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TRAFFIC AND LIVABILITY IN PRETORIA:

EXPLORING THE IMPACTS OF TRAFFIC VOLUME ON THE QUALITY OF STREET LIFE IN PRETORIA

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A research report submitted to faculty of Engineering and Built Environment, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Science in Development Planning

Declaration

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

Klaas Tswai



November 2021

"*People have always lived on streets. They have been the places where children first learned about the world, where neighbours met, the social centres of towns and cities, the rallying points for revolts, the scenes of repression... The street has always been the scene of this conflict, between living and access, between resident and traveller, between street life and the threat of death*."

- **Donald Appleyard**

Abstract

Quality of life in cities and towns is of increasing concern to the public and to policymakers. One of the major threats to quality of life is the growing traffic volume in most cities. This research report assessed the impacts of traffic volume on the quality of street life or liveability in Pretoria by applying an existing research study of Donald Appleyard's (1981) which was based in a residential neighbourhood in united states of America, in San Francisco, liveable streets. Like the original study, it compared responses of residents and other street users on streets with heavy, moderate and light traffic volumes and measured the effects on four liveability indicators including social interaction, stress, traffic hazard, and privacy and home territory.

The results confirm that Appleyard's findings that all four liveability indicators correlate inversely with traffic volume in San Francisco are applicable in South African context in the CBD of Pretoria, but furthermore this research also revealed strongly that there are other variable other than traffic volume influencing liveability in Pretoria including crime, economic activities and human-centred street design. It revealed that a heavy traffic street are dangerous, noisy and its effects on neighbouring and sense of possession of the street were apparently devastating. Whereas street with less or light traffic volume had more engaged residents, with had a sense of responsibility over their street, claimed the street as their own territory, they felt safer and residents had more friends and acquaintances.

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I wouldn't have successfully completed my research without the assistance of integral individuals and organisations.

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List of Acronyms

ANC - Africa National Congress

ASIRT - Association for Safe International Road Travel

BRT - Bus Rapid Transit

CBD - Central Business District

DA - Democratic Alliance

GPMC - Greater Pretoria Metropolitan Council

ITP - Integrated Transport Plan

JIA - Johannesburg and International Airport

NMT - Non-Motorised Transport

RDP - Reconstruction Development Programme

STSAC - Spatial Transformation of South Africa Council

TICRS - Tshwane Inner City Regeneration Strategy

UADP - Universal Access Design Plan

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Chapter One: Introduction

1.1. Background and Rationale

Kost et al (2011) highlights that many cities across the globe struggle to reconcile the competing needs of mobility and liveability. And as a result streets in many cities are dominated by vehicular traffic. Jain and Moraglio (2014) together with Gehl (2010) have been in support of the view but further argues that these realities occur today as consequences of the dominant planning ideology of modernism that has prioritized circulation, traffic flow and connectivity.

Supporting, Gehl's (2010) statement, Jain and Moraglio (2014) highlighted that for the last two decades the automobile has dominated the street in most cities due to increasing car dependence, traffic engineering and planning, with their concerns for efficient traffic movement. And they also, pointed out that traffic engineering is becoming a powerful tool that shape the city form and continue to dominate decision making regarding streets today. A common feature of almost all cities regardless of global location, economic viability and stage of development — is that the people who still use city space in great numbers have been increasingly poorly treated, Banerjee (2001) and Gehl (2010) argues that while such problems have been addressed in some parts of the world, they have simply grown apace in others.

According to Francis (2006), Jacobs (1993), Bentley et al (1985) and Jacobs (1961) this turn of events has not only reduced the opportunities for walking as a form of sustainable transport, they have also eroded the conditions necessary for people to engage in street life. And Francis (2006) further elaborates that they also placed the social and cultural functions of the urban street space under siege. The traditional function of street space as a meeting place and social forum for city dwellers has been reduced, threatened or phased out in most cities. And this is due to the vehicular traffic effectively squeezing the rest of urban life out of urban streets and neglecting human dimension on street design. Street design which is based on short walking distances, beautiful courses of space, high degree of mixed use, active ground floors, distinguished architecture and other characteristics (Gehl, 2010). Jacobs (1961) concluded that the increase in vehicular traffic will lead to the death of great American cities.

However, the invasion of a vehicular motor car in an urban landscape has provoked different views and debates. To some extreme, social activist, spectators and theorist such as Appleyard (1969),Jacobs (1961), Ozzie (2012), Urry (2008), Alvord (2000), Crawford (2000) & (2009) and many more forming a car-free movement mainly from urban design or urban planning and together sharing a belief that the automobile disrupt and decline the qualities of street life. Therefore automobiles should be minimised if not eliminated at all in the city (with terms such as 'a car free city and society', 'Divorcing the Car', 'free from cars' e.t.c) and also from sustainability point of view. On the other extreme, proponents of traffic engineering and transport such as Goodman (1961) who responded to a government decision in the USA to ban cars from Manhattan in 1960s. He stated that "The present situation is intolerable and all other proposed solutions of it are uneconomic, disruptive, unhealthy, non-urban or impractical" (Goodman, 1961, p 304). And this is a well-known argument that the theory of free car city is very impractical and its proponents are very romantic in their approach not rational and practical because mobility is tied to the economy and functionality of specific area or city.

Even when such arguments are presented, Alison and Peter Smithson (1970) argue that it is the idea of the street, not the reality that is important. But in a context such as South Africa, where we have spatially fragmented cities and injustices, practicality might be an important consideration. In a context also where the government cannot afford to implement affordable efficient and reliable transport connecting and dispatching the fragmented city or urban areas and the sprawling suburbia.

This research is prompted by such complex urban realities presented by the current debates and theoretical narratives. And is aimed at exploring the impacts of traffic volume on the quality of street life or liveability. However, it is a re-visit and a re-assessment of Appleyard (1981) famous study of liveable streets in the capital city of South Africa, Pretoria. Appleyard (1981) measured the differences in liveability along residential streets in San Francisco, in the US that vary in levels of traffic volume, but are otherwise of the same physical character.

Appleyard (1981) study centrally focused on exploring the impacts of traffic on the quality of street life. His focus moved from the driver-pedestrian conflict of traditional approaches, to the driver-resident conflict. According to Alca Ntara De Vasconcello (2004), Appleyard saw streets as the most essential space for life and he has

envisioned several positive roles, the street as a sanctuary (a pedestrian territory), as a liveable environment, a community and neighbourhood territory, a place for play and learning, green and pleasant land and a unique historic place.

Appleyard (1981) explores the impacts of traffic on street life by using five liveability indicators and are described below:

1. **Traffic hazards**
    - It considers the danger of traffic, for instance by not following traffic regulations or excessive speeds.
2. **Stress, including noise and air pollution**
    - Noise, air pollution, trash and vibrations may be stressful for people, both in the street and at home along the streets.
3. **Levels of Social interaction**
    - Social interaction considers the friendliness of the street, and the number of friends and acquaintances people possess.
4. **Privacy and home territory extent**
    - It Considers whether inhabitants feel they have sufficient privacy, and whether they have feelings of stewardship over their streets.
5. **Environmental awareness**
    - Environmental awareness is about how well residents know their own street. Whether they are aware of their surroundings.

Appleyard (1981) findings revealed that all five liveability indicators were found to correlate inversely with traffic volume. Danger, noise, vibrations, air pollution, inconvenience, and intrusions on activities and home life increased with traffic volume. One of his key results shows the level of social interaction on three streets. Lines display that residents of the light traffic street had three times as many local friends and acquaintances compared to those on heavy traffic streets. And he concluded by stating that "the street has always been the scene of this conflict, between resident and traveller, between street life and the threat of traffic" (Appleyard, 1981, p.1). Suggesting an inherent conflict between accessibility and environment.

1.1.1. Traffic situation in a local context

The results of Appleyard's study have been discussed and used by many generations of transport, planning and urban design professionals across the globe (Alca Ntara De

Vasconcello, 2004). Yet, of interest is whether his findings are also valid in a South African context, in a city like Pretoria using the same methodology as Appleyard`s. Measuring the differences in liveability along three mixed-use streets that varies in traffic volume.

Traffic has been a critical challenge in many cities across the world, more specifically traffic congestion. It engenders a range of undesirable consequences that include negative social and economic impacts and environmental pollution (Kumar Das & Keetse, 2016). Many South African cities suffer from this challenge, traffic congestion in and around the central business districts (CBD) of South Africa cities is a major challenge that has resulted in impeding vehicular flow, pollution, causing vehicular and pedestrian conflicts, escalating travel time and frequent vehicular crashes and road fatalities(Chakwizira, 2007).

The capital city of South Africa, Pretoria, now called Tshwane is a typical example. Pretoria is a sprawling and yet a spatially fragmented city with a dual transport system. Malala (2019) poetically narrated it by stating that nearly 150 years after its formation, this sprawling metropolis is still scarred by the sins of its genesis. It consist of a car-based system in the most developed areas, where automobile use is almost compulsory, a semi-managed system in the poorest areas , where people move through transport modes such as walking, cycling, bus etc.(Chakwizira, 2007). In such areas transport is either by way of commuter trains that serve limited areas of connecting Townships, minibus taxis, which is a dominating transport mode and industry or by state subsidized bus companies such as Putco. (Chakwizira, 2007). It is an ongoing argument that such an urban reality is a consequence of modernist planning and apartheid spatial planning. During apartheid era, black townships such as Soshanguve were segregated from the CBD and the surrounding white suburbs as an explicit strategy to distance the black population from places of opportunity and as well to be able to control their movement (Kumar Das & Keetse, 2016).

Chakwizira (2007) notes that 27 years later, in the post-apartheid era, the legacy still has a significant influence on the current configuration of the city and services. Huge volumes of people of different classes from different places commute to and from the city every day to access different opportunities. The vast majority being the working class, traveling distances every day from the separated Townships to the city centre for social and economic opportunities. Even when Malala (2019) and Chakwizira

(2007) has argued that their trips are shared between the existing metro rail system, bus systems and bus companies, the minibus taxis and private vehicles, it has become evident that the majority share is in vehicular mode, hence a rapidly increasing traffic volumes on the streets of the city.

1.1.2. Why re-visit Appleyard`s liveable street study in Pretoria

As much as it can be easily depicted that traffic volumes have negative impacts on the wellbeing of the city, neighbourhood or a street, as Appleyard study suggests, it is very crucial to consider that different contexts might respond differently to the same urban challenge. Therefore, undertaking such a study on a South African city context, may suggest the kinds of impacts, and the extent or depth of which traffic has impacted liveability. However, it is evident that the Pretoria is not an exception, compared to other cities in the globe. The city still experiences high volumes of Traffic and congestion mainly because of the city form which is a consequence of Apartheid spatial planning and the automobile dependency and, as a result, it creates a range of undesirable consequences towards the wellbeing of the city and street life.

Given such a complex challenge the city of Pretoria is facing, it might be useful to collect empirical evidence of the effects of traffic volume on urban liveability as a contribution to an ongoing theoretical debates and policy making, in the built environment. But more specifically Appleyard study might contribute to more awareness and measure the extent of the impacts of motorized traffic to the public health and the general wellbeing of the urban citizens in Pretoria. Therefore this study seeks to make the impacts visible and context relevant.

1.1.3. A comparison between Pretoria Case-study and San Francisco

A comparison between Pretoria and San Francisco (Appleyard's study site) may not sound logical, since indeed both cities are different, then and now. They differ in their geographic location, size and form, densities, economic position, land use character and other differences. For example, according to STATS SA (2011) Pretoria have a population of 2.9 million and a population density of 464/km2 whereas USCB (2021) recorded a population of 815 201 and a population density of 6 710/km2 for San Francisco City. Appleyard's study was based in a low-density residential neighbourhood and this study will based in the CBD of Pretoria along three streets, which are Church, Pretorius and Nana-Sita. The CBD selection was critical for

consistency, with Appleyard study. The best streets for the study were located at the CBD rather than a residential neighbourhood such as Arcadia or Sunnyside. These are streets characterised by pedestrian activity, different traffic volumes (High, Moderate and low), had consistent densities and character, similar land uses along the street with residential use being the predominant one and they were in close proximity distances.

However, other aspects of street environment such as accessibility and safety had to be taken into consideration in order to undertake a thorough study and be able to complete on time. The selection of streets was critical based on traffic volume and a similar street character to keep the study consistent to Appleyard`s. The selection methodology is discussed in detail on research methods chapter.

1.2. Problem Statement

This research seeks to apply an existing research study of Donald Appleyard's (1981) liveable streets on a different context, from where it was initially used. There hasn't been any development planning and urban design literature or studies on a re-assessment of Donald Appleyard`s (1981) study in the global south, specifically a re-assessment in South African cities. The existing study is seen as a valuable research tool and it has become a famous and useful base for traffic impacts assessments in development planning literature across the globe. Therefore the absence of literature that uses Donald Appleyard's (1981) traffic assessments study in the global south is the gap this research aim to address. But furthermore invasion of a vehicular motor car in an urban landscape has prompt the need for a traffic impact assessments to discover the impacts of traffic volume on liveability in in cities such as Pretoria.

1.3. Aim and objectives

The research aims to explore the impacts of traffic on the quality of street life (liveability) in the context of Pretoria, between Church Street, Pretorius Street and Nana Sita Street. The objective of the research is to collect empirical evidence of the effects of traffic volume on urban liveability through user perceptions, mapping and observations, as a contribution to an ongoing theoretical debates and policy making, in the built environment. Through this research I hope to contribute to more awareness and measure the extent of the impacts of motorized traffic to the public health and the general wellbeing of the urban citizens in Pretoria and to make impacts visible.

1.4. Research Question and Sub-questions

What are the impacts of traffic volume on the quality of street life in Pretoria?

Appleyard found three highly similar parallel streets for his study. The only changing variable being traffic volume. Therefore this research question is set to explore the relationship between the changes in traffic volume and the changes in the quality of street life or level of liveability, using indicators to measure the changes.

- What is the relationship between traffic volume and pedestrian activity?
- Based on user perception, what are other variables influencing liveability in Pretoria?
- What are the invisible impacts of high traffic volumes to residents?

1.5. Outline of chapters

- **Chapter 1**: **Introduction**. This chapter introduces the research and will include background information to the study, the problem statement, aims and objectives, the research question and sub-questions.

- **Chapter 2**: **Research Methods**. This chapter outlines the research instruments deployed in the study and contextualises the case study.

- **Chapter 3**: **Literature Review and Conceptual Framework**. This chapter contextualises the study against a backdrop of literature on the global Traffic Situation in Urban Contexts, liveability and its measures and lastly the impacts of traffic on the liveability of streets and cities.

- **Chapter 4**: **Contextualising the city of Tshwane.** This chapter contextualise the city of Tshwane in terms of its spatial form, traffic and travel patterns. It further discuss policies relating to traffic and liveability.

- **Chapter 5**: **Descriptive research findings.** This chapter presents research findings and attempt to answer the main research question.

- **Chapter 6**: **Analyses of findings.** In attempt to answer the other two research questions, this chapter analyses the research findings based on the conceptual framework.

— **Chapter 7**: **Conclusion and implications for Development Planning.** This chapter presents the research overview and its implications and areas of further research.

Chapter Two: Research Methods

This chapter of the research gives an outline of the study area, research approach and tools used to carry out the research. Selecting streets with a similar character and appearances, yet with different traffic volumes is vital for the study. The chapter will firstly a method is distinguished to find appropriate streets, then the street selection process follows afterwards, in which three streets are selected. Furthermore the chapter introduces four research tools, namely; Semi-structured interviews, mapping and counting and observations of the physical environment. And lastly the chapter describes ethics consideration.

2.1. Street selection

How to correctly select streets that have the same character and appearance, but have different levels of traffic volume in Pretoria that maintains consistency to Appleyard (1981) study? To come to an answer to this question the street selection methodology and selection process are first discussed. The methodology describes how streets were selected on Appleyard (1981) study whereas the street selection process will describe how it was performed on this study.

2.1.1. Street Selection Methodology

Appleyard (1981) was aimed at finding streets that were identical in appearance, yet traffic volume being a changing or different variable. The street were firstly selected based on the hierarchy in traffic volume and then in addition selected based on their similarities. Therefore to have identical streets, the streets are selected based on their similarities in; street environment, traffic characteristic, resident`s characteristics and the neighbourhood characteristics as shown in summary on **table 1** below. However Sanders (2013) argues that the table 2 is guide and an overview in which streets can be categorised in their similarities, but in practise, the focus for the selection streets is consistent with the following characteristics, such as Land-use diversity, the presence of trees or plantations, sidewalk width, housing types, road width and others. And in addition, the traffic volume is supposed to differ considerably at selected streets and selected from the same neighbourhood as opposed to the theoretical overview.

Criteria	Street environment	Residential Characteristics	Traffic Characteristics	Neighbourhood characteristics
Characteristics	Road width Sidewalk Width Houses Trees Mixed land-use Setbacks Moving lanes Surface Lighting Pedestrian area Bus stop Parking Area	Median income Ethnicity Gender Age Children Occupancy Education Home ownership marital status	Traffic Volume Traffic composition Traffic direction	Distance to the city centre Distance too food stores within or outside urban core

***Table 1**: A theoretical overview of street selection criteria` and characteristics (Sanders, 2013, p.19).*

2.1.2. Street Selection Process

Selecting streets with a relative consistent sidewalk width, density and housing type, level of greenery and land-use diversity in one neighbourhood appeared relatively simple. However, for most of the potential study areas, an increase in traffic volume is accompanied by increasing roadway width and changing land-use diversity and other potential streets with little traffic, space is mostly occupied by street furniture, terraces, street vendors, parked vehicles and wide sidewalk width, whereas at the heavy traffic streets aa lot of space is generally allocated for traffic volume.

