contended for road-space in Johannesburg for decades. Motorists generally assume dominance, pedestrians yield for cars instead of the other way around, and there is no enforcement on the road safety for NMT users (CoJ Official Two, 2023). The recent Complete Streets Policy of the City of Johannesburg required the roads be inclusive (CoJ Official Two, 2023). The Complete Streets Policy (CoJ:2010:3) refers to “roads designed to accommodate diverse modes, users and activities including walking, cycling, public transport, automobiles, nearby businesses and residents”. Previously, streets were only designed for cars and the policy is striving towards having, Complete Streets, that will prioritise other users. CoJ Official Two (2023) added that the City’s Transport Department had a hierarchy of road users which places pedestrians at the top of the hierarchy and the Complete Streets Policy is a design guideline that aims at guiding the city and overall developers in buildings safer streets that are inclusive of everyone. NMT users, which includes street reclaimers, are in second place, in the hierarchy, public transportation next and lastly, private vehicles outlined, CoJ Official Two (2023). The Complete Streets Policy (2013) intends to have streets with sidewalks, bicycle lanes, and lastly, road-spaces for cars. Bike lanes, according to CoJ Official Two, are supposed to be all over the city. Ideally, wherever new roads are built, there must be sidewalks and bike lanes that are constructed to ensure the safety of the NMT users and pedestrians.

CoJ Official One (2022) indicated that the current road perceptions of the residents in the city currently favour motorists and street reclaimers are at the bottom of the hierarchy. The behaviour of motorists demonstrates that they believe that the road-space is reserved for only them (CoJ Official One, 2022). This pushes out other users such as pedestrians, reclaimers, cyclists, and disabled people (CoJ Official One, 2022). Johannesburg suffers a lot of contestations within the road-space where informal taxi drivers assert their dominance on the road-space increasing this contestation even among motorists.

Taxi drivers sometimes drive unroadworthy vehicles and often do not obey the rules of the road. Motorists always yield to taxi drivers due to their dominance. In his

interview, the Scholar (2022) urged the author to think about who has the right to the roads. Since the streets became framed around the automobile users, he was raising the issue of who in effect has the right to roads, in relation to the re-appropriation enquiry of this study. A critical question however that he raised was whether reclaimers and pedestrians were seen as the rightful users of the roads by the city, the public and motorists.

5.4.2 Within the Cycle Domain

According to a CoJ Official, the bike lanes in the study area were constructed after the Non-Motorised Transport Framework (FNMT) was introduced in 2009. Within this policy framework, key priority areas and destinations where people would cycle were identified. The city was quite invested in reducing carbon emissions and investing in NMT infrastructure. The overall vision of the FNMT (2009) was grounded on realising a Johannesburg that is safe and convenient for short-distance trips for both pedestrians and cyclists. The city further attempted to, by all means, see the realisation of this vision through the implementation of bike lanes

The FNMT (2009) was initially introduced to try and enable a cycling culture within the City of Johannesburg. Cyclists were the intended users of these lanes according to City Official One. Whether they be old or young, quite experienced or not, cycling was encouraged. Furthermore, the City had noted a decline in the use of bicycles, and so the FNMT (2009) also came as a means to increase the share of cycling in terms of travel within the whole city of Johannesburg, reported CoJ Official One (2022). CoJ Official Two (2023) added that part of the intended users included motorists. The intention was to discourage them from using cars for short trips.

CoJ Official Two (2023) indicated that when the city designed bike lanes, they had reclaimers in mind. They planned for the lanes to suit and accommodate reclaimers. CoJ Official One (2022) indicated that when they sent an Inner City Transport Masterplan to the City's engineers, waste reclaimers were included in the terms of reference and they were contacted and asked why reclaimers were included.

In as much as the CoJ had reclaimers, the Cyclist interviewed observed that reclaimers were not included in the participation process when bike lanes were introduced. Reclaimers were not included since they were not seen as an organised group and that's why it was hard to consult them (Cyclist, 2022). Everyone who researches on the ground wants to see who is the most organised group to represent a certain category user or stakeholder group. So the basis of reclaimers being excluded is because they were never recognised as an organised group because, he noted, everything is political. He continued to add that one starts to see the politics of the day. With respect to reclaimers, the sentiment appears to be "We are not going to listen to some people that pick-up rubbish because they do not matter to our votes": given that most of the reclaimers are Lesotho nationals (Cyclist, 2022). This links back the

Scholar interviewee's question about who is seen to have the right to be in the city, and by implication, the right not only to use its infrastructure but in addition, to be specifically catered for and accommodated in its infrastructure innovations. The Scholar further enquired for the researcher to probe the critical question of "to what extent street reclaimers were organised and seen as an interest group?" (Scholar, 2022).

The reclaimers operating in Braamfontein interviewed for this study had close to little interactions with bike lanes. When Reclaimer Six was asked how he interacted with cycle lanes, he never uses the lanes because he considered cycle lanes a territory claimed by the paratransit taxi drivers. Even though the lanes are not designated to taxis, the lanes are being used by them. The lanes were not designed for reclaimers either, but it is not so easy for them to claim in the face of other claimants, who are in effect more powerful he continued. Motorised users, plus the whole taxi industry, with all its players, power etc – are simply stronger, more dominant. Maybe also South Africans and drivers, feel more entitled than a foreign national in the SA space. Yet this is another 'informal' industry (taxis) overriding an informal set of activities (reclaimers) – and the formal authorities do nothing about either of these. Reclaimer Six further indicated that the lanes were used by a range of car users, not just taxis. Reclaimer Seven, also reclaiming recyclables from the streets of Braamfontein indicated that he rarely interacted with cycle lanes. Reclaimer Four from Parkview stated that he saw cycle lanes as a territory reserved for cyclists. Reclaimer Five who was approached pulling his cart in the cycle lane indicated that he does utilise the cycle lanes. A key observation made was that reclaimers who did not interact with cycling lanes did not have any wheeled carts or trolleys to stack their recyclables insnd the one reclaimer who had a cart interacted with the cycle infrastructure.

5.5 Effect of the Design Parameters and Routes on Reclaimers

The Scholar (2022) interviewee outlined that cycling literature argues that for people to be encouraged to commute by bike, the cycling infrastructure must be safe as many speak about lack of safety as a hinderance to cycling. "To address the fear around cycling you need to provide well designed infrastructure that is physically separated from traffic, and the cycle lanes must be connected" (Scholar, 2022). He further stated that cycle lanes between Braamfontein and UJ seemed like a natural experiment to test the hypothesis.

A cyclist noted the bad design of cycling lanes which became apparent as he cycled. According to him, the lanes came as an afterthought and the way he read it on the news there was no thought or consultations. He further noted that he did not know the main idea behind the cycle lanes since the lanes in Sandton, Mofolo, Bara, Johannesburg CBD and Mayfair do not seem to connect at a larger scale (Cyclist, 2022). When South Africa was compared with Asian or Dutch countries where there

are super highways for cycling lanes it was evident that cycle lanes were a serious afterthought (Cyclist, 2022). He continued to state that a bridge by Grayston Drive connected Alex and Sandton however when one gets to Alex there were no routes, even in Sandton the lane only followed one route after that it disappeared. He continued to state that when they tested out a new lane in Baragwanath, Soweto from Johannesburg CBD, the lane moved from the left side of the road, to the right, it was not consistently on one side (Cyclist, 2022). He outlined that it would be interesting to find out if a road masterplan or some road network was planned around cycling lanes.