Therefore my criteria was arranged in the following manner; firstly I considered different traffic volumes, then a similar balance land-use diversity, but predominantly residential use, densities, street activity, vegetation and street width(Road & sidewalk width). But the other consideration was distance in between these streets, that they shouldn't be far apart to keep the fieldwork practical and to have all streets in the same neighbourhood or context. Three streets where selected and categorised into Light Traffic Street(2 cars passing /minute), Moderate(32 cars passing/minute)and heavy traffic (56 cars passing/minute)street in the central business district (CBD) of Pretoria. From the North Church Street was selected as light traffic street, followed by Pretorius Street being moderate traffic street and Nana Sita Street being heavy traffic street.

2.2. Study Area



***Figure 1**: A location map showing research case-study, which are three streets with different traffic Volumes. The street names are Church Street, Pretorius, and Nana-Sita Street (Tswai, 2021).*

This research will be assessing impacts the impacts of traffic on the quality of street life (liveability) in the context of Pretoria, between Church Street, Pretorius Street and Nana Sita Street. The three streets are almost identical with only one changing variable, which is traffic Volume. Church Street is categorised as a light traffic street, whereas Pretorius Street been categorised as a moderate traffic volume street and lastly Nana-Sita being a heavy traffic volume street .This section of the study will describe the street environment of each street including street dimension (road reserve width, sidewalk width, block width and setbacks), traffic volume, land-use and density by the use of maps and sectional elevations and further more discuss their environmental differences. For the purpose of this study, the streets are only measured between Paul Kruger Street to Prinsloo Street. This streets are anchored between church square and State Theatre.

2.2.1. Description of Streets

I. Light Traffic volume Street : Church Street

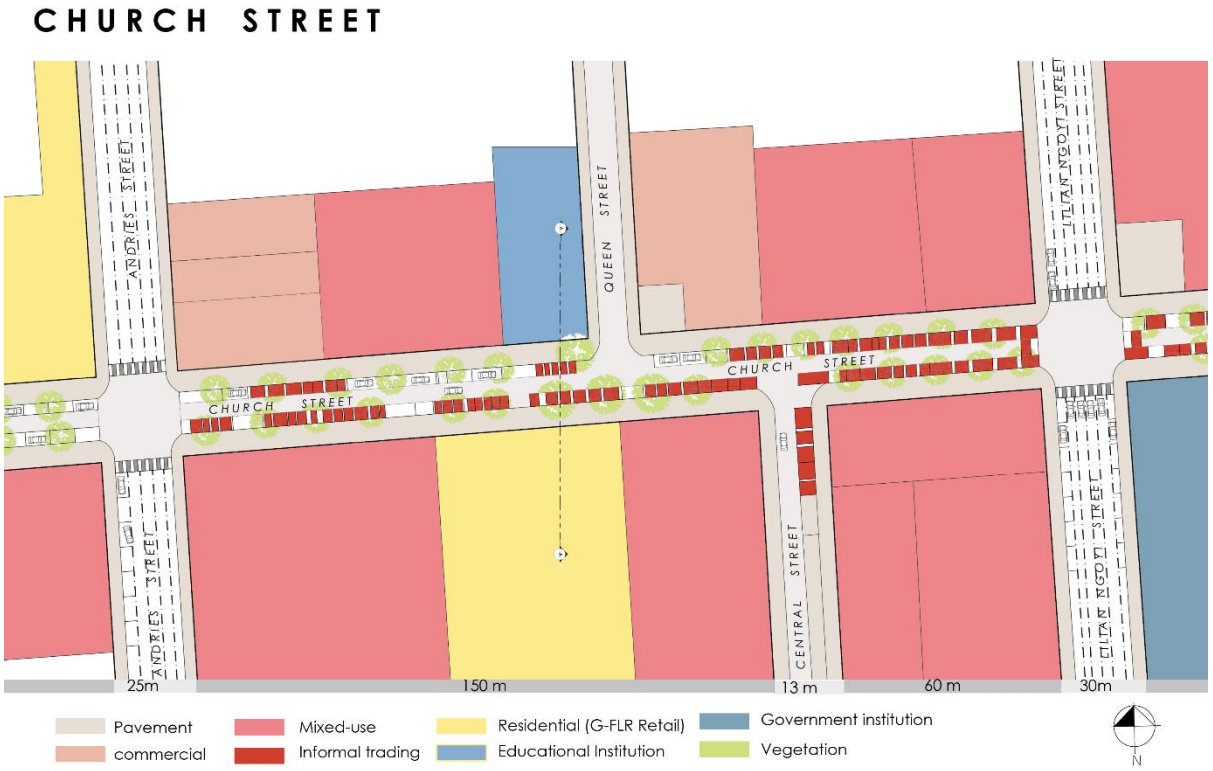


***Figure 2**: Church Street map indicating street form, block size and land uses. (Drawn by Tswai, 2021).*

- Land-use & block size

The street consist of different land-uses as shown on **figure 2**. This includes commercial offices, commercial banks, government departmental offices and institutions, recreational park, a retail square ,a theatre, educational facilities, residential flats, fast food restaurants, grocery and clothing stores, small scale shopping centre. The street is anchored by Church Square, which is a recreational park and Sammy Marks square which is a retail square and state theatre. There is organised space along the street for informal trading taking place on the street and connecting this anchors. Complementing this activities and land-use patterns, there is a high presence of ground floor retail in most buildings along the street. The size of blocks along the street are reduced by pedestrian streets connecting the street that are parallel to Church

Street. Due to the presence of different land uses and street trading, the street is predominantly characterised by pedestrian activity and interactions.

- Traffic volume & streetscape

Through observations and traffic counting, Church Street has a light traffic volume with an average of two cars passing through it per minute. Street access to cars is only limited to delivery vehicles, emergency vehicles, Cash-in transit vehicles, private cars of people working on the street and very limited parking. Referring to **figure 3**, the road width of the street is about 6 meters wide and the cars share the space with pedestrians even when there is a 10 meters sidewalks as it can be seen on figure 4. The majority of the road reserves is being used by pedestrians and is paved, and as a result there is slow moving traffic. As figure 4 suggests, there are trees on the street and a street canopy, shading the walk area and street benches. There is also street lighting and bollards to prevent cars from using sidewalks. The street has active ground floors with a transparent edge condition of buildings and this has as well encourages activity and interactions on the street.

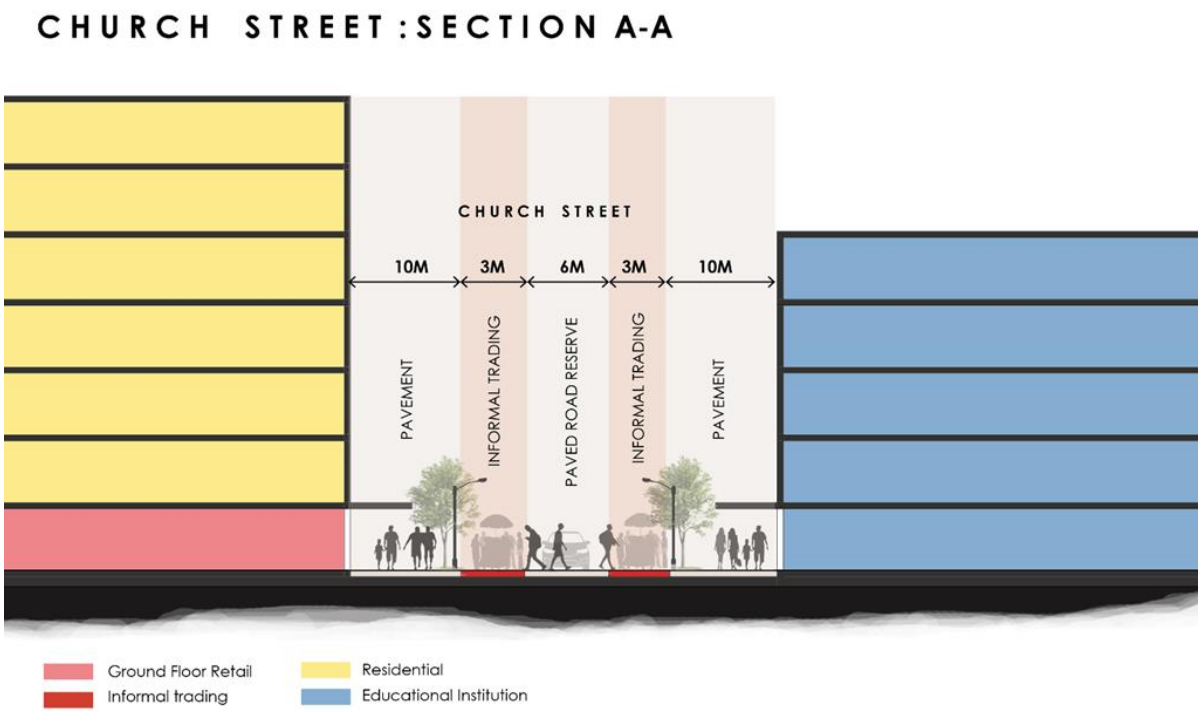


***Figure 3**: a sectional elevation A-A of Church street. (Drawn by Tswai, 2021).*



***Figure 4**: A picture of Church Street illustrating its physical character. Picture taken by (Mashishi, 2021).*

II. Moderate Traffic volume Street : Pretorius Street

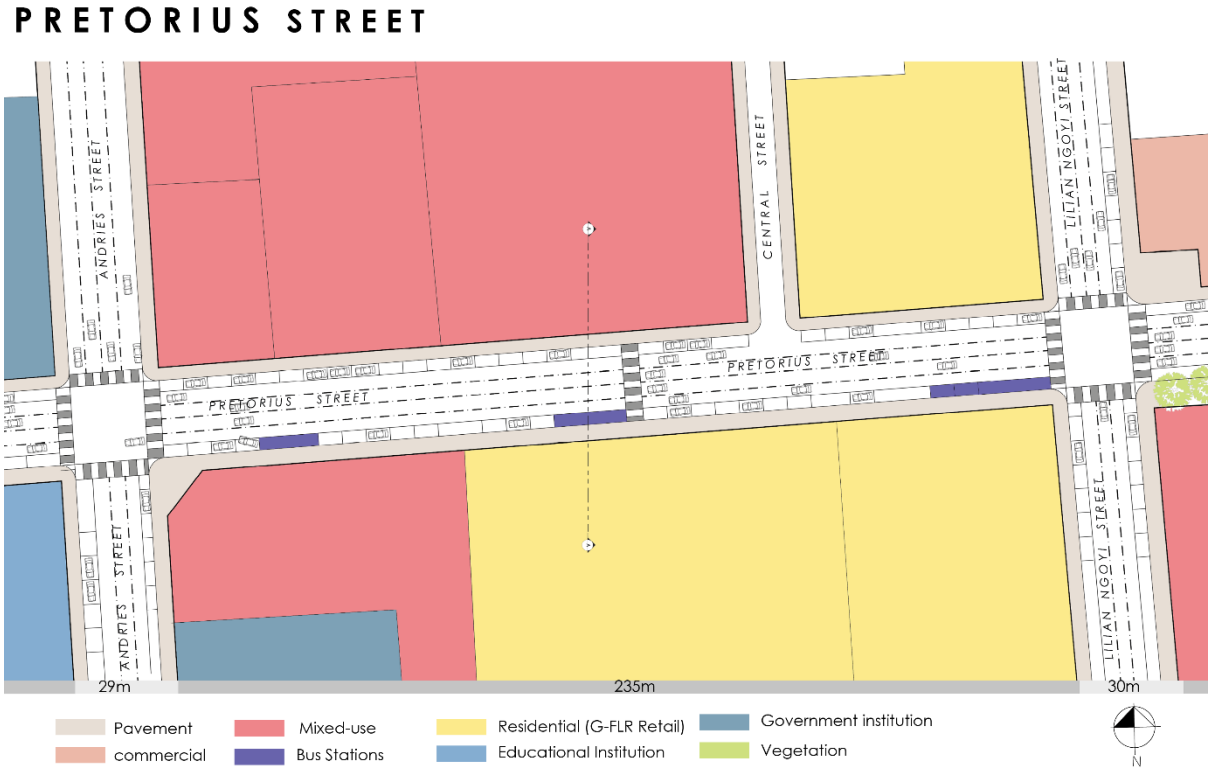


***Figure 5**: The map indicates street form, block size and land uses on Pretorius Street. (Drawn by Tswai, 2021).*

- Land-use & block size

Referring to **figure 5** and **figure 6**, the street has a diverse land-use character, including theatres, government department's offices, commercial banks, a lot of fast food restaurants, clothing retailers, clinics and medical surgeries, Residential flats, supermarkets and educational facilities. Similar to Church Street, Pretorius Street is characterised by high density buildings, with active ground floors, which to some extent has attracted passive pedestrian activity. There are also informal economic activities such as street trading, cars washing, people who assist street users with carrying their groceries, car guards and parking assistants. The sizes of the blocks along the street are also reduced by Central Street and Centre Walk shopping centre. There is high volume of pedestrian movement along the street.

- Traffic volume & streetscape

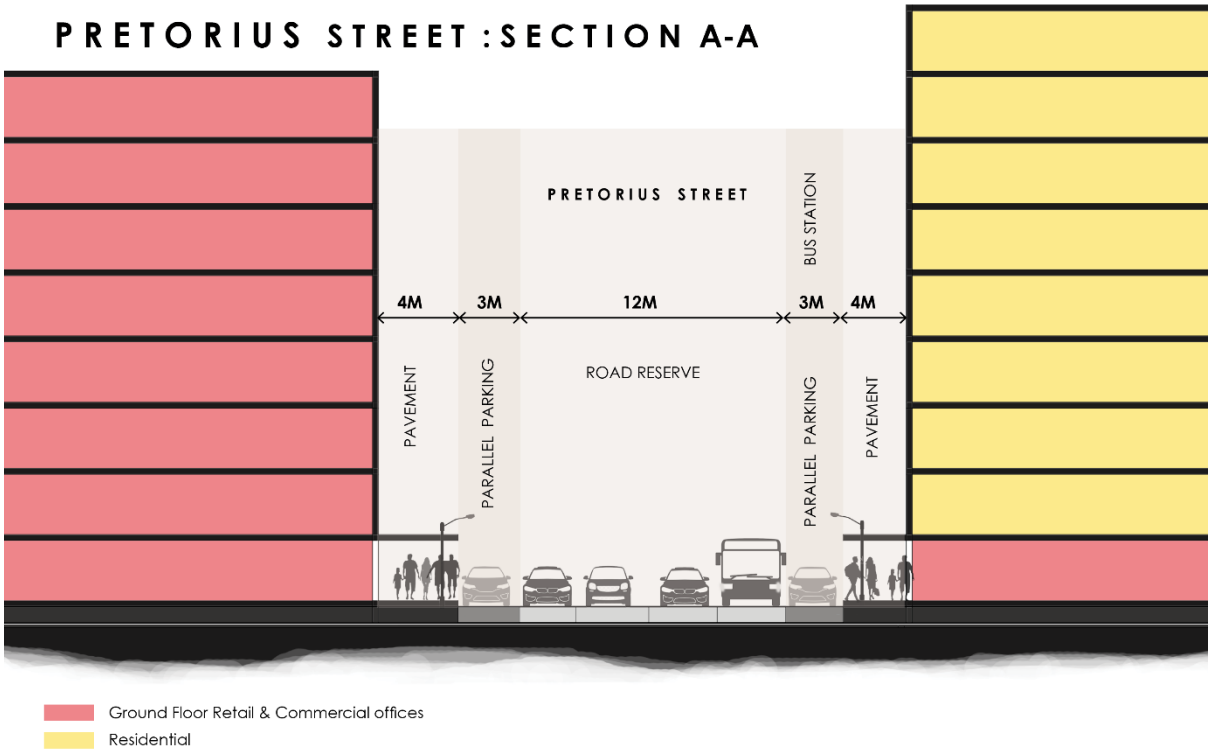


Figure 6: *A sectional elevation A-A of Pretorius street. (Drawn by Tswai, 2021).*

The street has moderate traffic volume with about 32 cars passing through it per minute. As it can be seen on **figure 6** and **figure 7,** the street is a 4 lane street, with traffic flowing at one direction, from the east to the west of Pretoria. The street has parallel parking, bus stations and loading zones, with the whole road width

amounting to 18 metres wide. The sidewalks of the street are approximately 4 metres wide, with a presence of street trading and car wash activities taking place on them. This obstruct pedestrian movement, but encourages pedestrian activity and interaction.

Traffic is moving at an average speed of 80km/h on the street, the majority of vehicles are taxis, buses and private cars. There is a lot of taxi hooting and reckless driving. The street has a number of trees which also shade parts of sidewalks and parallel parking. There is lack of street furniture and street lighting.

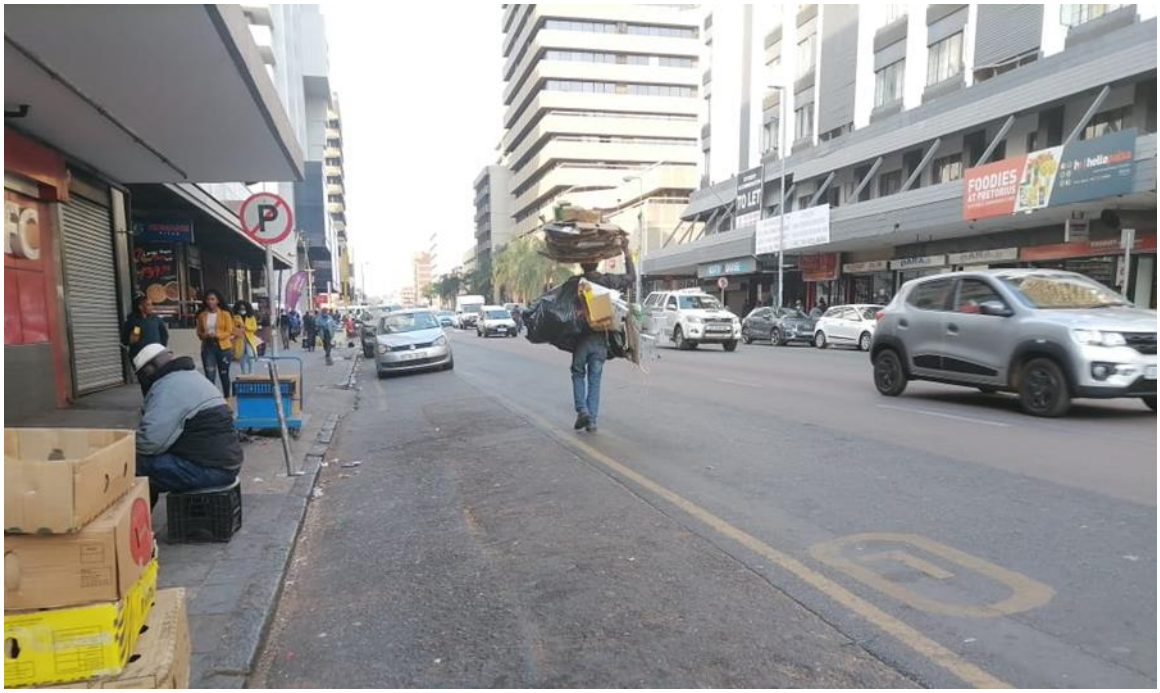


***Figure 7**: A picture of Pretorius illustrating its physical character. Picture taken by (Mashishi, 2021).*

III. Heavy Traffic volume Street : Nana-Sita Street



***Figure 8**: The map indicates street form, block size and land uses on Nana-Sita Street. (Drawn by Tswai, 2021).*

- Land-use & block size

The street is characterised by diverse land-use activity but at some part of the street there are vacant sites, where construction is taking place as shown on **figure 8**. There some of the uses include churches, residential flats, parking sites, vet clinics, educational facilities, library, unoccupied buildings and museums. Pedestrian movement is concentrated only on intersections and bus stations on the street. It is highly difficult to cross the street as a pedestrian because of confusing traffic lights and high volume of moving traffic. The street is characterised by high densities buildings and with long blocks measuring to 235 metres.

- Traffic volume & streetscape

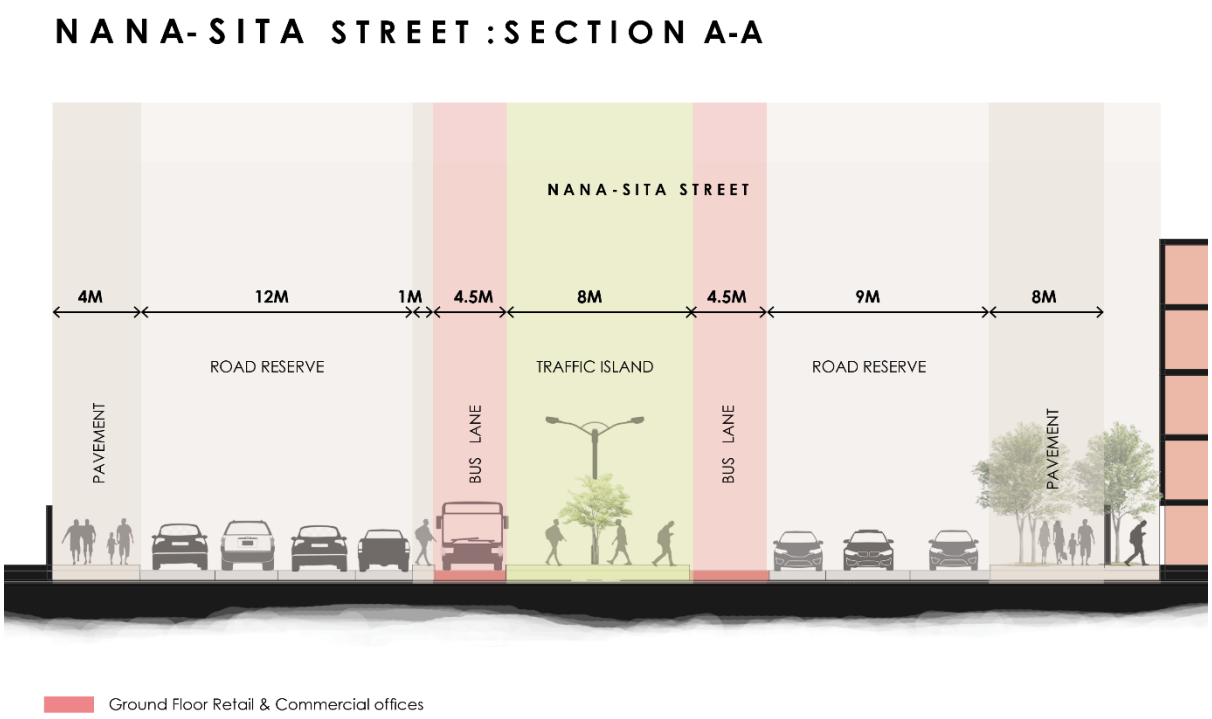


***Figure 9**: A sectional elevation A-A of Nana-Sita. (Drawn by Tswai, 2021).*



***Figure 10**: A picture of Nana Sita in Pretoria central, illustrating its physical character. Picture taken by (Mashishi, 2021).*

The street is categorised as a heavy traffic volume street, with about 56 cars passing through it minute. It is a 6 lane street, with 3 lanes per direction, from the

east to the west of Pretoria (refer to **figure 8, 9 & 10**). And 2 bus lanes flowing at opposite directions and a traffic island with vegetation. The island dimension change to accommodate bus stations along the street. Sidewalks on this street are 8 metres and 4 metres wide adjacent to solid security walls. In all the road width is approximately 29 metres wide excluding a 12 metre pedestrian walk-ways. There is a lack of pedestrian movement and activity and in a contrary, the street experience a high traffic activity and movement.

2.2.2. Environmental Difference between Streets

The heavy traffic volume street are crowded with traffic, chaotic for pedestrians, with less pedestrian activity and they felt unsafe and had a lot of traffic noise. It had a large amount of road width relatively to sidewalks. They have less business activity happening on ground floors as opposed to low or light traffic Volume Street where the ground floors are very active and transparent, and there are business interactions taking place and as result social interaction take place as well. Heavy traffic Volume Street have more lanes, and traffic travels at high speed and they don't have street furniture and street trading.

2.3. Type of Research required

Employing the right methods and techniques to further investigate the subject matter is crucial since it determines findings and outcomes. According to Abernethy et al (2014) a research that doesn't represent a single truth, but rather document people`s experiences and perceptions can be referred to as being qualitative. But as well, qualitative research seeks to answer an open-ended research question. Therefore, this research type became an appropriate type to use since this study seeks to understand the impacts of traffic volume on perceived liveability of residents of Pretoria. And it will allowed different views and experiences about the relationships between traffic volumes and liveability, but most importantly it has exposed realities that exist on the ground.

2.4. Research Tools

Both Appleyard "Liveable streets" study and this research used Semi-structured interviews as the main research tool. But also employed other two research tools namely; mapping and traffic counting and observation of the physical environment.

2.4.1. Semi-structured Interviews

The value of this method is founded on the belief that participants are individuals who are actively construct their social worlds and can communicate insight about it verbally and in action (Denzin & Lincoln, 2000). As the main research tool, this research is aimed at interviewing the following groups per street;

- At least 5 Residents per street
- At least 5 street vendors per street
- At least 2 visiting street users(pedestrians)
- At least 2 visiting street users (Drivers)

2.4.2. Mapping & Counting

According to Conceição et al (2017), Participant-generated maps are created via interviews, groups, and open-ended questionnaires to refine data, integrate and measure knowledge, identify participants' perceptions, and construct a framework. Researcher-generated maps are created to collect, reduce, and organise data. Mapping was used to collect spatial data and it was also used as a method to represent the research data collected. Traffic counting was used as measure to categories streets.

2.4.3. Observation of the physical environment

Participant observation is defined by Bogdan (1973: 303) as a method which involves the researcher spending a vast amount of time in site of enquiry. These observations are then recorded as field notes. This method allows the researcher to immerse themselves into the culture and every day practices of the study area, thus facilitating the opportunity to provide deeper accounts of the practices in the area (Jupp, 2006: 215).In this research, observation were used to identify street characteristics, pedestrian activity and traffic activity.

2.5. Ethical consideration

I only started with field work after I have obtained ethical clearance from the school of Architecture and Planning`s ethics committee. This means that my field work was guided by ethical principles which includes informed consent, respect and honestly and I need to;

- Request for a formal consent for all the participants

- Maintain confidentiality and anonymity of participants where necessary
- Exercise voluntary participation
- Make sure that participants are aware that they have the right to stop the interview anytime when they don't feel comfortable.
- Not offer any form of compensation to the participants

Chapter Three: Literature Review and Conceptual Framework

This chapter aims to explore the brief history, definitions, proponents, key debates and key issues on the theoretical concept drawn from research questions. It will explore and contextualise the traffic situation in urban areas in broad, covering traffic congestion, volume, speed, composition and traffic infrastructure. It will further discuss liveability and five key indicators to measure liveability from Donald Appleyard`s study. There will be a further discussion on other theories on liveability .This includes theories on walkability, social interactions, economic activities, street safety and security and the quality of Street environment. The last section of the literature will cover the impacts of traffic on streets and cities. Exploring social, economic, environmental and physical impacts.

3.1. Traffic Situation in Urban Context

Reflecting back, the dirty, overcrowded and often dangerous streets of the industrial revolution, the traditional street were centres of public life, more democratic on the fact that they were accessible to and used by all types of people (Trancik, 1986). According to Trancik (1986) and Francis (2016), the movement of suburbia (garden city movement) in the fifties and sixties drew industry and people to the periphery, previously viable downtown land became desert. And it was not only the movement of suburbia which has created such circumstances in an urban landscape, Francis (2016) mentioned that the decline of the street culture in American and European cities was also as the result of the rise of mass transit, followed by increasing speeds in transportation and the automobile.

The existence and mass production of the automobile should be critically analysed, because according to Martin (2000), Trancik (1986), Francis (2016), Jacobs (1961) and Shamsuddin & Ujang (2008) the automobile did not only provide means for people to move away from the dirty industrial city to green suburbs, but it also took people away from street experience.

But other than the focus on the modernist urban planners, Le Corbusier and Howard, traffic engineering also came into place, with their concerns for easy traffic

movement, this developed into an influential tool to shape the urban streets and even today they dominate in decision making. This as the result has declined the desirability of urban streets (Francis, 2016).

The motor vehicle enabled an individual a potent element of independence in terms of locations they could reach and the times they chose to do so. Such independence and the accessibility it afforded had great prospect for opportunity in economic and social terms (Lyons, 2014, 3). Gewald (2005) stated that the powerful effects of this new individual mobility were so great that even when the disadvantages of the car became apparent, such as safety concerns and problems of road congestion, they were generally perceived as the unfortunate price that had to be paid for the great advantages bestowed by the car, rather than a reason to fundamentally restrict and regulate car use and ownership.

Similarly, Gewald (2005) and Dudley (2014) mentioned that over time the mutually reinforcing systems of car manufacture, the development of mass ownership and the supply and infrastructure industries supporting them, such as fuel, vehicle maintenance and roads, became enormously powerful economic forces in terms of employment, use of resources and a source of tax revenues. In turn, this gave the spectrum of motor industries influential political power in that, although governments might seek to regulate the industry, they had little choice but to accommodate it and so generally promote the further development of the "golden" connection between the motor car and the desire of the individual for a means of personal, comfortable and flexible mobility.

The increasing demand, dependency and need for the automobile, has led to many cities facing the challenge of traffic congestion. Traffic congestion is when the number of vehicles trying to use a specific road link reaches or exceeds the capacity for which the traffic network was designed, and this situation induces increases in travel time, which result in traffic delays. However, congestion is a very complex phenomenon that generates impacts at different scales: these include first-order or micro-scale impacts to individuals on the vehicles, such as traffic delays, and second-order or macro-scale impacts which affect activities and/or the regional economy (Sweet, 2011).

Recent studies have addressed the relationship between traffic congestion and the economy, and have produced differing evidence regarding the former's effects on

regional economic growth (Marshall and Dumbaugh 2020). On the one hand, several studies have empirically demonstrated that severe traffic congestion decreases employment and income growth (Hymel, 2009; Sweet, 2014). Moreover, some of these studies have shown that congestion is detrimental not only to firms, but also to household income (Jin and Rafferty 2017), and that reducing traffic congestion will provide economic benefits in terms of increasing employment and income growth.

However, Marshall and Dumbaugh (2020) argued that traffic congestion can be seen as sign for economic success as well. Taylor (2002) was of the same view, that Long queues at restaurants or theatre box offices are seen as signs of success. Asking the rhetoric question, why is traffic congestion seen as failure? He further argued that traffic congestion is an inevitable by-product of vibrant and Successful cities view the "congestion problem" in a different light.

3.2. Donald Appleyard study

According Appleyard (1981) traffic is much more widespread problem than crime, although crime captures the media headlines. He embarked on a study in 1961, in San Francisco aiming to explore what it is like to live on streets with different kinds of traffic, the effects of traffic on residential street life and as well to search ways in which streets can be made more safe and liveable. Three streets namely; Franklin, Gough, and Octavia were selected in the Pilot Study because they were identical in appearance, yet quite different in volume of traffic (Appleyard, 1981). They were categorised as heavy, medium and light traffic volume streets respectfully.

Donald Appleyard study drew on two sources of information, twelve resident's interviews per street and from observations of pedestrian and traffic activity on the street. And according to Appleyard (1981), five liveability indicators were explored in the interview, including traffic hazard, stress; including noise and air pollution, privacy and sense of territory, social interaction and environmental awareness. However, Appleyard (1981) findings revealed that all five liveability indicators were found to correlate inversely with traffic volume. This means that a low traffic volume increases the liveability or quality of street life in San Francisco.

3.2.1. Donald Appleyard Liveability indicators

I. Traffic Hazard

According to Appleyard (1981), traffic hazard considers the danger of moving traffic, for instance by when motorist do not follow traffic regulations or travel at excessive speeds. His study revealed that traffic danger was a matter of concern on all three streets, especially on Heavy Street. Excessive speeds were frequently mentioned as being dangerous and as a results several residents wanted the speed on Heavy Street reduced. In terms of light traffic Volume Street, the residents considered the street safe.

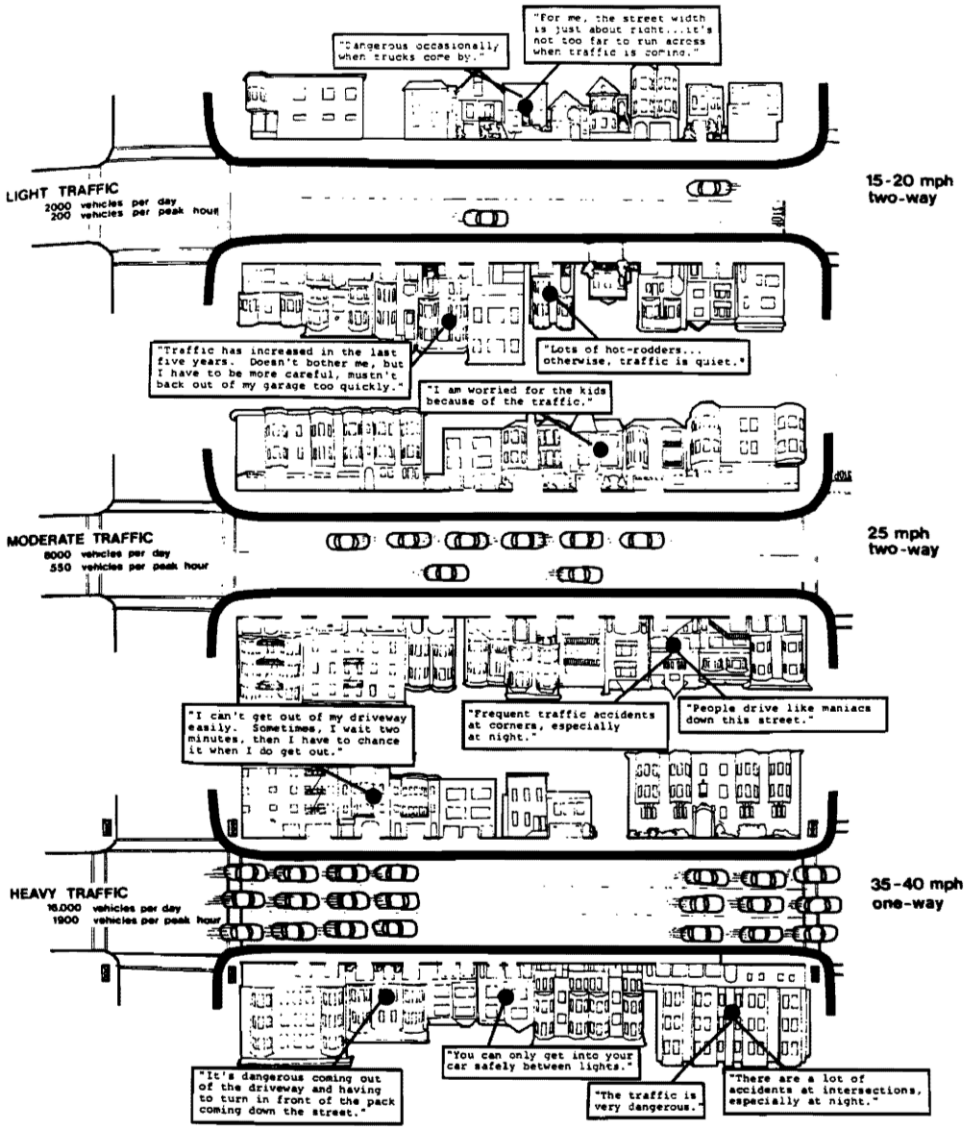


FIGURE 1.
San Francisco. Traffic hazard on three streets

***Figure 11**: Traffic hazards occurring on the three streets of San Francisco (adapted from Appleyard, 1981, p283).*

II. Stress, including noise and air pollution

Noise, air pollution, trash and vibrations may be stressful for people, both in the street and at home along the streets (Appleyard, 1981). The residents complained about trash and litter, noise, fumes, dust and soot on heavy traffic Volume Street and less as traffic volume decrease.