The flawed and inconsistent location of bike lanes in the road-space was noted to be a contributor that caused people to not use the bike lanes. CoJ Official One (2022) indicated that the bike lanes, especially in Braamfontein followed one-way roads and the designers might have tried to follow that when lanes were installed. So, it was not possible to have a bike lane in two directions while the vehicular traffic was going in one way (CoJ Official One, 2022). She further outlined that one needed to take into context in terms of the areas that were being connected, because there was a network that was being established, so in areas where there were gaps there might have been a consideration of high traffic volumes because the protection of cyclists was better than long stretches of cycle lanes (CoJ Official One, 2022). She continued to state that the city needed to get a sense of the network planned (if lanes were looked at physically, the overall network of the lanes would not make sense) however if they are looked at holistically they might make sense because it will be easier to understand the areas that were being joined (CoJ Official One, 2022).

In terms of the effect of design parameters and routes of cycle lanes on reclaimers, the reclaimers had different interactions with bike lanes. Reclaimer One (2022) noted that he did not use the lanes at all because they were located along roads with little recyclables. Reclaimer Three (2022) stated that he rarely used the cycle lanes as, similar to Reclaimer One, the lanes were on roads where there were few recyclables and he said he preferred using roads that had retail outlets and a lot of pedestrians. He continued to state that places that had a lot of students were also his target areas. The researcher was speaking to him in the study area, along Jorissen Street, just before Pick and Pay. Reclaimer Five was the only one who admitted to using the cycle lanes because he had a cart. Upon approaching him, I first saw his cart on a cycling lane while he had gone into an alleyway to pick up recyclables.

The Scholar interviewee indicated the bike lanes in Braamfontein had yellow cones (mountable buffers) which made it easy for taxis or other motorists to jump into them, indicating a design flaw from that perspective. The Scholar interviewee referred to Enoch Sontonga Road, to demonstrate how there were always bricks, glass, rubbish and potholes which made it unsafe and difficult to cycle. People who cycled often chose not to use the lanes because they ran the risk of getting punctures (due to

fragments of broken glasses) or might find a rock, making it dangerous as previously indicated in section 5.3. Many often preferred to cycle on the roads. Secondly, there was also a lack of maintenance and the lanes have been sort of neglected. The yellow cones (mountable buffers) were crumbling and were getting pulled out. He continued to state that one could easily criticise that but the policymakers, and road engineers at the time were learning.

CoJ Official One (2022) indicated that mountable buffers were selected due to considerations from a stormwater perspective in making sure that the water flowed nicely and that the surfacing did not become slippery because of all the water channelled within that 1,5m width of the cycle lane. She was not sure if putting up non-mountable curbs with gaps in between intervals was considered because, in other countries, it was something done. So, for instance if a mountable curb was put up and there was space in between for the water to flow, it could have worked better ensuring the safety of NMT users. CoJ Official Two (2023) stated that rigid barriers like steel were considered but cyclists would be boxed in-case a car came into the lane and threatened to roll over the cyclist. So they did not want to box cyclists in case there was danger as cyclists become more vulnerable. Both CoJ officials added that another consideration was to make cycle lanes flexible in terms of allowing the cyclists to move in between the lanes in case there was a barrier in front of them, it would be easier for the cyclists to move around, in and out of the cycle paths. A downside to this however was that, because the buffers were mountable, it was sometimes a shortcut used by motorists to bypass traffic.

Importantly, the design and barriers were something that needed to be looked into, in terms of the methodology of installing bike lanes. In areas where there was a universal access where one transitioned from one bike lane to another, taxis could just use that access point to use the lanes. So the design, according to CoJ official Two, must have bollards that allow universal access for pedestrians and people who use wheelchairs, in that way the paths will be too small and the motorised users will be able to keep to their side of the road and the non-motorised transit users will it be more protected because there won't be any encroachment into their area.

5.6 Infrastructure Readaptation: Co-existence of Both Cyclists and Reclaimers

For cyclists and reclaimers to coexist in one lane, the width that a reclaimer needs must be determined. CoJ Official One noted that should they need the same width as a car then it will be difficult to accommodate them.

The First CoJ Official (2022) outlined that different road classes have got different road standards in terms of the size of the road width. She continued to outline that the re-appropriation would have to take place within a finite road reserve which is usually left after the prioritization of motorists. Moreover, if the city physically alters the existing

cycle lanes, peak-hour traffic must be accommodated at acceptable service levels, which might prove to be a difficult task. She continued to add that pedestrians, which are more numerous than street reclaimers and cyclists would have to compete for space as well. The official further emphasised an importance for the interaction between street reclaimers, cyclists and pedestrians to be understood. Furthermore, she added that one must probe if all these three users can coexist.

It is important to think about what the re-appropriation would look like practically, the re-appropriation would have to consider the network that reclaimers use and then be able to assess from a width perspective how much space they need to be safe (CoJ Official Two, 2022). The First CoJ official continued to add that accommodation of reclaimers within the road-space would need to be a case-by-case type of scenario. Before the implementation, the city would have to think about it and consult those stakeholders and find out what their needs are and what is practical to avoid proposing a design that will work for just one user and not all three, because:

*“The **City** has already **burnt** itself by their **bike lanes** and I don’t think they want to go down that **path** again”* (CoJ Official One: 2022)

The Second CoJ Official noted that the policy and physical infrastructure of bike lanes do not need to be amended. “We don’t have to amend however we must provide the carts” (CoJ Official Two: 2023). He outlined that the infrastructure was suitable as it was because reclaimers were considered when the lanes were designed. He added that the carts and trolleys of the reclaimers that had to be re-appropriated or changed because they posed a risk to reclaimers, pedestrians and motorists. Reclaimers use self-made go-carts that have no brakes, sometimes they ride on them while approaching a traffic light (CoJ Official Two, 2023). To further elude the unsafety element he said:

“That go-cart that they use is not allowed on the road, it’s not a road-worthy vehicle because it is dangerous for not only them but for motorists and pedestrians” (CoJ Official Two, 2023)

CoJ Official Two added that the design of bike lanes also considered street reclaimers. He further added that the city had a project to introduce “cargo bikes” that would be given out to street reclaimers but due to a lack of funding, the city could not continue. An example of a cargo bike is outlined in figure 23 below. The Official continued that the city could not accommodate the reclaimers with their current carts as they were unroadworthy and unsafe. The cargo bike would go through the SAB for approval, it would have brakes, guaranteeing their safety and the city would then permit and promote for them to use bike lanes. He emphasised that “the policy was okay and accommodated reclaimers but their carts had to be roadworthy before they could be permitted to use the lanes” (CoJ Official Two, 2023).