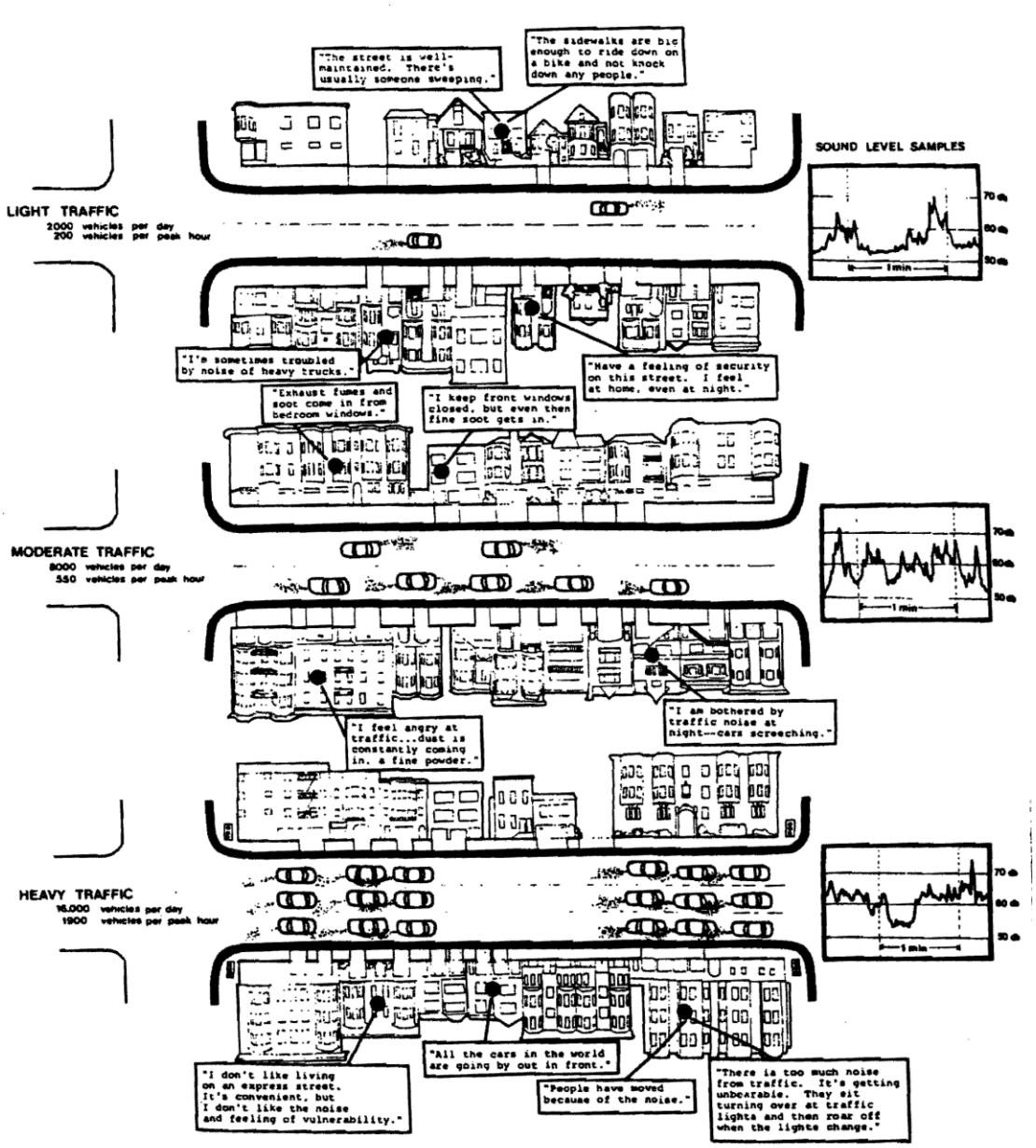


FIGURE 2.
San Francisco. Noise, stress, and pollution on three streets

***Figure 12**: Noise, stress and pollution occurring on the three streets of San Francisco (adapted from Appleyard, 1981, p284)*

III. Social Interactions (Neighbouring and visiting)

Social interaction considers the friendliness of the street, and the number of friends and acquaintances people possess. It also include places where people met.

Residents on a light traffic volume street were found to have three times as many local friends and twice as many acquaintances as those on heavy traffic volume Street. Appleyard (1981) notes that the friendliness of a light street is no doubt related to a small amount of traffic, but also due to having larger amount of people including children on the street. There was an indication of a sense of loneliness on the heavy traffic volume street, where people are afraid to use the street.

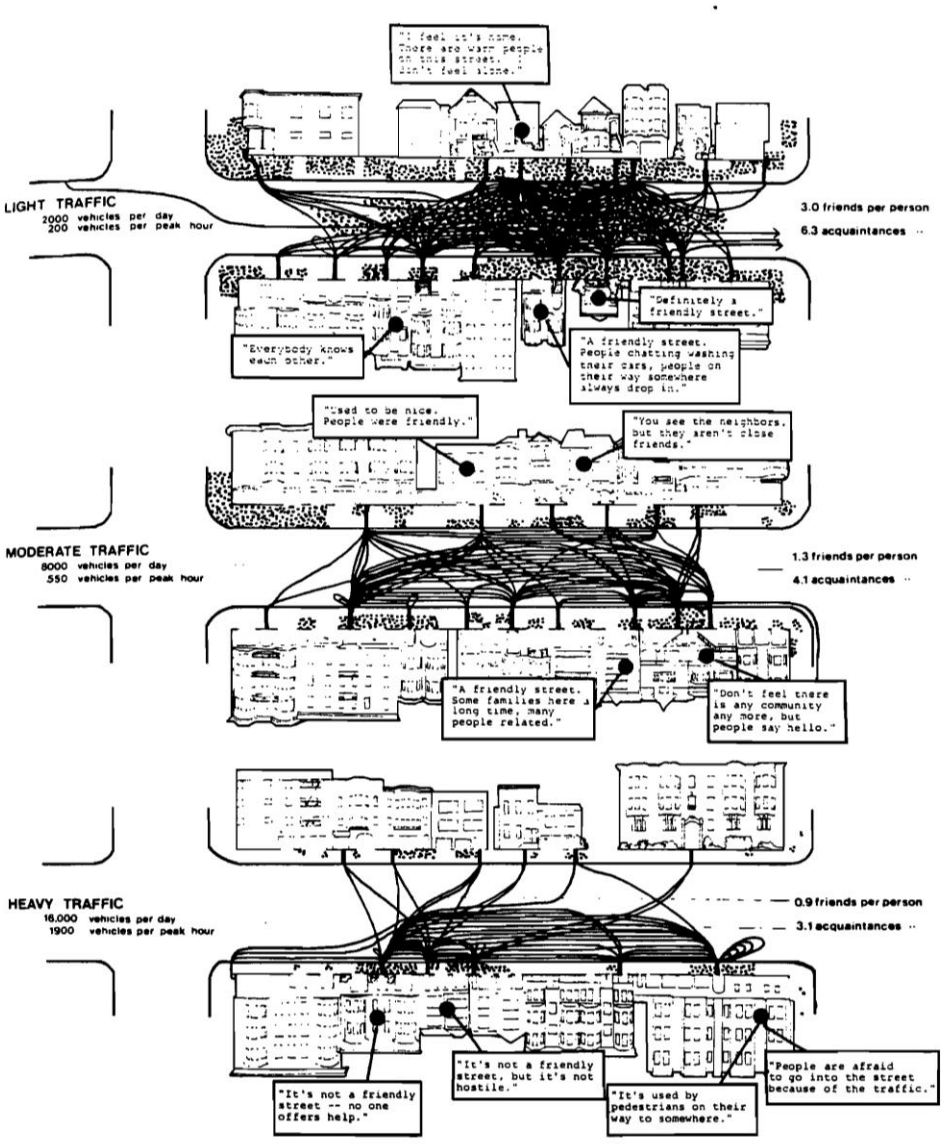


FIGURE 3.
San Francisco. Neighboring and visiting on three streets: lines show where people said they had friends or acquaintances. Dots show where people are said to gather

***Figure 13**: Social interactions occurring on the three streets of San Francisco (adapted from Appleyard, 1981, p287).*

IV. Privacy and Home Territory

It considers whether inhabitants feel they have sufficient privacy, and whether they have feelings of stewardship over their streets. Appleyard (1981) findings indicated

that residents on the light and moderate traffic volume street had a great pride for their home and street but as well they considered part of or all of the street as their territory. And they had a sense of belonging in their street. But in contrary, on heavy traffic volume street there was little peace and privacy and the residents struggled to retain some feeling of personal identity in their surroundings. Their sense of territory did not extend into the street and it was strictly confined to their apartments.

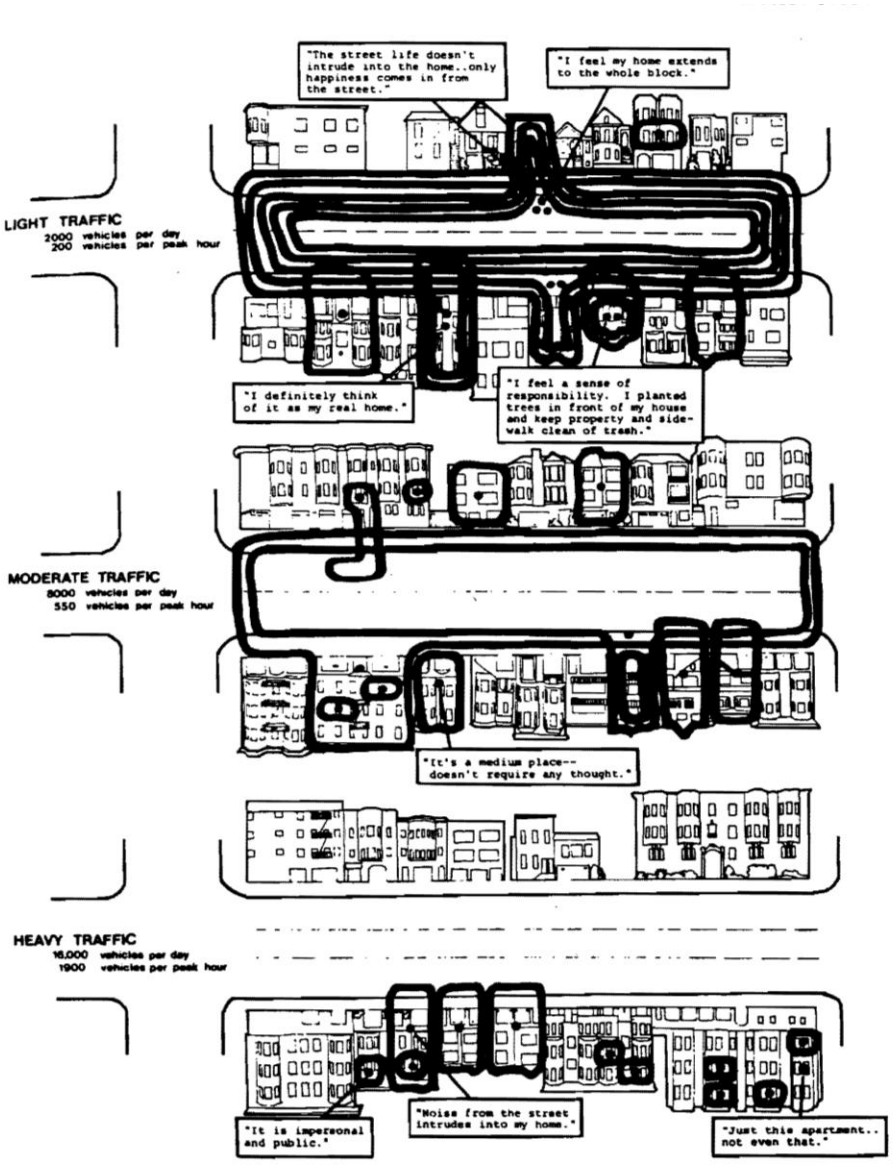


FIGURE 4.
San Francisco. Home Territory on three streets: lines show areas people indicated as their "home territory"

***Figure 14**: perception on home territory on the three streets of San Francisco (adapted from Appleyard, 1981, p289).*

V. Environmental Awareness

Environmental awareness is about how well residents know their own street. Whether they are aware of their surroundings or not (Appleyard, 1981). Residents were asked to draw a map of their street in each street, and the responses on the light traffic Volume Street and moderate traffic Volume Street were richer in content and more critical. This involved differentiation of front yards and small houses, steps, parked cars, manhole covers, telegraph poles and trees, and this was from an increased awareness of the street environment. However this decreased as traffic volume increased.

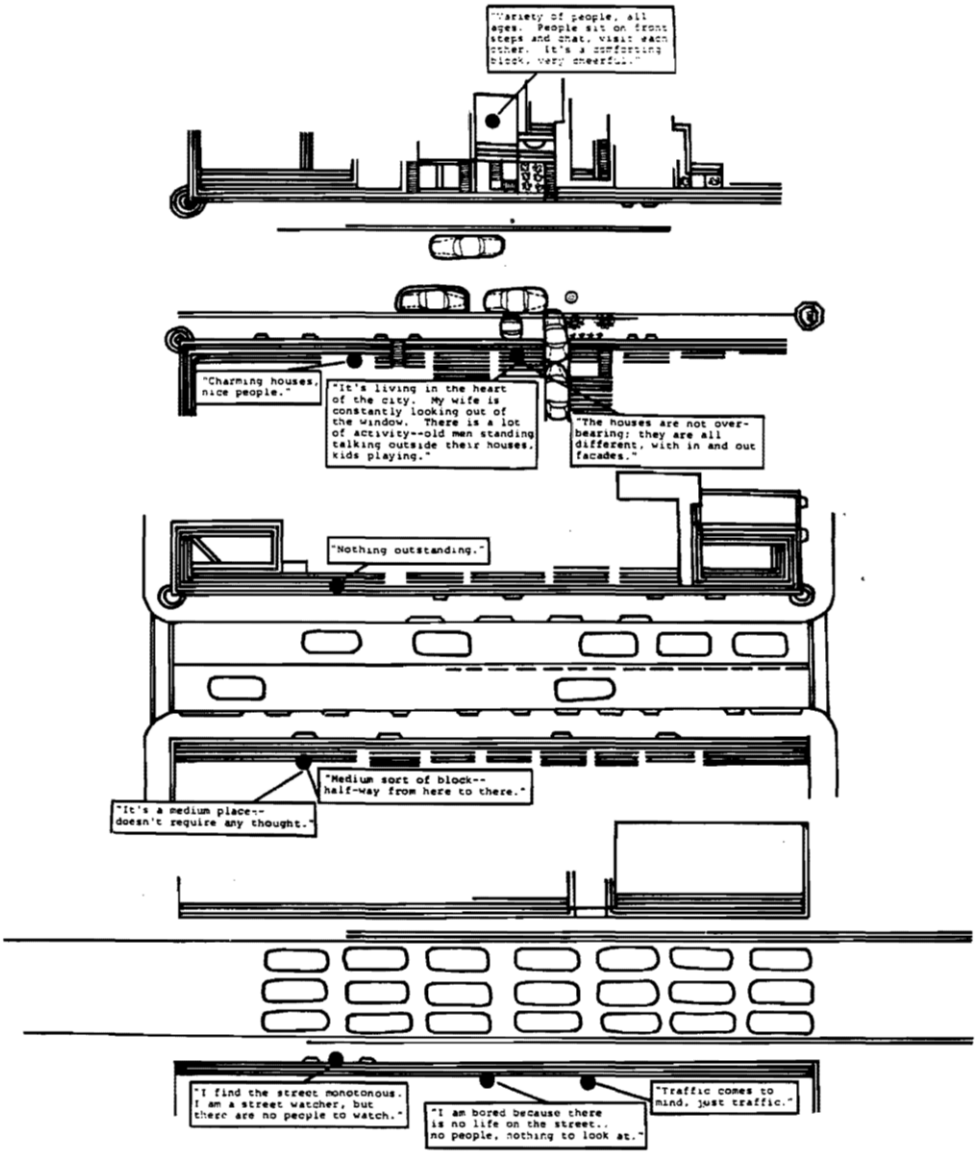


FIGURE 5.
San Francisco. Environmental awareness: composite of maps people drew of their streets. Lines indicate number of times feature was drawn by residents

***Figure 15**: Composite of maps people drew of their street to reflect how well they know or are aware of their street in San Francisco (adapted from Appleyard, 1981, p291).*

3.3. Other theories on liveability

Building on Donald Appleyard`s theoretical foundation on liveability and its indicators, this study will also highlight other theories on street liveability which is measured by the following indicators, namely:

- **Walkability**; a liveable street allows people to walk freely, safely and comfortably.
- **Social interactions/activities**; a liveable street allows people to meet and congregate, creating social relations and social connections.
- **Economic transactions/activities**; considers the economic productivity of the streets and the economic opportunities it brings and allows.
- **Safety and Security;** a liveable street is a safe street, from criminal activities, from moving traffic and as well from harsh weather.
- **Clean & health environments;** a liveable street does not pose health and environmental hazards on their users such as pollution, noise etc.

3.3.1. Walkable streets

According to Denver (2012) the availability of travel choice gives people both independence and control over their lives. Providing choice contributes to liveability by allowing people to provide for their own needs and aspirations, without dependency on others to meet their transportation needs. If people have a choice to travel independently, it encourages them to care for their own needs. This is especially true for those who don't drive, such as seniors, children, and the disabled and low income citizens. Therefore streets that comfortably accommodates different modes of transport including public, private motor vehicles and non-motorised provide choice and convenience which contribute to liveability.

3.3.2. Social interactions

A sociable street is defined as a street that is open to the public, where people are present throughout the day and week, engaged—individually or in groups—in a variety of active or passive social behaviours that are pre - dominantly stationary and sustained in nature. Such a street would have a number of people engaged in various activities while seated, lingering, or standing in it, in predominantly static or stationary activities. They are street where neighbourhood residents, visitors, workers, and people who call the street their home use the streets for myriad purposes of socializing, every

day and special shopping, dining, lingering, promenading, celebration, protest, and survival. (Tiesdell, 2007).

According to Carmona and Tiesdell (2007) outdoor activities in public spaces such as streets can be divided into three categories, each of which places very different demands on the physical environment: necessary activities, optional activities, and social activities. They describe necessary activities as those that are more or less compulsory – going to school or to work, shopping, waiting for a bus or a person, running errands, distributing mail – in other words, all activities in which those involved are to a greater or lesser degree required to participate. Whereas Carmona and Tiesdell (2007) mentioned that optional activities on the public spaces are hose pursuits that are participated in if there is a wish to do so and if time and place make it possible – are quite another matter.

These activities take place only when exterior conditions are optimal, when weather and place invite them. Before exploring social activities in detail, it is important to note that this two categories of activities when a public space is of poor quality, only strictly necessary activities will occur, but also a poor quality street, there`s a minimum necessary activates, because people will hurry to their destination

For Gehl (1989) and Carmona and Tiesdell (2007), social activities are all activities that depend on the presence of others in public spaces. Social activities on streets include children at play, greetings and conversations, people meeting, street performance, people seating outside smoking, on the balcony watching over other activities and others. These activities could also be termed "resultant" activities, because in nearly all instances they evolve from activities linked to the other two activity categories. They develop in connection with the other activities because people are in the same space, meet, pass by one another, or are merely within view.

Social activities occur spontaneously, as a direct consequence of people moving about and being in the same spaces (Carmona & Tiesdell, 2007). This implies that social activities are indirectly supported whenever necessary and optional activities are given better conditions in public spaces or streets

But when these activities are taking place, given better physical conditions Jacobs (1961) and Jacobs (1993) argued the streets become safe, comfortable, liveable, and

public and there is also a sense of community and responsibility develops. And streets become liveable spaces where people can choose to be.

3.3.3. Economic exchanges

But also Francis (2016), Jacobs (1961), Malone (2002), Prelovskaya and Levashev (2017), Southworth (2005), Gehl and Matan (2009), Miller (2007) and Shaftee (2008) described streets as places where economic exchange occurs. In most cases on streets, economic activities occur inside and outside formal retail stores and restaurants. Where people do outdoor activities such as eating and shopping (Francis, 2017). But the most significant in all cities across the globe, is the non-formal economic activities such as street vending, car washing and others. According to Anjaria (2006) Street vending offers convenient access to economical goods and services for a wide range of income groups, especially the poor and also providing opportunities of employment for the urban poor.

Well located street vending reduces trip lengths by allowing people to shop on the way to other destinations. However most cities have attempted to formalise this activities, on the basis that they occur on undignified surroundings and they also spoil the aesthetic of the city.

This indicates that streets as linear public spaces, in their best condition they promote social and economic activities, which results in making a street a liveable place. However this is not always the real conditions of streets today. The traditional street condition has changed.

3.3.4. Safety and security

According to Francis (2016) and Jacobs (1961) a safe environment minimizes exposure to vehicle accidents and other hazards, and contributes to liveability by enhancing people's sense of comfort and giving them freedom to choose to walk without any danger. Creating a safe environment requires controlling negative impacts of traffic, pollution, crime and other undesirable impacts. A safe environment also supports people choosing an alternative to the automobile and fosters public social contact, as described. According to Jacobs (1993) Safe environments also occur when there is activity on the street because there is visual surveillance (eyes on the street). But also the provision of lined trees, bollards and also curbs, create a safe and liveable street.

3.3.5. Clean and healthy street environment

Dudley (2014) mentioned that pedestrian realm cater for physical comfort, which is fundamental an element of liveability. It includes attention to human sensory experience. If an environment is physically uncomfortable and unattractive, people will choose to travel by car or choose to do only those outdoor activities that are absolutely necessary. Other desirable activities that create pedestrian places, such as window shopping, will not take place. Providing physical comfort requires considering the environment, temperature, wind, rain, sun and shade for human comfort and it also requires controlling physical nuisances such as traffic, noise and pollution and street furniture.

3.4. Impacts of traffic on the liveability of streets and cities

According to Dudley (2014), in the first half of the twentieth century, the motor car moved far beyond attaining a position as the dominant transport technology, to pervade all aspects of society. In doing so, it had profound economic, industrial, social, political, environmental and spatial impacts. And Gewald (2005) mentioned that thus by meeting a wide variety of human needs, it shaped behaviour to such a degree it changed not only the physical environment in a major way, but also people's perceptions and expectations of what was feasible in this new world of mobility, at some time ignoring the costs of it.

3.4.1. Social impacts

According to Francis (2006), Jacobs (1993), Bentley et al (1985) and Jacobs (1961 this turn of events has not only reduced the opportunities for walking as a form of transport, they have also eroded the conditions necessary for people to engage in street life. And Francis (2006) further elaborated that they also placed the social and cultural functions of the urban street space under siege. The traditional function of street space as a meeting place and social forum for city dwellers has been reduced, threatened or phased out in most cities. And this is due to the vehicular traffic effectively squeezing the rest of urban life out of urban streets and neglecting human dimension on street design

3.4.2. Economic impacts

Recent studies have addressed the relationship between traffic congestion and the economy, and have produced differing evidence regarding the former's effects on regional economic growth (Marshall and Dumbaugh, 2020). On the one hand, several

studies have empirically demonstrated that severe traffic congestion decreases employment, economic opportunities such as street economic transaction and income growth (Hymel, 2009; Sweet, 2014). Moreover, some of these studies have shown that congestion is detrimental not only to firms, but also to household income (Jin and Rafferty 2017), and that reducing traffic congestion will provide economic benefits in terms of increasing employment and income growth.

3.4.3. Health and Environmental impacts

Vehicle traffic pose number of environmental hazards as Appleyard (1969) suggested. Such environmental hazards include noise, air pollution and vibration which may be stressful for people and impact their health wellbeing. Traffic-related air pollution is known to contribute to cardiovascular morbidity including both acute and chronic health effects, while traffic noise, which is major source of noise in urban environments lead to stress, annoyance, and sleep disturbance, hypertension and cardiovascular disease. According to Li Thi (2019), the health impacts of traffic-related air pollution (TRAP) are one of the major concerns regarding the sustainability of the transport sector. Particularly in urban areas, transport is a main contributor to air pollution and affects a large part of the population due to the high number of motor vehicles and urban population. Recently, the evidence from epidemiological studies on the health impacts of TRAP has increased significantly. The major evidence indicates that TRAP increases the risk of mortality and morbidity.

According to the World Medical Association (2006), serious injuries and mortality in road collisions are a public health problem with consequences similar to those of major diseases such as cancer and cardiovascular disease. WHO (2004) estimated that in 2002:

- Worldwide, about 1, 2 million persons were killed on the roads and an additional 20–50 million were injured.
- Road traffic injuries were the 11th leading cause of death worldwide and accounted for 2, 1% of all deaths globally.
- Road traffic deaths accounted for 23% of all injury deaths worldwide

3.4.4. Physical impacts

Gewald (2005) and Dudley (2014) the car dominance has resulted in high consumption of natural resources and urban land. Huge traffic lanes and parking spaces, has taken away the land that should be used for accommodation and

public spaces. They make it difficult for one to manoeuvre around the street or in the city especially when walking. Long confusing crosses, a limited space for pedestrian walkways, limited number of street furniture. Furthermore, adjacent buildings to street are fortified to prevent noise and pollution on the street that has led to death of street life and interactions. Ground floors are no longer designed for transparent retail outlets and restaurants, they're for parking spaces. It has distorted the fabric of the city and the potential quality life a city or a street can offer.

3.5. Conceptual framework and synthesis

This literature review has sought to unpack themes that are relevant to the research question and sub-questions. Through two main research themes, traffic and liveability, the chapter contextualised traffic in an urban setting and reflecting back on shifts of paradigms that has created the traffic circumstances in an urban landscape today. It has further unpacked the concept of liveability, and using Donald Appleyard pilot study in San Francisco, it exposed the relationship between traffic volume and liveability. But in addition, it was also presented that traffic volume also impact the physical dimension of the street such as street width or a pavement width, which does impact liveability of a street. **Figure 16** demonstrate this relationships and interplays.

Donald Appleyard study confirmed some theoretical expectation that heavy traffic create a whole range of problems for residents on the street in terms of liveability indicators that were used. The study revealed that heavy traffic volume was dangerous, noisy and its effects on neighbouring and sense of possession of the street were apparently devastating. Whereas street with less or light traffic volume had more engaged residents, with had a sense of responsibility over their street, claimed the street as their own territory, they felt safer and had allowed their children to play on the street. And furthermore residents had more friends and acquaintances and they were very aware of their street environment.

Ultimately, even when this chapter has exposed the relationships between traffic volume and liveability, it has developed a hypothesis for this study as well. The central hypothesis derived from Appleyard study is that liveability is found to correlate inversely with traffic volume. This implies that a low or light traffic volume increases the liveability of a street.

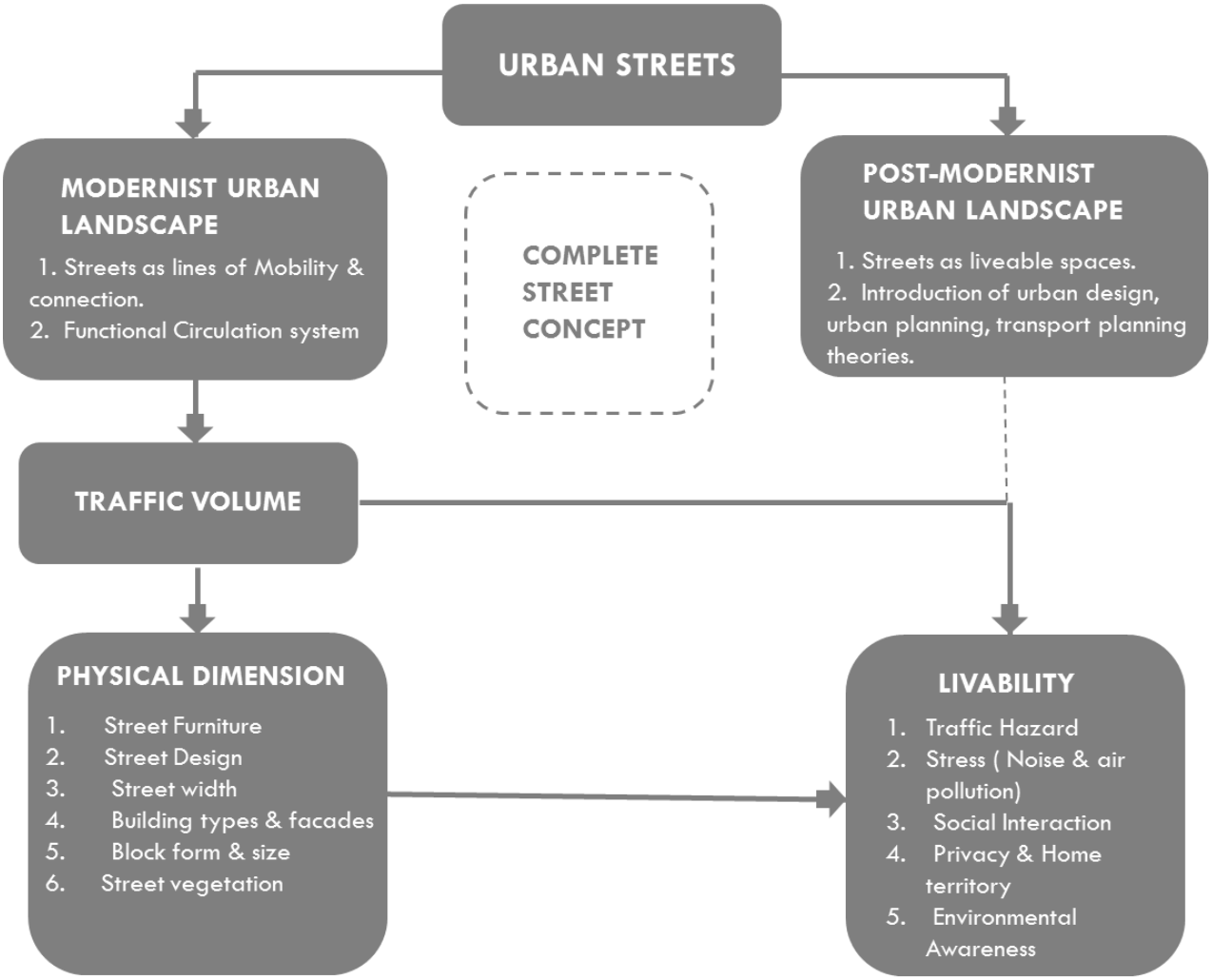


***Figure 16**: The conceptual frame-work illustrating connections and linkages between theoretical concepts (Tswai, 2021).*

Chapter Four: Contextualising the City of Tshwane

4.1. South African Urban dynamics

4.1.1. The impacts of apartheid spatial planning on South African cities

According to Landman (2006) & (2000) apartheid in South Africa was based on racial segregation, control and socio-economic marginalisation of black people. Black people were forcibly removed from urban land and were not allowed to claim or ownership of property in urban areas or outside their homelands (Landman, 2000). To control this black population in urban areas, housing for black families was created on the periphery of cities and with limited access for black labourers. Urban dwellers, mostly black people were supposed to carry their ID documents and work permits with them in the city (STSAC, 2016).

Pieterse (2004) mentioned that transport services and housing infrastructure were designed to also control access to urban areas. With transport services, people were commuting in the morning to work and in the evening they commuted back to their peripheral homes. At the same time the apartheid government invested heavily in road infrastructure for private vehicles and neglected public transport, which led to a rapid growth of the private car use and dependence and the minibus taxi industry (STSAC, 2016; Mabin, 2005). This of course has a significant influence on how the city spatial form is today and how the city operates in terms of travel behaviours, land use, human activity and others.

According to Landman (2000) and Spatial Transformation of South African ` cities (2016), modernist ideas in urban planning were used effectively to create the "apartheid city" in South Africa. Modern urban planning ideas of Garden city movement and New-towns that appeared England during industrial revolution in the 1920s and 1930s. The neighbourhood unit model also from the United States, had a profound influence on planning and development in South Africa (STSAC, 2016).

In cities such as Pretoria, the apartheid policies and planning had the most dramatic influence on the development of the inner city. Racial segregation policies and their

hard-handed application destroyed much of the existing fabric of the inner city. Scant regard was paid to historical treasures except where they could be used as part of a nationalist dialogue (Clerk & Kuipers, 2015).

Clerk & Kuippers (2015) argues that the most dramatic of these interventions was the Goedehoop project, which led to the construction of Schubart Park, a government subsidised housing project, in 1976. This modernist housing project, modelled on the principles of Le Corbusier's Ville Contemporaine, consisted of freeways and tower blocks (Landman, 2000). Planned to take up most of the north-western quadrant of the inner city, it was never completed. It dislocated communities and destroyed several historical buildings. It left in its wake four introverted, featureless towers and large tracts of vacant land, and sterilised a once vibrant part of the inner city. Residents were forcibly removed from the mixed neighbourhood of Marabastad to beyond the periphery of the city, thereby 'ridding' the inner city of all 'non-whites'. Plans were also made to demolish the western façade of Church Square to make way for high-rise offices to host government departments. Only public outcry and protest managed to save the remaining adjacent heritage buildings (Clerk & Kuippers, 2015).

This is a brief history and context that informs the state of the capital city "Tshwane, Pretoria" today, particularly how it has influenced travel patterns, increased traffic volumes and pedestrian life.

4.1.2. The post-apartheid city state

Spatial Transformation of South African ` cities (2016) stated that reality of many South African after 1994 was marginalisation, displacement, inadequate shelter, tenure and asset insecurity, and poor access to the socioeconomic opportunities. However, these issues were captured in the Reconstruction and Development Programme (RDP), a policy framework produced by the democratic elected government, the ANC in 1994. Then followed by 1996 White Paper, which advocated a shift from private transport investment to prioritising public transport and as well as compacting and densifying urban areas to increase the viability of public transport interventions (Smith, 2003). Since 1994, for many people, their life in the city was improved and modernised vastly. Most of those who were previously not allowed to own land and property in the city, they now have access to own and not only land, but also access to basic services and city resources (STSA, 2016).

Transformation in South African cities has been ongoing since the nation got its democracy in 1994. But Pieterse (2004) argued that as a long-time goal, that manifest in different rates and forms in different cities, one can say much has been done on this agenda of transformation from the perspective of the public sector. Among other achievements that Spatial Transformation of South African ` cities (2016) mentioned, the public sector is significantly investing on low-income housing, public transport infrastructure and bulk infrastructure for basic services and as well as improved access to health and education. Parallel to this efforts, the private sector is investing in shopping malls, office parks and residential developments, predominantly in the form of townhouses and gated estate (Pieterse, 2004). With this investments, people are brought closer to jobs, opportunities and services, but they are also seen as exclusive spaces that extended and promote undesirable urban trends.

The mantra, in the urban environment today in South Africa, has been spatial transformation, even if the shared urban transformation envisioned in the 1997 Urban Development Framework has not yet been reached. Because South African cities today are characterised by spatial fragmentation, socio-economic exclusions and inequalities (STSA, 2016). Current urban systems and approaches continue to reinforce this characteristics, which tend follow the historical patterns of segregation and inequality.