Figure 23 An example of a cargo bike. Source: <https://www.citizen.co.za/news/joburg-waste-reclaimers-get-boost-with-trikes-uniforms/> Accessed: 21 March 2024

The re-adoption of cycle lanes to include reclaimers is political. The interviewed Scholar (2022) signalled that the design question was deeply political because it aimed at re-appropriating the road-space. The Scholar added that it is a case where one lane would contribute and be designed to accommodate reclaimers and cyclists, taking away space for motor vehicles. The Scholar further added the proposed idea of integrating both cyclists and reclaimers could work, it was a question of how and the willingness. It further brings in the aspect of interest groups because the policymakers would have to understand and motivate on why it was necessary to alter the infrastructure. Technical alliances, and different organizations designing the carts of reclaimers into cycle-carts. So, alliances could also be used to redesign the bike lanes more quickly the interviewed Scholar added.

The interviewed Cyclist (2022) added that he thought sharing bike lanes with reclaimers added to his cycling business because it would prove the need for more lanes. CoJ Official Two (2023) added that the city often had targeted interventions. He continued to add that nothing prevented the City from checking for corridors that are used by reclaimers and having targeted interventions there. CoJ Official One (2022) further added that the case for reclaiming lanes would require a bottom-up approach with reclaimers at the forefront.

5.7 Conclusion

Street reclaimers interviewed for this research did not raise safe mobility as a key need for their work while constant movement was inherent to their daily work. City Official One saw infrastructure re-adaptation as a solution that could encourage the use of cycle lanes while CoJ Official Two advocated for the hand drawn carts or trolleys used by reclaimers to be re-appropriated because they had no brakes and further posed a risk for reclaimers, motorists and pedestrians.

The results of this study also highlight the significance of determining organised reclaimer groups' opinions regarding mobility and cycling lanes. Additionally, these kinds of structures would be more vocal or present in any talks or agreements between user groups and the City on matters that concern and impact street reclaimers.

However it is equally clear that this may raise complexities with respect to how rights to space are understood by different parties. The rights of non-SA nationals to have space specifically made to accommodate their work is suggested to be a potential sticking point. If so, this raises many questions, including in what way the nationality of any user of the city is relevant to its infrastructure, do non-SA citizens have the right to voice out their opinions regarding the status of certain infrastructure.

There are also elements of power within the mobility space, including bike lanes. Roads are dominated by motor vehicles. Even within the motor space there are different groups that are competing for space, with para-transit taxis being known for being aggressive and not adhering to the rules of the road. Cycle lanes are specifically designated for cyclists and have since turned into terrorising spaces for them. This is due to the reasons mentioned in the problem statement. Informal waste pickers and pedestrians can be understood as the outcasts which are always fighting to reclaim their presence in the road-space.

CHAPTER 6: Analysing the Study Findings

6.1 Introduction

The author will interrogate the findings of the study through the lens of the conceptual framework. The research was responding to two problems. First, the reclaimers struggle with safely navigating the city and cycle lanes being underutilised due to their current misuse and decaying condition. Having the idea behind the motive the research, section 6.2 will give a brief synopsis of the problem statement, an aim of the study along with the research question. Section 6.3 will follow with key findings that were outlined in Chapter 5. Thereafter, an element of informality within street reclaiming will be discussed followed by a breakdown of the necessities that reclaimers noted during the interviews. Implications on the re-adaptation of cycle lanes will be expanded and recommended research topics formulate the second last section. Chapter 6 is closed off with a conclusion.

6.2 Synopsis of the Study Motives

First, the study was exploring a possible solution to addressing the mobility challenges surrounding street reclaimers. Road-spaces were used by street reclaimers however, reclaimers competed to use this space with motorists and it was unsafe for them. Bike lanes were a potential solution that could be re-adopted to include and ease the challenge of a lack of safe mobility spaces for street reclaimers, however, the lanes also had a set of problems to which the study was also responding to. The first problem was that bike lanes were avoided by cyclists because they were in a state of disrepair. Secondly, the lanes were damaged because of a lack of maintenance from the local municipality as outlined in section 5.3. The research therefore aimed at exploring existing bike lanes concerning the needs of informal reclaimers and studying if the pre-existing cycling infrastructure required to be updated to accommodate reclaimers. Importantly, the study aimed at probing on the requirements for the coexistence of both cyclists and reclaimers within the cycle lane domain. Lastly, the research question which framed the study questioned the extent and ways in which lanes could play a supporting role in the reclaimers activities. The research used a case study method and Braamfontein was the study area.

6.3 Key Findings

This section presents key findings that can be deduced from the previous chapter. First, street reclaimers did not consider safe mobility as a main necessity as they have come up with strategies that assist in navigating the city. These strategies were observed in the study area as traveling in the road centre lines, between cars, as a means to ensure that they are not hit, as illustrated by the image in figure 16 in section 4.5.1. Secondly, street reclaimers that used self-made trolleys and carts to collect the recyclables were comfortable with using bike lanes while those who picked their

recyclables and carried them in bags, sacks and plastics never used bike lanes. The researcher found that trolleys had a role of not only transporting ('mobilising', in a sense) the recyclables to a buy-back centre but, they had a role of also mobilising the reclaimers. More on this will be shared in section 6.4.2. To add on, reclaimers did not use the bike lanes partly because the routes were mostly in areas that had little recyclables. This however, could be solved by the point made by CoJ Official Two who noted that targeted interventions could be made for future bike lanes to be installed along the routes used by reclaimers. However, the question of whether this can be appropriate in the study area still remains and will be discussed thoroughly in section 6.6 of this chapter. The interviewed cyclist also noted that sharing bike lanes with street reclaimers would not be a problem, instead it would boost his business and generate a need for more cycle lanes in other parts of the city. Reclaimer five, who was the only one with a trolley stressed that he wished that bike lanes extended to the other routes he used.

An interesting finding however was that the form of the existing cycle infrastructure could not be physically re-appropriated to include street reclaimers, however the carts and trolleys used by reclaimers were required to be re-appropriated because they were unsafe towards pedestrians, motorists and reclaimers. As Steven et al (2010) previously indicated re-appropriation can be a means of giving infrastructure another form by literally modifying its material construction and for the CoJ Municipal Two (2023), this was not possible on cycle lanes. These were the sentiments that were shared by the CoJ Official Two (2023). This view was in line with FNMT (2009) which listed street reclaimers as the targeted NMTs however, this policy arguably lacked in positioning reclaimers within the cycle lane domain, to acknowledge whether reclaimers were seen as the users of the bike lanes or not. Issues of power dynamics came out in the research more strongly than anticipated, and in several ways (eg between different road users, in relation to the notion of who/ which users have the legitimacy and recognition to make their needs heard). Moreover, it was revealed that street reclaimers did not ascribe the ownership of the lanes to cyclists only but considered them to be territories of minibuses and motorists. The notion of spatial justice however could not be applied to this study as initially anticipated since reclaimers simply chose to not use the lanes: it was not because they did not have access to the lanes.

6.4 Street Reclaimer's Necessities

This section will outline a hierarchy of the things deemed necessary by reclaimers as illustrated though a graphic in figure 24. The reclaimer's needs are categorised into four. Reclaimers interviewed noted an access to recyclables as the first need. The need for trolleys (informal go-carts used to carry recyclables) was noted to be the second. Thirdly, the need to be absorbed into the formal municipal waste management

system. Lastly, was transportation to carry recyclables and help reclaimers to navigate the city safely.