4.2. City of Tshwane in context

4.2.1. The spatial form and population distribution of the city

Like most Metropolitan cities in South African, City of Tshwane is a divided city. The urban poor live largely in the North and on the on the east and west peripheries of (Mears, 2011). Mears (2011) stated that the poor are 70 percent black and whereas the majority of the affluent are largely white, with 17 percent of the total population. The political composition of Tshwane reflects the differences between rich and poor. As seen opposite, voting patterns reveal the impact of Apartheid on the city. With the exception of the central business district (CBD), all the ANC wards are in the north or on the periphery, where the population is mainly Black (Refer to **Figure 4**).

The GPMC (2000) and Cameron & Krynouw (2001) suggest that the problems and needs of people in these wards are largely associated with poverty: unemployment

or low incomes, and inaccessibility to jobs, activities, services, amenities and even housing in some cases. This however has led to an influx of people commuting in and out of the city`s CBD and other economic nodal areas such as Brooklyn on an going basis to seek for economic, social opportunities and better service delivery.

The development challenge revealed by the population distribution of Tshwane is that by world standards, settlement densities are extremely low. This results in costly services (long pipe runs and street frontages and low-intensity use of streets). It also makes activities relatively inaccessible to residents living on the periphery. As a result, encouraging people to travel elsewhere to seek such opportunities , increasing transport costs , car dependence since public transport is unreliable and not efficient) and insufficient use is made of public transport rolling stock (Cameron & Krynouw, 2001). This trends has significantly influenced the amount of traffic we see today (GPMC, 2000).

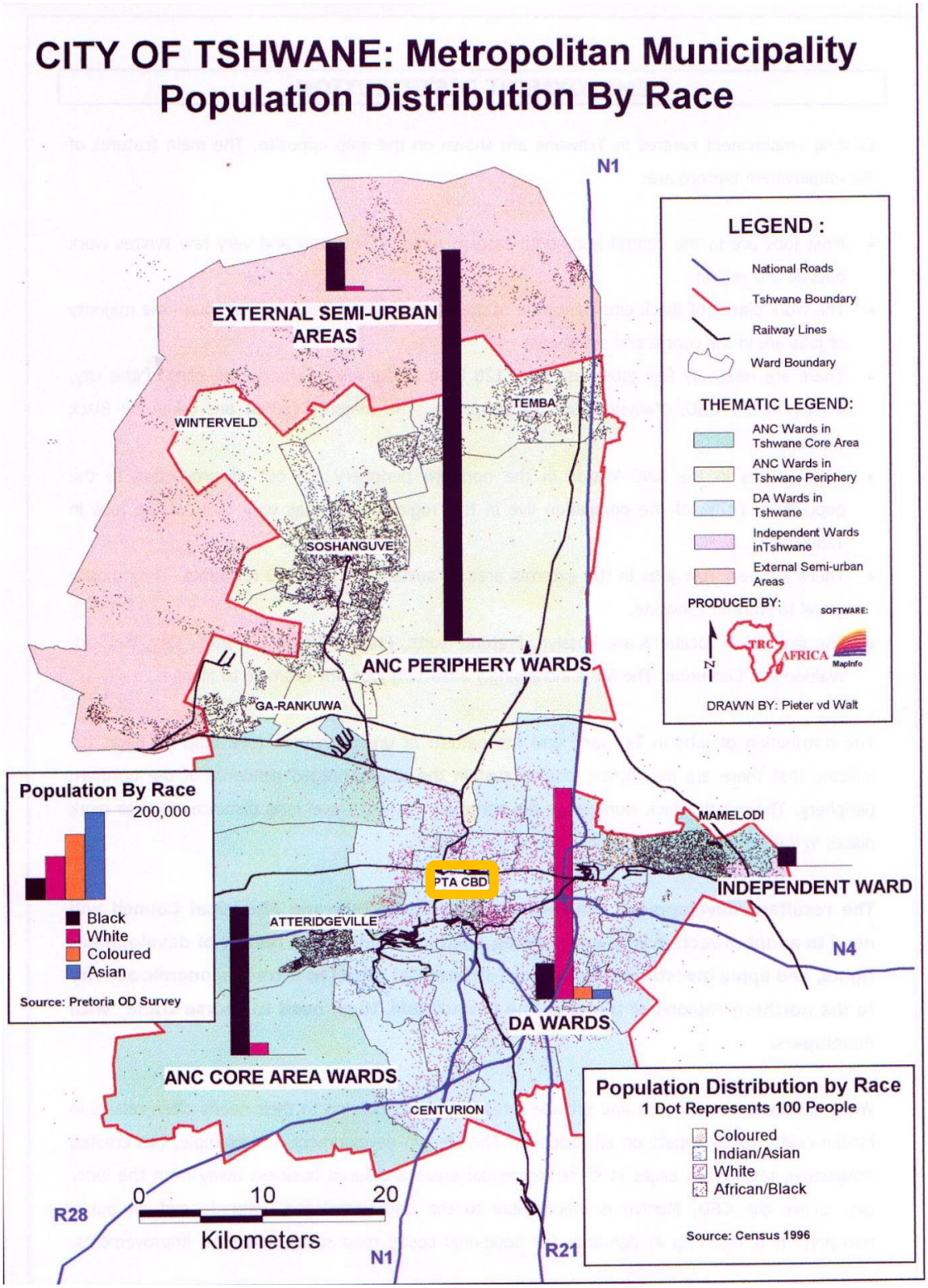


***Figure 17**: The distribution of population in Tshwane and the northern periphery, is depicted on the map. The location and density of population is highlighted by means of different coloured dots for each race group, with each dot representing 100 people. (Adapted from Census 1996).*

4.2.2. Economic opportunities as a major pulling factor to the city centre

Furthermore, Cameron & Krynouw (2001) argue that the current settlement pattern will be increasingly unsustainable, particularly if future development continues the decentralisation trend. There is great scope for more intense development in the rapidly changing corridor between Mamelodi and Atteridgeville, which is viable for the development of public transport services. The distribution of jobs in Tshwane and the pattern of unemployment (see Figure 5) indicate that there are insufficient jobs to sustain the disadvantaged residents of the northern periphery.

According the GPMC (2000) and Cameron & Krynouw (2001), the black workers on the periphery have to travel long distances to their work places in the centre and south-east. The resultant development challenges are therefore obvious. Tshwane Metropolitan Municipality will need to adopt proactive land use policies, such as zoning and a review of development rights, and apply investment incentives (differential rates) to attract economic activity to the northern regions of the city. While developers create jobs and provide rates income, pandering to their needs often results in hidden costs, which impact on all residents. The Menlyn development, for example, has created congestion, resulted in blight in some residential areas and lured much business away from the inner city. Unlike the CBD, Menlyn is inaccessible to the under-privileged, who depend on public transport. It is resulting in demands for additional costly road space and road improvements.

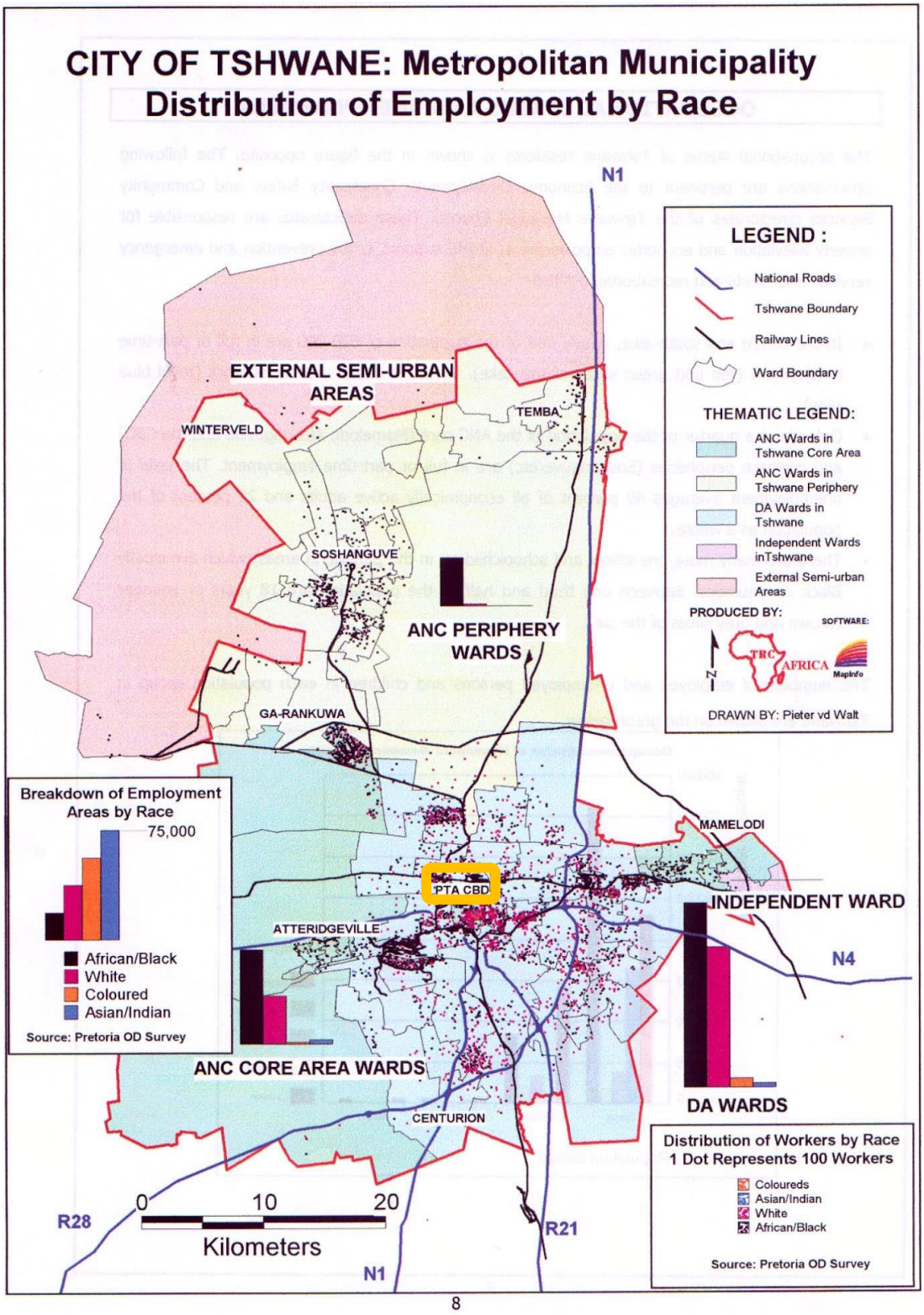


***Figure 18**: Existing employment centres in Tshwane are shown on the map. This map indicates that most jobs are in the central and south-eastern region of the city and the work places of Black employees are scattered throughout Tshwane, although the majority of jobs are in the centre and south-east. (Adopted from Census, 1996).*

4.2.3. Transport Infrastructure in the city

Referring to figure 6 below, the rail system largely serves captives to commuter passenger movements. According to Cameron & Krynouw (2001), road hauliers have largely captured the freight market. Only the heavy industrial areas of Pretoria West, Waltloo and Rosslyn are served by rail freight. Long-distance passenger services run from Pretoria Station daily to Johannesburg and twice-weekly to Cape Town and Durban. The commuter services mainly operate from Soshanguve/Mabopane in the north, from Atteridgeville in the west and from Mamelodi in the east (Cameron & krynouw, 2001). Furthermore, Cameron & Krynouw (2001) mentioned that southern line carries some commuters to the city from Johannesburg, Kempton Park and Tembisa. It also carries a few Tshwane commuters southwards to work in Olifantsfontein, Kempton Park and Johannesburg. And Lastly the Gautrain which travels between Pretoria and Johannesburg

The GPMC (2000) and Cameron & Krynouw (2001) reported that the freeway system moves long-distance freight and passenger traffic to the surrounding areas such as Johannesburg and the International Airport (JIA). Freeways are either national (N) or provincial (R or PWV) roads. The south and east of the city are well served by the N1, N4, R21 and R28. These roads have contributed to the rapid development of the south-east, (e.g. Centurion, Constantia Park, and Menlyn), in a manner, which has not been complementary to the city's public transport system, particularly rail. There is also the Areyeng BRT system in place, used as a strategy to connect the city centre and townships at the periphery of the city.

Cameron & Krynouw (2001) argues that with all this transport infrastructure, the city still experiences high volumes of traffic, particularly, traffic congestion in most of its roads. Traffic generated by the freeways and other regional and local roads has resulted in the need for investment in complementary and connecting arterial roads, which has been to the account of the municipal council/s. Development of the south-east has been at low density, largely for high-income car owning households, which does not encourage the development of public transport services. The map shows proposed new national and provincial freeways in the north (N4/PWV2) and west (PWV9). Both have been associated with the Mabopane-Centurion Development Corridor and are seen as catalysts to develop the north and west of the city.

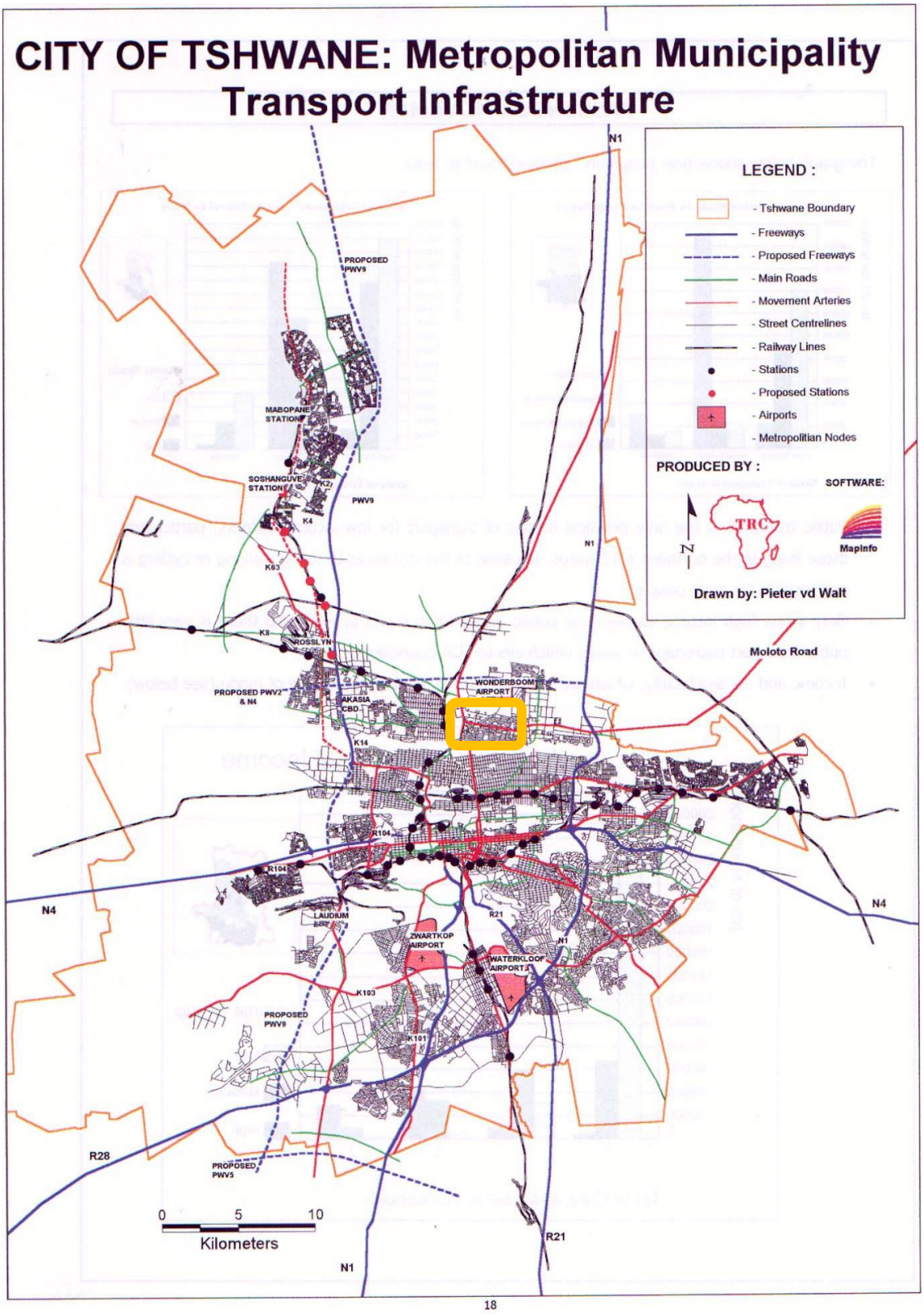


Figure 19: The map shows transport infrastructure, which gives shape to Tshwane, links it with surrounding areas and enables the citizens to move around inside the city. (Adopted from Census,1996).

4.2.4. Travel Patterns

The **Figure 20**, a map below shows travel to work by public, private and non-motorised modes in the morning peak period (6 to 9 a.m.). The size of the pie is proportional to the number of trips and the pie slice shows the mode share. In summary, Cameron & Krynouw (2001) indicated the following;

- The wards controlled by the DA, generate and attract the most peak hour work trips. Most of these are made by private transport (green slice).
- Travel both within and from all the other areas is mostly by public transport (red slice). In every case, there are more trips out of the area to central and south-eastern Tshwane than internal trips (i.e. trips which start and end in the areas in question).
- In all the areas, for the internal trips, walking and cycling have a relatively larger mode share. Many internal trips are short enough to permit workers to walk or cycle.
- The map also shows the trips into Tshwane from Mpumalanga via the Moloto Road and from North West Province.

The mode used for work trips is shown in the table below. The majority of trips (52%) are by private modes. Car drivers and their passengers account for 37.9 per cent of all peak period work trips.