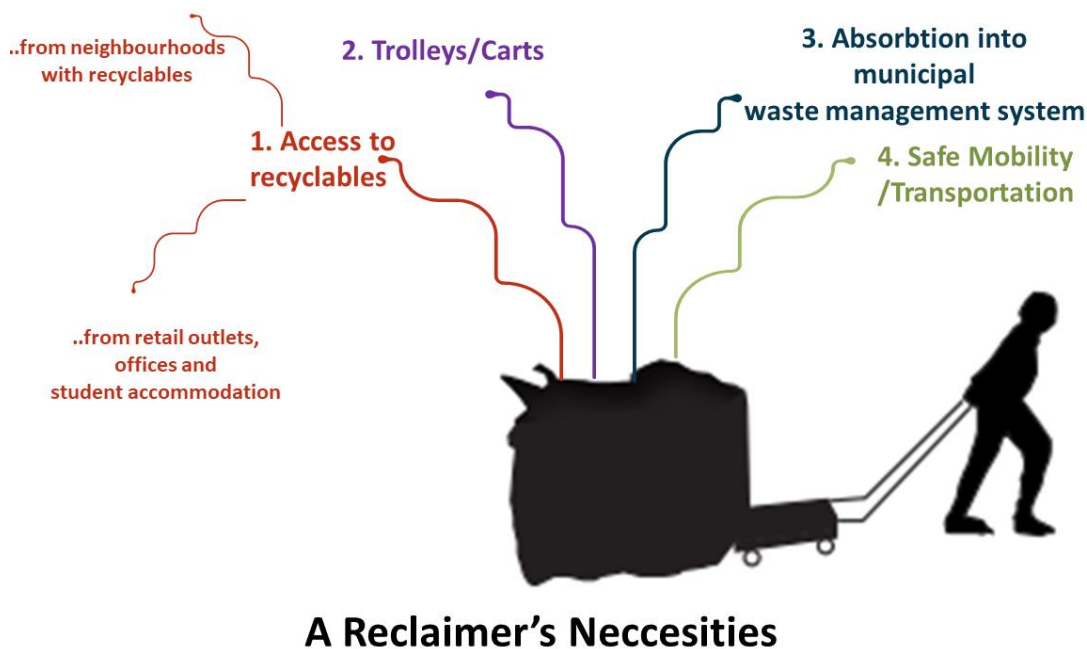


Figure 24 A depiction of the needs reclaimers expressed during the interviews. Source: Author, 2023

6.4.1 Access to Recyclables

Reclaimers deemed access to an abundant source of recyclables as a critical necessity. Recyclables are a resource that are of monetary value to reclaimers. During the interview, street reclaimers signalled retaining recyclables from streets, curb-sides and sidewalk bins as their main sources of recyclables. One of the reclaimers also said that he used to have relationships with some employees from retail outlets; however, since the Covid-19 lockdown, retail employees now keep the recyclables and resell them at the buy-back centre to supplement their salaries. Since the Covid-19 pandemic, unemployment and inflation rates have been soaring high the salaries of formally employed people stayed the same. As discussed in the second chapter, the informal sector is a gateway for people who work in the formal sector to make extra money through their informal side hustles. There is a similar trend from the retail employees in Braamfontein who no longer give recyclables to reclaimers but resell them at buy-back centres. In other instances, as revealed through Gama's story (Gammell, 2017) in section 2.3 of the second chapter, other people leave the formal sector because they do not earn enough contrasted with the money that they can earn in the informal sector correlating this finding to that of Charlton (2014).

Moreover, offices in Braamfontein rely on private companies to collect recyclables such as white paper, plastic bottles and cans and, South Point, a student accommodation company relies on a private waste collection company. Because of this, reclaimers lack a guaranteed and reliable source of recyclables since they are

denied an opportunity to access the recyclables. Instead, they depend on recyclables they pick on the streets, curb-sides and sidewalk bins. It is only fitting for reclaimers to deem it necessary to have access to buildings that have a potential of relieving them from the burden of scrambling for recyclables.

Access to neighbourhoods and buildings was noted as a second necessity by reclaimer respondents. The need to access another area means that Braamfontein did not supply reclaimers with enough recyclables. A surge of reclaimers along Louis Botha avenue, crossing over to Newton via the Mandela Bridge was observed from midday leading to the late afternoon of 4PM. The presence of reclaimers in Braamfontein was seen from 11AM onwards suggesting that reclaimers depended on the recyclables generated by the foot traffic from the students and employees during the day. The one reclaimer that was spotted from early mornings was one who had a storage facility at Pick and Pay and would always be given boxes from the delivered items at the retail shop. Moreover, this reclaimer had long lasting relationships with retail stores as he was spotted in the morning in one of the bars collecting glass beer bottles. A majority of the street reclaimers in the study area did not have these relationships with retailers.

The informal recycling economy in the study area depended on the foot traffic. The various companies in Braamfontein contributed close to nothing to the overall recyclables that many reclaimers attained. As mentioned in section 2.3, as outlined by Deveci *et al* (2022) urban mobility encompasses more than the physical movement of people from one area to another; it includes the social and economic aspects. This means that the urban mobility element of street reclaiming generally is endowed with restrictions that limits this informal waste management segment to certain spaces. For instance, street reclaimers are structurally restricted from accessing indoor public spaces such as malls, shopping centres or private complexes or office parks as they are automatically seen as individuals who simply do not belong there. In rare cases where they are given access it is usually away from customers through backdoors. More so, structures of the companies restrict reclaimers from accessing recyclables found in these buildings. Restrictions hold reclaimers from comfortably accessing spaces that potentially hold more recyclables.

6.4.2 Trolleys

Trolleys or carts were a second necessity that the interviewed reclaimers noted. Trolleys or carts usually have a large sack attached, representing a daily target that a reclaimer must strive to meet. An empty sack means that the street reclaimer's pockets are also empty. The trolley also has wheels, making it easy for reclaimers to fill the sacks to the brim without carrying a heavy load of recyclables. The interviewed reclaimers with no trolleys or carts used plastic bags to carry their recyclables and were limited in the amount of recyclable material they could pick and often had to be mindful not to pick many recyclables to avoid the risk of hurting their backs.

Trolleys are also a mobility tool. Empty recycling carts are repurposed to skate-trolleys as seen in figure 25. The second CoJ official termed it an unsafe and unregulated form of transportation that put the reclaimer, motorist and pedestrian at risk because there were no mechanics to control the pace of the skate-trolleys. Samson *et al* (2022), who followed a reclaimer using a skate-trolley further outlined that it is only possible to keep up with the reclaimers while they were in their skate-trolleys by car, illustrating the point made by the CoJ official regarding the unsafety element of the skate-trolleys. The significance of trolleys is twofold for reclaimers. First, the sack attached to the trolley represents the reclaimer's daily rate because the reclaimer's wage for the day is determined by the number of recyclables in the sack. Secondly, it is a mobility tool that reclaimers use to navigate the city because it is converted to a high paced skate-trolley as seen in figure 25 below.