***Table 2**: Indicates percentages of Travel mode used for work trips (Adapted from Cameron & Krynauw, 2001).*

Travel mode used for work trips	Number of commuters	% of commuters
1. Train	77800	13,.4
2. Bus	78900	13.6
3. Taxi	121 900	48.0
4. Lift club	6500	1.1
5. Car Driver	182 300	31.4
6. Car Passenger	37700	6.5
7. Motor cycle	1200	0.2
8. Company Transport	12700	2.2
9. Walk	59200	10.2
10. Bicycle	2300	0.4

11. other	600	0.1
GRAND TOTAL	**580700**	**100.0**

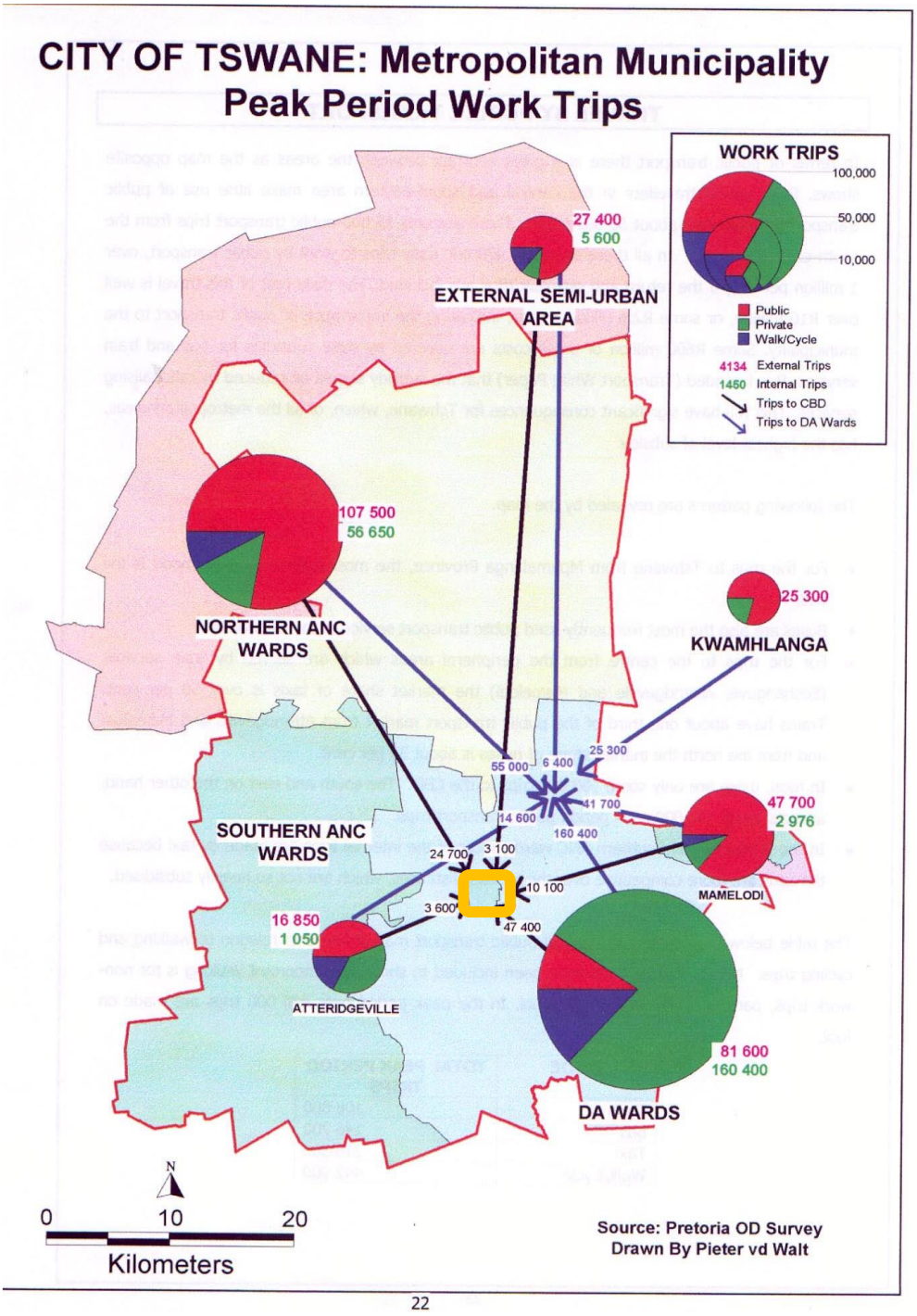


***Figure 20**: The map shows Peak Period work Trips (Adapted from Cameron & krynouw, 2001).*

4.2.5. Traffic situation in the capital

City of Tshwane is a sprawling city with a dual transport system (Chakizwira, 2007). Chakizwira (2007) further described that the city consists of a car-based system in the most developed areas, where automobile use is almost compulsory; a semi-managed system in the poorest areas, where people move through transport modes such as walking, cycling, bus et cetera. Transport is either by way of commuter trains that serve limited areas of townships, minibus taxis or state subsidized bus companies such as BT (Star-line) and Putco (Chakizwira, 2007). Commuters and shoppers walk long distances to access facilities. According ASIRT (Association for Safe International Road Travel) 2005, Pretoria is regarded as traffic congested city.

Pretoria's traffic is the third most congested of the country's cities in spite of the capital's extensive one-way road systems and the total road network length of 11 708 kilometres of which 171 km are highways and 11 537 km are non-highways in the city and generally wide roads and the introduction of the Bust Rapid Transit (BRT) system A Re Yeng (Bothma, 2015). Traffic congestion in the capital city during the morning peak-hour adds on average 52% to travelling time of commuters and 47% in the afternoon rush-hour. Only Cape Town, followed by Johannesburg, beats Pretoria when it comes to congested morning rush-hour traffic, according to TomTom's most recent traffic index (Bothma, 2015).

Bothma (2015) concluded that TomTom's information showed Pretoria's average congestion level on highways was 10%, 29% on non-highways and the average delay per day with a 30 minute commute being 20 minutes. The delay per year for a 30 minute commute add up to 76 hours. With the increase in vehicle sales and traffic volumes currently and congestion being experienced in the city, it becomes difficulty to provide more road space within urban areas, there is renewed emphasis on the role of public transport to meet the mobility needs of people(Chakizwira,2007).

4.2.6. Towards a capital city; Current planning frameworks

According to Clerk & Kuipers (2015), integrated strategy that couples national and local government is imperative to address the future of the capital. It is in this regard that a memorandum of understanding was signed by the Minister of Public Works and the Mayor of City of Tshwane Metropolitan Municipality in 2005. Furthermore several Cabinet decisions have been issued that affirm the status of the inner city as the capital of South Africa, and mandate a formal cooperation between the City of

Tshwane and the National Department of Public Works, whose mandate includes the housing of National Government Departments. These decisions direct government departments to remain in or (re)locate to the inner city, and direct the development of a framework to improve the physical working environment of government departments and to also develop accommodation solutions.

i. Public Transport and NMT

Various plans and strategies as well as guidelines have been developed to guide NMT planning and implementation within the City. This are aimed at improving and integrating public transport network systems and non-motorised transport. But Furthermore to development and improve the quality of mobility infrastructure.

- Gauteng 25 Year Integrated Transport Plan, 2013
- The City of Tshwane's NMT Masterplan, 2010 (Shova Kalula Programme)
- The City of Tshwane's Tsosoloso Programme, 2011 - Current
- The City of Tshwane's Universal Access Design Plan, 2013
- The City of Tshwane's NMT Framework, 2014

ii. The Vision 2055

In 2013, the City of Tshwane developed a new vision, called Tshwane Vision 2055: Remaking South Africa's Capital City, which has as its aim the creation of a liveable, resilient, and inclusive city. The Vision 2055 is meant to provide the city with a broad logic to guide growth and development and serve as point of reference for city priorities and strategic actions over the next 40 years. It details interventions that are aimed at breaking the cycle of generational poverty, inequality and underdevelopment, and redressing apartheid settlement patterns and social and economic exclusion which continue to define the city space. This is a lofty ambition when taking into account the challenges: more than half the households of Tshwane earn R 3 500 per month or less14 and, due to the legacy of segregation, poor people generally live far away from inner city transport and other social facilities.

iii. The Tshwane Inner City Regeneration strategy (TICRS)

The TICRS was launched in August 2013, builds on the Re Kgabisa Tshwane, and hopes to not only drive the implementation of the regeneration of the inner city, but also to re-affirm the inner city of Tshwane as the Capital City of the country. It is premised on strong spatial governance—i.e. leading, directing and engaging with all stakeholders. The TICRS consists of a number of integrated projects, covering a variety of fields. The regeneration of the inner city and the creation of a receptacle for the Capital City, is a complex long-term endeavour that requires substantial funding, the active involvement of a wide range of stakeholders, and integration between different interventions. The projects that make up the TICRS aim to address these complexities. Some of the other critical intervention projects are discussed below.

The TICRS also includes a number of other supplementary projects. The most important of these is the Comprehensive Integrated Transport Plan. One of the most pressing issues in the city that of public transport, had not received any attention in the run op to, or the years following, the transition to democracy in 1994. The city remains most easily accessed by means of private vehicles—a mode of transport that is neither attainable for the majority of the inhabitants of the city nor sustainable.

This plan focuses on turning the inner city around from a space dominated by wide streets that accommodate mostly private vehicles, to a space dominated by pedestrians and public transport. The Tshwane Bus Rapid Transit System is the first new investment in the currently inadequate public transport system, and will ultimately link the inner city to its satellite towns, thereby reaffirming the inner city's central role. The marked effects of this intervention can already be seen all over the city, but are most marked on Church Square, where the impact has been cause for some discussion.

Chapter Five: Descriptive research findings

The previous chapter discussed traffic and liveability polices in the broader context of Pretoria. Therefore this chapter aims to present the findings obtained from field work undertaken in the three streets in Pretoria. The findings were obtained through observations and semi-structured qualitative interviews that were investigating the impacts of traffic volume on the quality of street life or liveability between Church Street, Pretorius Street and Nana-Sita Street, in CBD of Pretoria. The findings represents a total of twenty two interviews for all the three streets and are categorised into Donald Appleyard four liveability indicators and are further broken into sub themes. This chapter will begin with a brief profile of the twenty two interviewees and lastly it will present the interview findings.

5.1. Profile of Interviews

A total of twenty two (22) interviews were conducted for this research and their profiles are indicated below on **table 3.**

***Table 3**: Indicates interviews profile (Tswai, 2021)*

Light/low (2 cars/minute)Traffic volume Street : Church Street					
No#	**Street user**	**Gender**	**Age** (years)	**How long have they been using the street?**	**Location where the interview took place.**
1	Resident 1	Female	21	Have been staying along the street for 1 year	Centre Walk flats along the street
2	Resident 2	male	48	Have been staying along the street for 11 years	Centre Walk flats along the street
3	Resident 3	female	24	Have been staying along the street for 4 years	Centre Walk flats along the street
4	Resident 4	male	23	Have been staying along the street for a year	Capitol Towers North Apartments
5	Resident 5	female	18	Have been staying along the street for 8 months	Capitol Towers North Apartments
6	Visitor 1	female	34	Most frequently	Along the street
7	Visitor 2	female	22	Most frequent	Along the street

8	Street vendor 1	female	49	Have been selling on the street for 21years	At her place of business along the street
9	Street vendor 2	male	34	Have been selling on the street for 8 years	At his place of business along the street
Moderate (32 cars/minute) Traffic volume Street : Pretorius Street					
10	Resident 1	female	25	Have been staying along the street for 6 years	South Point flats
11	Resident 2	male	23	Have been staying along the street for 3 years	South Point flats
12	Resident 3	female	23	Have been staying along the street for 4 years	Steyns Towers
13	Resident 4	female	32	Have been staying along the street for 8 years	JSL Towers
14	Resident 5	Female	23	Have been staying along the street for 4 years	Steyns Towers
15	Visitor 1	male	26	frequently	Along the street
16	Visitor 2	male	22	frequently	Along the street
Heavy(56 cars/minute) Traffic volume Street : Nana-Sita Street					
17	Resident 1	female	24	Have been staying along the street for 2 years	323 Skinner Flats
18	Resident 2	female	29	Have been staying along the street for 3 years	323 Skinner Flats
19	Resident 3	male	27	Have been staying along the street for 2 years	368 Oubus Street
20	Resident 4	female	36	Have been staying along the street for 3 years	368 Oubus Street
21	Resident 5	female	28	Have been staying along the street for 2 years	368 Oubus Street
22	Visitor 1	male	27	Not that frequent, sometimes	Along the street

5.2. Findings by theme

The interview process provided a glimpse into the lives of street users on the three streets that were selected for the study, mostly the residents. People were not that friendly and trusting when approached to participate on an interview, until when I have produced my student identification and thoroughly explained what my research was about. And participation dropped as the profile suggest, the number of interviews reduced as traffic volume increased. Street vendors, street entrepreneurs such as street photographers, car guards, street performers, car parking assistants and others where not particularly interested in participating since they claimed the interview will make them lose money to their competitors. But with those who participated, they engaged very well and to some extent it was always difficult to draw the interview to close. However the process of interviewing twenty two (two) individuals on three streets, has produced a detailed picture of the dramatic impacts of traffic volume on the quality of daily life and perceived liveability.

5.2.1. Social interactions

i. Activities occurring on the streets

In terms of a light traffic volume street, the interviews responses has suggested that there are different activities such as street performances, street vending, street photography, walking, seating, skirting, people playing soccer , some promoting their music and as well people exercise on the street. Most of the responses has identified street vending as a dominant activity occurring on the street aside from walking. One of the street vendors stated that "*A dominant activity is street vending and pedestrian activity, walking, seating, people dancing and homeless people singing*".

In a moderate traffic volume street, Pretorius, activities that were identified by respondents are protest, people visiting fast food restaurants, walking, and jogging, traffic movement and car washing and people selling snacks. However most of the respondent has identified traffic movement, most especially of buses or public transport as being a dominating activity on the street. Two out of seven respondents has strongly pointed out that the street in most cases is used for protest and the inconvenience it brings. Resident 5 indicated that "*aside from walking and traffic, a lot of protest take place on this street.to point that every time there is a strike we don't go to school because the whole street get closed*". And lastly the street has some

pockets of street vending or economic activities but not as compared to the light traffic volume street.

In a heavy traffic volume street, which is Nana-Sita, the interview respondents has identified a variety of activities such as gambling, recycling activities, homeless people sleeping along the street, traffic flow and pedestrian movement. And in addition, Resident 1 mentioned traffic accidents as some of the activities occurring on the street. However the activities are less as compared to the other two streets.

"*There are accidents, people are using some spaces for gambling (dices), there are people who are nyaope addicts sleeping and staying on the street*".

This suggest that as traffic volume decreases, the more diversity and increasing street activity.

ii. The friendliness of the streets

Most of the respondents in a light traffic volume street felt the street was friendly and safe from a traffic perspective. But in a contrary others has stated that the street was too packed with pedestrian activity and movement and as a result there were criminal activities they have seen and experienced. Resident 2 mentioned that "*The Street is safe but sometimes around month end people from Soshanguve, Mabopane and Mamelodi come to this street to do pick pocketing because of the amount of people use this street around that time*." On the other note a respondent have felt that the street was not friendly on the basis that people along the street don't greet each other. Street visitor 1 reasoned "*the street is not friendly because we don`t even greet each other, I guess people are just minding their business*". On a contrary view a Street vendor 1 articulated that the street was very safe and friendly, more especially for street vendors, since they had their own designated spaces along the street. Some respondent felt safe because there was a presence of military and other law enforcement personnel.

The street is relatively friendly, but with safety concerns associated with flowing traffic and crime. Most residents were worried about criminal activities taking place such as getting mugged and pick pocketing, and they as well stated that it is difficult for people to cross the street, most especially people who are not used to the amount of traffic and also vulnerable groups, such as children and people with physical impediments. Some felt it was friendly during specific times and it changes as a day

progress. For example, Resident 3 stated that "*during the day is safe, but at night is not safe at all. A lot of people get mugged at night*". And some felt safe because there are two police station along the street.

On a heavy traffic volume street, Nana-Sita, the respondents have strongly described the street as being unfriendly on the basis that there are so many traffic accidents occurring on the street and as well a lot of criminal activities taking place on the street every day. Resident 2 said "*the street is not friendly. It's actually not safe. I have heard stories about people being mugged and also about car accidents occurring on the street*". This is such that some would prefer to use alternative streets, even when they are not convenient. For those who are forced to use the street, they have explained how fast you have to walk in order to avoid being a victim of a crime or a car accident. A Street Visitor said that "*when walk here, you have to rush and pass, otherwise you will become a victim of a crime*". Therefore the street was regarded as being unfriendly and unsafe.

Therefore this suggest that the in terms of traffic, the friendliness of the street decreases as traffic volume increase

iii. Friendship and acquaintances patterns on the streets

Out of nine respondents on a light traffic volume street, three (3/7) had friends along the street and four out of seven (4/7) have acquaintances. The two street vendors had both friends and acquaintances. The acquaintances include family relatives, customers, fellow street vendors and the other people they know from their places of residence and people who work close by. But for Resident 2, his acquaintance is a family member, a brother who he recruited for him to come stay on Church Street. The resident stated in his own words "*I live with my family, my wife and kids. But I also have a brother who stays along the street. I was the one who recruited him to come stay here*". In terms of friendships, street visitor had a friend who stayed along the street and she came to visit a friend at her work place. And furthermore the respondents indicated that they are places along the street where they do meet with their friends and family.

For a moderate traffic volume streets, four of the residents had friends in the same building they are staying at. There is only one resident, Resident 4, who had an acquaintance outside their place of residence. And it was a cousin who usually meet with them at Mac Donald along the street. For those who had friends on the same

building they are staying at have stated that they also have places along the street where they go out to or even meet at, places such as fast food restaurants and others. This indicates that there are friendship and acquaintances patterns on the street, but less as compared to a light volume street.

A heavy traffic volume street had only one of friendship, the same number as Moderate traffic Volume Street. However Resident 3 used to have a friend along the street, but at the time of the interview he has already relocated from the street. Resident 3 mentioned that "*yes, I used to have a friend along, but now he relocated from the flat*". And as well the residents on the heavy traffic volume street did not indicate having friends in their places of residence. Resident 2 agreed to having a friend along the street and she mentioned that they normally meet at her place or the friend`s place. There are no other acquaintances patterns along the street rather than one friendship.