Figure 25 Skate-trolleys used by reclaimers. Source: Samson et al, 2022

Trolleys also give reclaimers a reason to interact with cycle lanes. The reclaimers without trolleys who were interviewed on-site reported that they never used bike lanes. An advantage for reclaimers without trolleys is that they easily move around Braamfontein and can walk on areas like sidewalks without obstructing pedestrians, making it easier to access recyclables. One reclaimer carried recyclables in a plastic bag, as seen in figure 26, and headed to the bins found at the Total petrol filling station without causing any obstruction to the vehicles in the facility, while if a reclaimer with a trolley had attempted to go into a filling station, they would not have been allowed as their trolley would have obstructed cars.



Figure 26 A trolley-less reclaimer easily picking recycling from Total Filling Station. Source: Author, 2022

On the contrary, reclaimers with carts used the cycle lanes both when their carts are empty as skate trolleys or full to carry their recyclables. One reclaimer who was interviewed had left his trolley on a cycle lane as he went up an alleyway to scramble for recyclables. Carts can also give reclaimers flexibility, allowing them to access specific spaces without carrying any load. Even when their carts are full, cycle lanes allow reclaimers to move quickly on the road without risking their lives and obstructing traffic.

6.4.3 Transportation

The necessity directly addresses the mobility aspect of the research. It was interesting to observe that this necessity was left out by the other seven respondents and only was mentioned by one reclaimer. The six other reclaimers were only concerned with strategies that would only add on gaining recyclables. Because of this, their necessities were limited, and they rarely recognised safe mobility as an important necessity. The various strategies they had devised (e.g skate-trolley) to enhance their mobility although unsafe, sufficed. Mobility is an aspect that enables the reclaimer's ability to move from area to area, scavenging for recyclables to sell back to the buy-back centre. This correlates with Cresswell's (2010) understanding of mobility as the purposeful physical movement. It is the only necessity that has a direct impact on their safety. The first three priorities have a direct monetary impact on the reclaimers as opposed to them having a direct impact on their safety. As illustrated by Gammel (2017) the element of mobility makes it possible for reclaimers and other informal mobile economic activities to move, targeting areas with a potential for more monetary value. In fact, the informal recycling economy is founded on mobility. Without mobility there is no possibility of mobilising the recyclables from a pick-up-point to a buy-back centre. And so, reclaimers do not see mobility as a necessity because it is engrained in their everyday activities, the question however that needs to be raised is the importance of ensuring their safety while they are being mobile. Transportation then comes in to bridge the lack of safety in their everyday endeavours.

With access to transport, reclaimers can travel safely to other parts of the city without endangering their own or other road users' safety. In a context like Johannesburg, where places of opportunity, in this case being the northern suburbs, are far from people within the low-income bracket, transport is a necessity. As noted in the second chapter, that the potential life that individuals attain and the reachable places of necessity are all linked to the spatial order of the city. Mobility is an enabler that allows reclaimers to reach the areas with enough recyclables. Thus, this proves the importance of urban mobility to the functioning of the informal street reclaiming sector, as alluded in the second chapter.

Currently, the road-space is shared and contended for by private vehicle users, Bus Rapid Transit, paratransit taxi drivers, and now, street reclaimers, cyclists and pedestrians. So, one must think about how a finite road-space can accommodate six different users with six different needs in the road domain (CoJ Official One, 2022). And so, reducing space for the three current motor users means that the safety of the other three NMT users must be prioritised. The current mountable buffers have not done a good job of protecting cyclists and pedestrians (CoJ Official One, 2022). The proposed NMT lanes should fasten the safety of the different users by having non-mountable buffers in the form of poles at regular intervals (CoJ Official One, 2022). Importantly, the infrastructure should be kept in a good and well-maintained state.

The Second CoJ Official (2023) suggested that the cycle lanes should not be re-appropriated to include because the current policy on NMT already included reclaimers. This is true because currently, the FNMT (2009) policy makes provisions for NMT users that are wheelchair users, pedestrians, cyclists and further extends to animal-drawn carts. The Second CoJ Official, recommended that reclaimers had to re-appropriate their trolleys/carts before using the lanes, contradicting the provisions made in the policy, which includes hand-made carts (trolleys) used by reclaimers as targeted groups for NMTs. Furthermore, the official's disclosure regarding the City's efforts to re-appropriate trolleys used by reclaimers contradicts the City's current understanding of NMTs which listed reclaimers as targeted groups. The FNMT (2009) policy was consulted, indeed, proposals for tricycles for waste reclaimers (cargo-bikes/cycle-trailers) were also listed on the database for future NMT projects in the City. The suggested re-appropriation on the trolleys is somewhat confusing and leaves the position of reclaimer's status ambiguous within the bike lanes. This begs the question of whether reclaimers are considered as part of the rightful users of cycle lanes. The FNMT policy (2009) arguably failed to indicate if reclaimers were considered users of the bike lanes.

Street reclaimers fall under the category of hand carts however, the second CoJ Official stressed that the current bike lanes could only be used by reclaimers if they had safe cycle trailers, which is a bicycle that has a small trailer attached at the back. He stressed that their current "self-made carts" were unsafe for motorists, cyclists and

pedestrians. This understanding suggests that the city does not review the diverse users of the infrastructure. The official's suggestion also indicates that the city is not welcoming the spontaneity that comes with informality. This brings to mind the argument made by Roever (2016) regarding Informal Mobile Economies (IME) in the city which are always contesting for space with the city's law enforcement agencies. Despite advocating for the re-appropriation of the reclaimers' trolleys, the Second CoJ Official considered the safety of the reclaimers, which is something that was overlooked even by the reclaimers themselves. So, the suggestion of re-appropriating the self-made carts into bicycle trailers is understood as another form of re-appropriation.

6.4.4 Absorption into Municipal Waste Management System

Reclaimers cited an absorption into the local waste management system as a necessity. Absorption guarantees a reliable source of income for reclaimers as mentioned by Reclaimer Two in section 5.2 who outlined that being absorbed by municipality's waste management system would guarantee them a basic monthly income. Apart from that, it guarantees protection from the constant harassment encountered. Reclaimer Two went to the extent of even stating that being given PPE and uniforms would form a part of the absorption. As indicated above, street reclaiming is an Informal waste management segment that operates away from the state. This sector only interacts with the private recycling economy through the buy-back centers. Although the City's entity, Pik-it-up, attempted to include reclaimers through the S@S programme their efforts did not bear much fruits since reclaimers abandoned the programme (Samson, 2020).

One of the interviewed reclaimers noted that reclaimers were given a salary monthly (Reclaimer Four, 2022). He further indicated that the city stopped the programme because some reclaimers falsely registered their family members as ghost cooperative members. What ended up happening is that the ghost members of cooperatives were getting paid for free. Many reclaimers ended up leaving the programme because the buy-back centers in landfill sites paid reclaimers little money for their recyclables. While this programme is the ideal answer for some reclaimers that are seeking to be included in the formal waste management system, better coordination and methodologies could be applied should Pik-it-up revamp the S@S. Importantly, the inclusion of reclaimers in the formulation of programmes similar to the S@S could be prioritised.

6.5 Understanding Informality Within Reclaiming

Street reclaiming is a component of informal businesses. The city's informal trading by-laws permit a variety of informal economic activities to occur (CoJ , 2009). This by-law makes provision for trading that occurs from a public road, which is closely associated with street reclaiming. Street reclaimers utilise streets as an entry point to a commodity that generates income for them. Simply put, informal waste pickers do

not in any way appropriate streets for profit (Benit-Gbaffou, 2016). While street reclaimers do not necessarily trade-in their recyclables on the street, they simply pick their recyclables from the streets and resell them in a formal institution. One can argue that street reclaiming is not an informal business because the act of trading does not occur on the street but rather within a formal institution. Reclaiming must therefore not be considered an informal economic activity but rather an informal segment of waste management. Pik-it-up's S@S initiative is an indication of the city's attempt at including street reclaiming to be part of a formal component of the city's waste management system. The S@S policy encouraged street reclaimers to formulate cooperatives that would be deployed to collect recyclables and resell these to buy-backs stationed at landfill sites (Simone, 2020). The city's efforts further led the author to understand that informal reclaiming can be considered a component of waste management and not a segment of the informal business economy. So, it is safe to conclude that the informal reclaiming realm is further understood as a supporter of the formal waste management. The reclaiming sector is currently not regulated as a formal employment sector and so reclaimers rely on a set of self-made strategies to ensure their safety, daily. Streets further connect them to spaces with recyclables and buy-back centres.

6.6 Implications of the Re-Adaptation of Cycle Lanes

According to Grub *et al* (2022) the role of infrastructure, in cities is to connect households to higher-quality opportunities in healthcare, employment and education. In this instance, streets play a key role in connecting reclaimers to places of opportunities, being the various locations that have a lot of recyclables and buy-back centres. In this study, the fundamental role of a cycle lane is attributed to its potential to safely connect street reclaimers with places of opportunity. Reclaimer Five, operating from Braamfontein admitted to using the bike lanes in the study area, however, the benefit of using cycle lanes was only limited to the study area and did not extend to Newtown, where his buy-back centre was located. So, the absence of bike lanes along the routes used by street reclaimers deprives them of the opportunity to safely reach their destinations, without competing for space with other road users.

The CoJ Officials interviewed had contrasting ideas about the re-appropriation of infrastructure. CoJ Official One saw re-appropriation as a tool that could be used to encourage the uptake of bicycle lanes. The First Official's understanding of infrastructure re-adaptation is similar to Grub *et al* (2022) who suggested that infrastructure re-adaptation is reviewing new uses and concepts that can be applied to infrastructure. CoJ Official One further made an example of how the infrastructure could, for instance, be readapted for the cyclists and reclaimers to have enough space to bypass each other. An interesting observation is that the CoJ Official One saw the re-appropriation of infrastructure as an opportunity to address some of the challenges on bike lanes noted in the Problem Statement. She further stressed that, it would be vital for the different parties, including reclaimers to have their voices heard. This also

brings into perspective the importance of establishing the voices of the reclaimers' organised groupings that should also be included in the participation process. Importantly, the various groups that all represent different users of the road-space are key in terms of fostering the inclusion of every road user.

The Second CoJ Official contradicted infrastructure re-appropriation and suggested that the reclaimers should re-appropriate their carts and trolleys, meaning that they should first be concerned about making sure their carts met the safety standards before attempting to use the lanes. This contradicts what the current FNMT (2009) understands as the types of NMT. The provision of a city policy, the FNMT (2009) (as indicated above) is accommodative of the hand carts used by reclaimers. This means that the city's policy is at flaw for categorizing hand carts as NMTs if they are considered unsafe by the Second Official.

One of the functions of infrastructure re-appropriation¹ was that this concept, could be used as a socio-ethical tool to address spatial injustice. It was interesting to find that one out of the seven reclaimers interviewed utilised the infrastructure. The other six reclaimers did not admit to using the lanes, not because they felt excluded on the actual lanes but purely because they never found the lanes useful to them. This is because they did not use trolleys to carry their recyclables and the lanes were in locations that did not have enough recyclables. However, this does not shield the use of re-appropriation as a socio-ethical tool as discussed in section 2.1 but rather, its function of fulfilling spatial justice in the case of this research was not applicable. Soja (2009:2) stated that spatial justice entailed "the fair and equitable distribution in space of socially valued resources and the opportunities to use them". Bike lanes in the study area have arguably been distributed fairly, however some reclaimers, that had an opportunity to use them decided not to. While street reclaimers can be seen as disadvantaged individuals who need the lanes for their safety, the current location of the bike lanes in Braamfontein are not beneficial to them (Reclaimer Three, 2022). In order for reclaimers to fully use the lanes, they would have to be re-installed along routes they use and in Braamfontein the study area, this is not practical. However, the CoJ (CoJ Official Two, 2023) can make targeted interventions throughout the City, to install the lanes where there currently are no lanes, along the routes used by street reclaimers. The research still maintains a standpoint that re-appropriation can be used as a moral tool to re-distribute resources to those who are least advantaged.

Jacob's (1961) understanding of diversity in cities is similar to the diversity evident in the study area, in relation to the modes of NMT's. As eluded through Jacob's (1961) that each of the NMT modes of transport have their own ecosystems. Jacob's (1961) understanding helps identify the users that fall user the category of NMTs. In order for

infrastructure re-appropriation to occur in the context of bike lanes, all the different users of NMTs must be consulted with and included.

A symbolic re-appropriation however is encouraged. A case can be made for the symbolic re-appropriation that was offered by Steven *et al* (2010) to take place. As a reminder, Steven *et al* (2010) understood the concept of re-adaptation to be one that gives an item another meaning by modifying its symbolic construction. As previously eluded in section 2.2 that the symbolic construction in this research extends to changing the public's perception of bike lanes as spaces that are exclusively for cyclists. Rather, a suggestion is made for the symbolic construction to occur that encourages the current bike lanes to be spaces for all other makeshift NMT users referring to informal traders that use self-made trolleys and carts and street reclaimers. Ahead, in section 7.4.3 a recommendation is made for the bike lanes to be renamed to NMT lanes.

It was intriguing to find that most reclaimers ascribed the ownership of the cycle lanes to motorists, particularly, para-transit taxis. Three out of the seven reclaimers thought of the lanes as spaces belonging to minibus taxis, reflecting that cycle lanes also had connotations that were often attached to them, ascribing their ownership to one of the dominant road users being para-transit taxis, similar to Norwood Park being seen as a space for domestic workers as indicated in section 2.1. That ascertained a point that unspoken connotations are often attached to certain public spaces exist and influence the ways in which the space is used.

6.7 Conclusion

The reclaimer's necessity of accessing recyclables proves how recyclables are a valuable commodity in the recycling economic sector. A commodity, in this case, that is accessed in an unconventional manner, making reclaiming an informal recycling economy instead of an informal mobile economy since the exchange of recyclables for money occurs in a formal business. Trolleys are a mobility tool however reclaimers without trolleys rely on their feet to move around, this makes it hard for many of them to pick as many recyclables as possible and this limits their wages. Additionally, reclaimers without trolleys have no interaction with bike lanes.

The concept of re-appropriation is not only limited to the bike lanes but also applies to reclaimers. The findings gathered from both CoJ officials demonstrates this. CoJ Official One applied appropriation to the bike lane infrastructure while CoJ Official Two directed the re-appropriation to the trolleys/handmade carts used by reclaimers.

CHAPTER 7: Conclusion and Recommendations

7.1 Introduction

This chapter begins by summarising the research aims and findings. This is followed by the study contribution to the field of reclaiming and cycling literature. Lastly, this chapter closes off with suggested recommendations.

7.2 Research Conclusion

The overall study initially aimed at assessing the relationship between street reclaimers and bike lanes. The study made use of three main concepts for its conceptual framework being Infrastructural Re-adaptation, Informal Economies and Non-Motorised Transport. With the use of a qualitative case study research methodology, Braamfontein was the chosen study area.

The research was initially sparked by a desire to include reclaimers within the road-space, where the cycle lanes were identified as an appropriate domain that would fulfil this inclusion. The research findings indicated that street reclaimers already had devised a set of mobility strategies and thus transportation was at the bottom of the hierarchy of necessities. These strategies however were deemed unsafe by the interviewed CoJ Official Two who noted that the city had initiated a programme to supply reclaimers with safe cycle carts. The lack of safety in the mobility strategies used by reclaimers was noted as a reason why the reclaimers would not be permitted to use cycle lanes, despite the Non-Motorised Transport Framework indicating them as a target group that form a part of NMTs. This begs the question then of whether reclaimers were considered the users of the cycle lane infrastructure despite being recognised as part of NMT users. This view however, was in contrast with the first CoJ official that was interviewed. CoJ Official One saw the re-appropriation of the lanes as an opportunity that could be used to encourage the uptake of the lanes however, the process of re-appropriating would rely on a methodology that includes street reclaimers. The implications however of the re-appropriation of the lanes further extend a requirement for the infinite road space to be accommodative of private motorists, minibus taxis, buses, pedestrians, reclaimers and cyclists at acceptable service levels for each user. Implications of re-appropriation further extended to the politics around the road space and that with representation groups for reclaimers, the rights of reclaimers in the roads could be advocated and defended.

The second finding related to the underutilisation of cycle lanes. The findings of the research indicated that the issues of the lanes in the study area stemmed from the

lanes being unmaintained by the Municipality, the discontinued and unconnected nature of the cycle lanes, their misuse by the motorists and cyclists being targeted by criminals for muggings whenever they use the lanes. These reasons all contributed to the lanes not being utilised by cyclists. The research also found that including reclaimers as the users would encourage the municipality to regularly maintain and introduce bike lanes in other areas.

Cycle lanes could play a key role in improving the safety of reclaimers on the roads. They have a potential of saving reclaimers' lives from road accidents and connecting them to areas with more recyclables (pick-up-points) to areas with buy back centres. The research found that cycle lanes in the study area were predominantly used by one reclaimer with a trolley and he noted that he only had the privilege of using them in the study area and wished they extended to other parts of the city. Other reclaimers however noted that they never saw themselves as the users of the bike lanes because the lanes were a territory for taxi drivers, while others never thought of using the lanes since they were often in areas with no recyclables for them to pick.

This research further understands that the re-appropriation of infrastructure does not only have to occur physically, but the symbolic re-appropriation suggested by Steven *et al*, (2010) of the bike lanes can also occur where reclaimers and other informal NMT users can be seen as the rightful users of the lanes. The current bike lanes can be spaces for all other makeshift NMT users that include informal traders that utilise the self-made trolleys and carts. One of the major outputs of this research were crafted by this research was that re-appropriation could be used as a socio-ethical in space. However, it was disappointing to find that the re-appropriation of the lanes in the study area did not apply for it to be used as a socio-ethical tool to fulfil spatial justice since reclaimers had access to the lanes, but they simply chose not to use them because they were often along routes with no recyclables, and some did not have trolleys. They did not need them.

So, this research understands the bike lanes as a key asset that can improve the safety element in the current mobility strategies used by reclaimers, accommodating them within the road space and not as an asset that can lead them to areas with more recyclables, although targeted interventions can be made by the city to include bike lanes along the routes used by reclaimers.

7.3 Research Contributions

The research contributed to the growing literature on street reclaiming. Existing literature is on the everyday challenges that reclaimers encounter (Kögl. 2023; Samson *et al*, 2022), the role reclaimers play in the green economy (Samson, 2008) and the mechanisms and strategies that can be used to integrate reclaimers with the formal, municipal waste management system (Samson, 2020). This research noted the above topics that are covered in existing literature. However, the research took a further step of practically engaging with the lack of safety on the mobility of reclaimers and used infrastructure re-appropriation as a strategy that can be used to include street reclaimers in the road space. The researcher understands that the idea of re-appropriating the lanes might be seen as radical, however, it contributed in a way that practically calls for attention to be made in bringing solutions that can help support the informal recycling sector.

Secondly, the research contributed to the cycling infrastructure literature. In Johannesburg cycling has not been embraced by the general public, and so, the lanes are currently not being utilised. This research contributes in aiding the municipality to increase the use of the lanes through accommodating street reclaimers.

7.4 Recommendations

This section serves as an outline of the various recommendations that can be utilised to address the integration of street reclaimers and cyclists within the road space.

7.4.1 Recommended Research Topics

The research proposes renaming the current “Bike Lanes” to “NMT Lanes” as will be discussed in the following section. This research did not delve into the specific design aspects of how NMT lanes would be implemented in the given space. A suggestion of a potential research topic is for the design element to be explored as well as the implications of the NMT lanes on the users of the road-space. Importantly, the policy governing NMT lanes can also be looked into. There are visibly many reclaimers (with carts) in the City and so this dimension of safe mobility and its significance for reclaimers needs further investigation in future research. Lastly, possible research can also be conducted on the appropriate participation strategies that can be used to include reclaimers in the formulation of initiatives that aim at helping and improving reclaiming. Two interviewees indicated that part of the reason why reclaimers were not consulted was that they were not viewed as an organised group. More research needs to be done on understanding and improving the mobility needs of the reclaimers.

7.4.2 Infrastructure Maintenance and Upgrades

This section addresses the current road safety obstacle that hinders the use of cycle lanes. Better road infrastructure that creates a safe buffer between vehicles and cyclists should be implemented. The current mountable buffer utilised to demarcate the space between cyclists and motorists does not guarantee the safety of the users of these lanes. The current mountable cycling buffer only serves as a road marking tool and does not extend to being used as a road safety feature. Various typologies of road demarcations can be used to indicate the road-space reserved for cycling while also acting as a buffer that prevents motorists from swerving into cycle lanes. Part of the current challenge that hinders cyclists from using cycle lanes is the fear of being run over by a car. Regular maintenance is rudimentary as the current disrepair state of these lanes contributes as a hindrance that limits cyclists and other users of these lanes from utilising them.

7.4.3 NMT Lanes

The study proposes terming the current cycle lanes to NMT lanes which will accommodate all forms of NMTs and not just cyclists. The term “cycle lane” tends to establish a territory that is only reserved for cyclists. This section suggests that the current bike lanes be renamed to “NMT Lanes” as a term that fully encapsulates every NMT user without favouring only a formal or prominent NMT mode of transportation. And so, this recommendation can be understood as a form of infrastructure re-appropriation that alters the symbolic meaning of the bike lanes to be more inclusive. This recommendation takes into account Jacob’s (1961) observation of the diversity and its relevance within the NMT realm.

The implementation of the recommended NMT lane also comes with its set of political, social and financial implications. In the political aspect, this suggestion anticipates stirring up underlying politics of access to road-space, interrogates the perceived rightful users of the road and invites the previously excluded groups back into the road-space. While this might be seen as a negative by many, this move might encourage the installation of other lanes, in other targeted areas, as the anticipated users will not only be cyclists but other NMT users as well.



Figure 27 Proposed road sign, warning motorists about the presence of reclaimers. Source: Author, 2022

7.4.4 A Road Sign

A road sign to warn drivers to be aware of reclaimers on busy roads and highways. While this solution does not directly link reclaimers and cycling, this attempted solution addresses the road safety challenges that many reclaimers encounter. This road sign will warn drivers, ensuring that they are on the lookout for reclaimers on the roads, reducing the amount of reclaimer accidents.

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Annexture Sheet

Annexture 1: Ethics Clearance Letter



02 August 2022

Dear Makena, Pheladi Pearl (1892889)

This letter confirms that your clearance application has been approved. Your protocol/clearance number is: SOAP121/07/2022

Yours sincerely

A handwritten signature in black ink, appearing to read 'Lerato Nkosi'.

Lerato Nkosi

Annexure 2: Permission Letter from the City of Johannesburg

City of Johannesburg
Department of Corporate & Shared Services
Office of the Group Head: Group Human Capital Management

6th Floor, B Block
Metropolitan Centre
158 Civic Boulevard
Braamfontein

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26 October 2022

Dear Miss Pheladi Pearl Makena
Master of Urban Studies: Urban Management
Student Number: 1892889
WITS

Ref: Permission to conduct research study

This letter serves to acknowledge receiving the letter requesting permission to conduct research in the City of Johannesburg under the title **“Examining the role of Braamfontein’s bike lanes: A potential asset for waste reclaimers”**. I am aware that the study entails the collection of information from the City and participants through semi-structured interviews by city officials.

The research study is promoted by the City of Johannesburg because it helps both students and practitioners to gain an understanding of the spatial dynamics of the City as it evolves and contributes towards the building of a developmental and inclusive local government.

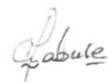
I, Lineo Petronella Mabuse, as delegated authority of the City of Johannesburg Municipality (the City), hereby give permission to the primary researcher, Miss Pheladi Pearl Makena to the following:

- To collect and publish information about the City is publically not available, for the research project titled: **“Examining the role of Braamfontein’s bike lanes: A potential asset for waste reclaimers”**
- This authorization is based on mutual understanding that the City’s name can be revealed in her project; and
- The information provided by the employees or any other means (such as company’s archived documents or reports) of the City is purely for academic purposes and cannot be used for any other purpose.

Please note that on completion of the study, a copy of the research report should be submitted to the City of Johannesburg in honour of your commitment.

I urge you to present this letter of permission whenever you come across officials and participants in the research study. I thank you for choosing the City of Johannesburg to conduct the study.

Kind Regards



Lineo Mabuse
Acting Deputy Director: Employee Relations and Development
Tel: (011) 407- 7147
Cell: 0794074934
Email: LineoM@joburg.org.za

Annexture 3: Interview Questionnaires

Street Reclaimers around Braamfontein

1. How long have you been a waste reclaimer?
2. Which recyclable material do you collect?
3. Where and when do you work? Is it the same places and times everyday or week? How and why does this vary (if it does)?
4. Where is the buyback centre you sell your recyclables to located? What route do you use to get there?
5. What are some of the challenges you face on the road? Please describe your experience of pulling your trolley on city streets.
6. How has the municipality tried to assist you or your colleagues with the challenges you face?
7. What is your experience of the bike lanes? Do you use them? Why/why not?
8. Who does use the bike lanes, in your experience?
9. In what ways can bike lanes be fixed to better suit your mobility needs?

Street Reclaimers from the Northern Suburbs

1. How long have you been a waste reclaimer?
2. Which recyclable material do you collect?
3. Please name the suburbs you reclaim waste from.
4. Where is the buyback centre you sell your recyclables to located?
5. Which route do you take when you travel from the suburbs to the buy back centres?
6. What are some of the challenges you face on the road?
7. How have you utilized the bike lanes you have encountered on your way?
8. How has the municipality or an organization tried to assist with the challenges you face?
9. In what ways can bike lanes be fixed to better suit your mobility needs?

City of Johannesburg Officials

1. What is your position and what is your role within the organization?
2. What, in your view informed the routes and locations of the bike lanes in Johannesburg? Was there for instance a cycle lane masterplan which sought to perhaps realise a connection between the various locations of these lanes?
Cue: With Rea-Vaya, there is a connection in that, the bus routes were mapped out with the intention of connection Soweto, Inner Joburg and Sandton.
3. Who are the users of bike lanes?
4. What is the current infrastructural state of bike lanes?
5. Why are bike lanes not being utilized as intended?
6. What were the design specifications for bike lanes?
Cue: For instance the width of the lanes,
7. Why were the yellow cone like structures used as a buffer to separate cyclists and motorists?
Cue: non-mountable curbs
8. Reclaimers currently cannot use roads efficiently as they are seen as road users that obstruct traffic. In what ways can bike lanes be physically adjusted to accommodate reclaimers?
Cue: Width adjustments for the carts of reclaimers.?
9. In what ways can the design and policy governing bike lanes be amended to be inclusive of both cyclists and reclaimers?
10. Are there any future projects for future cycling corridors? If so, where do you anticipate their location to be?
Cue: Where are the future cycle corridors going to be located?
11. Since there are reclaimers that operate between the Northern suburbs and Johannesburg downtown, is the idea of aligning reclaimer routes with future cycle lanes feasible?

Cue: installing bike lanes that also work for reclaimers along these routes feasible?

Cyclist:

1. What is the name of your organization and what does it specialize in?
2. How often do you utilize the installed bike lanes?
3. Who are the rightful users of bike lanes?
4. How do you react when you see a street reclaimer using the bike lanes?
5. What are the challenges you face while utilizing bike lanes?
6. How can these challenges be addressed?
7. How does the idea of utilizing bike lanes with street reclaimers sound?
8. What challenges do you foresee if you were to utilize bike lanes with reclaimers?

Scholar

1. Please briefly outline the main themes in your research on urban cycling?
2. What is the current state of bike lanes in Johannesburg?
3. What caused the decay of bike lanes?
4. What do you propose as a solution to these challenges?
5. This research sees bike lanes as a potential solution to the solutions that reclaimers face when they navigate the city. In your perspective, is this idea of posing bike lanes as a solution to their mobility challenges feasible, kindly justify answer with reason?
6. How will the inclusion of street reclaimers encourage or otherwise impact on cyclists to utilize bike lanes?
7. In what ways can both users coexist and utilize bike lanes
8. How can both cyclists and reclaimers benefit from the revitalization of bike lanes?