Therefore it can be concluded that friendship and acquaintance patterns decrease as traffic volume increase.

iv. Sense of community among the streets

Church Street appeared to have community engagements. Resident 2 agreed that the street had some sense of community. He stated that "*we know each other and most of the time when we meet, we interact. Most of the people who sell on the street lives along the street, some stays with us in this building. So we even support their businesses. You won't dare even try rob those street vendors, they are a community, you rob one they all attack you. They work together so that the can make the street safe and comfortable for their customers*". Most of the respondents have agreed that there was a sense of community where different people or street users knew each other and further supported one another. These are people staying from different buildings. However street visitor 2 once had a completely different experience. She once got mugged on the street and she was of a view that if the street had a good community engagement or sense of community it wouldn't treat outsiders like the way she was treated. She believed that a street with a good sense of community, a street where even strangers and women are treated as equals, respectfully and with honour. Street vendor 1 also agreed that there was a strong sense of community and she stated that "*We are a community. If one of us were to be robbed, we stand together to fight that particular person. A lot of thieves knows that they can do as they*

please to people passing by, in which some are our customers, but not to our businesses. They play far. Sometimes as well if we see a criminal activity taking place, maybe someone getting mugged we go and help that particular person because most of this people are our customers, some we know by name".

Most of the interview responses regarding community engagement for a moderate traffic volume street were positive in such that the street users felt there is a sense of community on the street. People interact along the street more especially with cars guards, parking assistants, people who help street users to carry groceries and grocery shop owners. However even if the interactions do not occur naturally, people are using creative ways to making a living, which some requires them to talk to people or strangers. Resident 5 mentioned that "*There are these people who like to help us to carry groceries, I don't know if whether they are homeless people, or the just people who find creative ways of making money on the street. Most of the time they are the ones who usually interact with people on the street. There are also street vendors which I usually interact with and also you see those people who help people get parking along the street, they are also so friendly and they sometimes greet us and talk to us*". There were only two respondents, one being a street visitor who felt that the street did not have community engagements and on the grounds that they have not witnessed people gathering and interacting on the street other than just people walking together and talking.

For a heavy traffic volume street, five of the respondents felt they haven't experienced or seen people interacting or the street residents coming together or gathering. They have stated that there was community engagement for a particular group of people, the homeless. Resident 5 articulated that "*there is community engagement among homeless people, they chill together, smoke together and as well sometimes even work together on gathering recyclable waste along the street. But other than that I have not seen any community engagements*". Some argued that it was very rare to see people interact, people are afraid of getting mugged on the street.

As a result it can be resolved that a sense of community among the residents and other street users decrease when traffic volume increases, even when it remained constant between light traffic volume street and Moderate traffic volume.

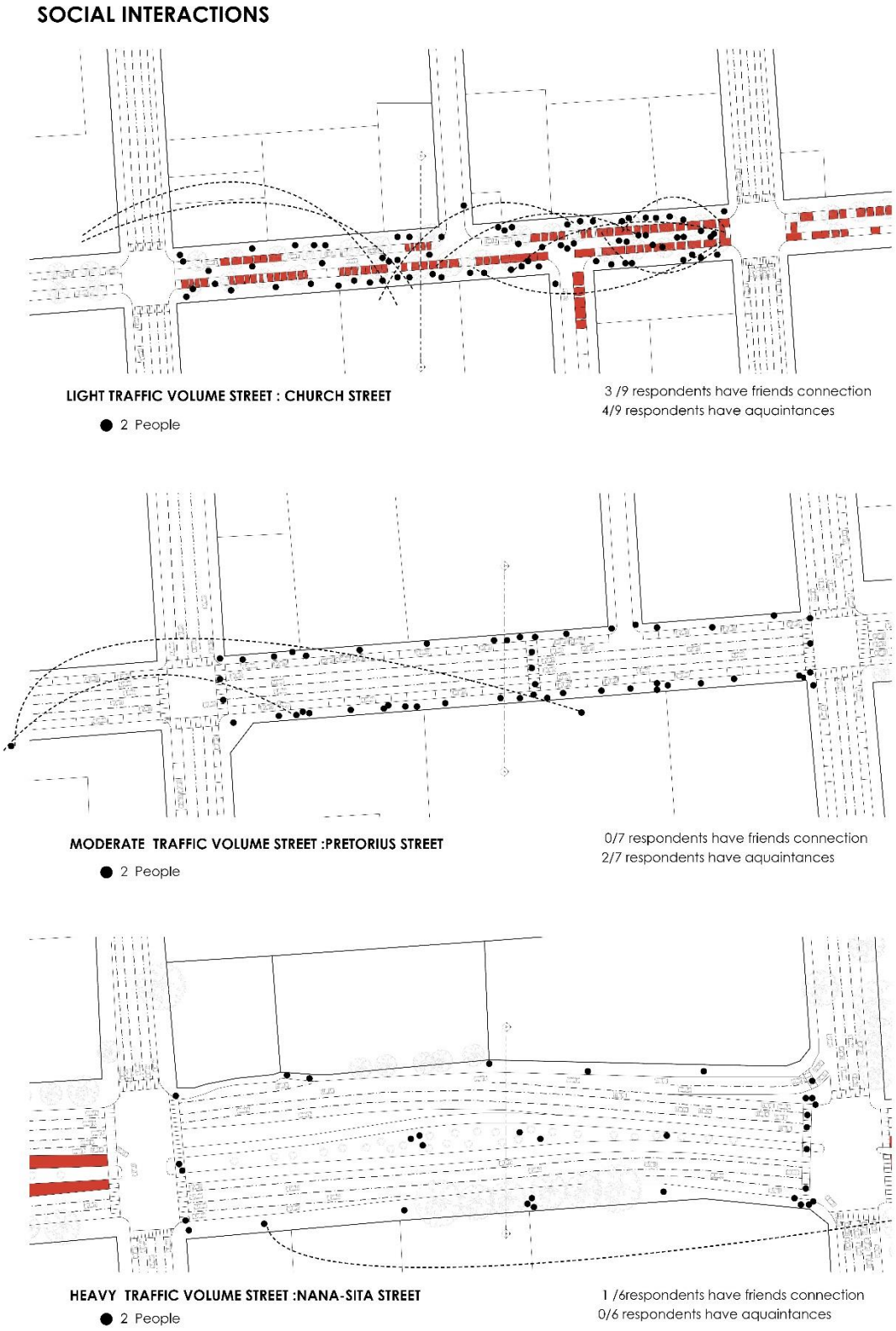


***Figure 21**: The maps shows street activity and Social interactions occurring on the three streets of Pretoria (Map drawn by Tswai, 2021).*

5.2.2. Privacy and Home territory

i. Sense of responsibility over the street

On a light traffic volume street it was only street vendors who felt that they have a responsibility over the street. This involved responsibilities to keep the street safe, active, clean and also to make the street convenient by always making sure they sell good quality products that meets household needs. The residents have indicated that they're only responsibility is to pay their property rent. Respondents from both moderate traffic volume street and from heavy traffic Volume Street did not have any responsibility over the street. But by observation moderate traffic Volume Street had people who were participating or taking responsibility over the street. For example, parking assistants, car guards and people who assist with carrying groceries. Or the homeless person who collect garbage around the street to recycle.

As it can be seen, people who have a responsibility or indirect responsibilities over the streets are those who are utilising or participating on economic opportunities found on the street. And the amount of this kind of people or street users increase as traffic volume decreases.

ii. Perception on home territory

Almost all residents stated that the light traffic volume street felt more like home to them. Resident 1& 2 said it felt more like home because the street was safe and convenient, whereas resident 3 stated that it felt like home because there were a lot of people passing by and interacting on the street and it reminded of home. For Resident 4 it was also diversity of activities and people along the street. But in the contrary, the street was too packed for Resident 5 and for that she wouldn't consider the street home. The residents from a light traffic volume street strongly believe that their homes extended outside their private spaces to centre walk shopping centre, to church square and Sammy Marks square. For those who had acquaintances along the street, believed that their homes extended to their place of residence. Resident 2 stated "*my brother's place. But as well our flat is within centre walk property, so sometimes when you are directing people, you just mention centre walk*".

On a moderate traffic volume street, half of the residents sees the street as home because the street was convenient and safe and the other half on the contrary it was not because it was too busy and noisy. Resident 4 articulated that it was home away from home, since they worked in the city centre it was very convenient. The residents

were of the view that their home territory does not extend outside the individual buildings except Resident 4, who is considering her cousin`s place as her home.

However on a Heavy traffic street, several residents have indicated that their private spaces, not the street felt more like home because they have adapted the life and it has been years staying in the same place. Some indicated that with the amount of crime and traffic accidents taking place on the street, they will never consider the street as home, since it brings trauma in their lives. Resident 1 responded by saying "*no, never. It doesn't unless maybe if it changes overtime. But for now it's very unsafe for me, crime and traffic accidents and also it is way too busy. It's like a highway*". All the resident have described their home territory as their private spaces, such as units but some has mentioned the whole building and their home territory and it didn't extend outside on the street.

Therefore this can be deduced that residents perceived the street as their home territory as traffic volume decreases. An increase in traffic volume resulted in residents claiming their home territory as their private spaces.

iii. Perception on Privacy

For a light traffic volume street all the residents said they have sufficient privacy but it was affected by noise from pedestrian activity and interactions on the street. Resident 5 stated that they had privacy like in any other building along the street and the problem was the noise coming from people interacting on the street. But in addition Resident 3 indicated that "*my privacy is good. Because I have full control of my room. If I want it closed I can easily get it closed, same applies to noise level, and I can simply shut my window. But sometimes you want some fresh breeze from outside but it's a bit noisy. Or you want some views but you don't open up because of the amount of people who will be looking at you*". On a light volume street residents felt that their privacy was impacted by pedestrian activity and as well the amount of people their rooms are exposed to. But not traffic.

On a moderate traffic volume street, the residents indicated that they have sufficient privacy in their rooms. However their privacy is affected by noise disturbance from moving traffic and hooting. Resident 5 explained" *yes, the only problem most of us have with this street is noise levels. Cars moving and hooting*". It appeared as if the level of privacy on a light and moderate traffic volume street are the same level, the difference is the source and level of noise the two street experience.

Heavy traffic volume street ` resident have the same experience in terms of privacy with the moderate traffic volume street. All residents have indicated that they have sufficient privacy but it was affected by noise levels from the street. Resident 5 answered by saying "*I have privacy in my room. But the noise from traffic is very disturbing*".

It must be noted that even when all the residents on the three streets have claimed to have sufficient privacy, they have all experienced some noise disturbances. The difference is the level of noise on each street and as well the source of that noise. Therefore the perception on privacy was consistent in all three streets..

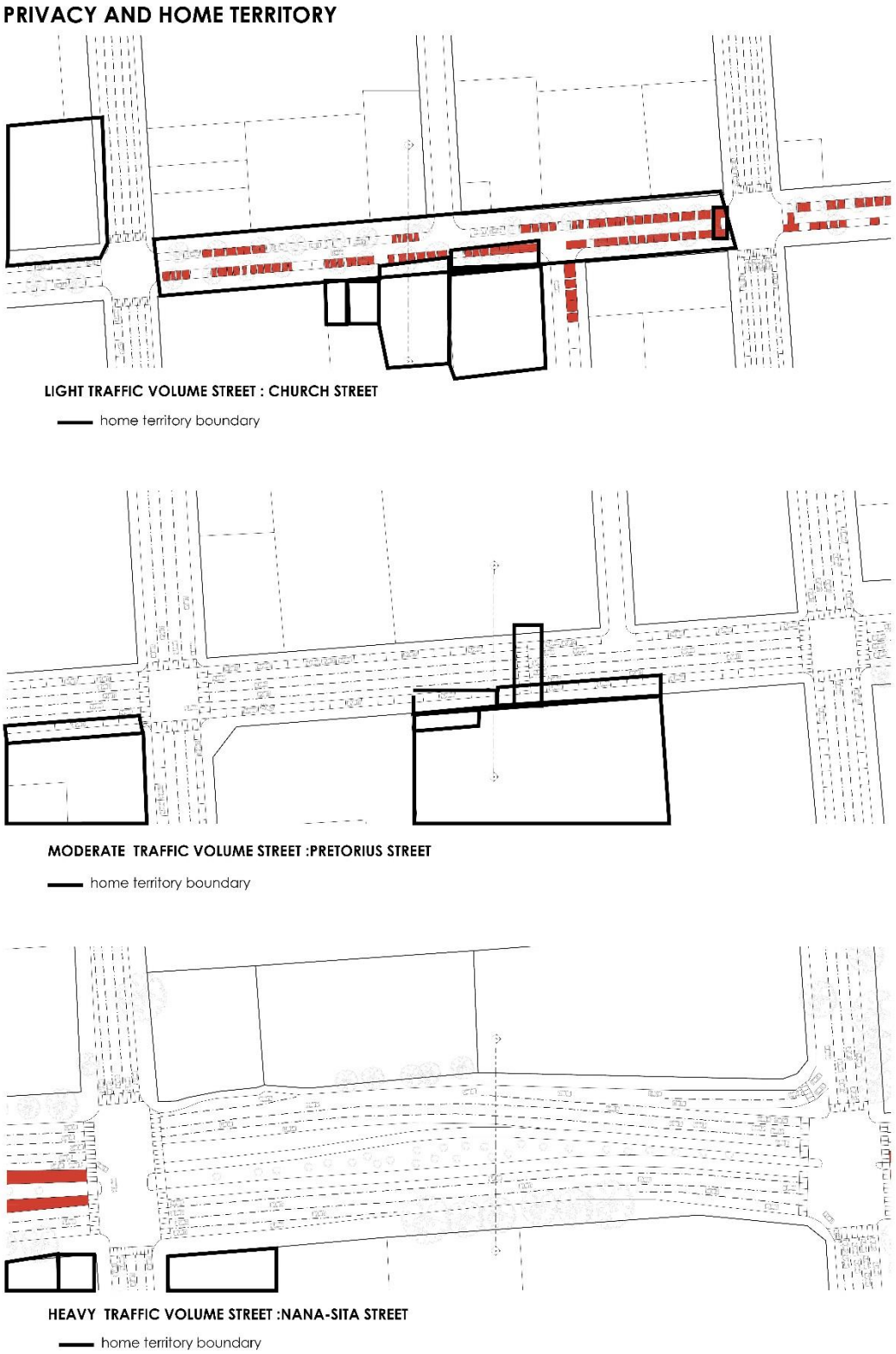


***Figure 22**: The maps shows perception on home territory on the three streets of Pretoria (Map drawn by Tswai, 2021).*

5.2.3. Traffic Hazards

i. Perception of traffic

The majority of respondents on a light traffic volume street has indicated that there is a small amount of traffic, which is moving slowly on the street because there is a lot of pedestrian activity taking placing on the street and as a result there is a limited space for cars or motor vehicles. Resident 2 described" *traffic is very slow obviously because there is lot of pedestrian activity taking place on the street and as well traffic is very limited*". The respondents also has shown that there are no dangers that traffic pose on their lives because they have not seen nor experience any traffic hazards and accidents on the street. Therefore in terms of traffic, the respondents felt safer.

On a moderate traffic volume street, respondents has mentioned that the street experiences traffic congestion mostly during peak hours, but has further discussed that traffic is traveling at an average speed of 60km/h to 80km/h. Four out of seven (4/7) respondents have witnessed or experienced traffic hazards and traffic accident on the street. The traffic hazards that respondents identified included traffic speeding and most of the traffic accidents involves car colliding with each other due to speeding or traffic confusion. For example, Resident 5 discussed "*car hit a bus. The problem is buses on this street just stops wherever, sometimes without indicating to the following car they are intending to stop. So the car was trying to beat the traffic light without noticing that the bus was stopping*". For those who have witnessed traffic accidents have indicated that they do not happen frequently.

On a heavy traffic volume street, respondents have explained that the street have a wide road reserve and heavy traffic volume. This makes it difficult to cross the road and as well it possess some danger to pedestrian walking on the street and as well those crossing the street. All six respondents on the street attest that traffic on the street is travelling at high speed averaging from 70km/h to 100km and due this speed and as well the confusion of who have a right of way on the street or a complicated traffic light system, this has resulted in a lot of traffic accidents occurring on the street. Resident 5 answered by saying " *it is confusion and speed, the street is too large with too many lanes so the traffic lights are very complex for one to easily interpret, and I guess to even people who are still learning how to drive or those new to the city*". But in addition to Resident 5 statement, Resident one has stated that the traffic accident she witnessed was caused by traffic light confusion. She mentioned that the street has

many lanes and on top there are also other lanes for the Areyeng Bus system, which she believed that they added confusion on drivers, most especially new drivers or those new in the city, as Resident 5 highlighted. But also the accident on this street occur more frequently as Resident 3 stated.

Consequently, this shows that as traffic volume increases, traffic accidents increase and they occur as more often. In addition, traffic speed increases as well and the more the lives of street users are exposed to traffic danger.

ii. Feelings about the street

Most of the respondents from a light traffic volume street have indicated that the street is safe for children and the elderly in terms of traffic but have highlighted that not safe for such vulnerable groups because of how crowded the street is and some of criminal activities occurring on the street. For instance, Resident 5 stated that "*the fact that there are no cars, its safe. But when comes to human trafficking they can take the kids. And children can get lost easily on a street so busy like church and for the elderly I guess same reasoning applies, safe from traffic, but very unsafe from getting mugged, like my mom*". Resident 2 as well appreciated the fact that the street was safe for children to walk without having fear that they can get hit by moving traffic, but have as well acknowledged the possibility of a child to get lost or get stolen because of how packed the street is. However, other respondent like Street vendor 1, had a contrary view, saying the street is safe for children because she had raised a child on the same street and she haven't experience any challenges. Most respondents have as well indicated that the street was not best to raise children on it because most felt that it was not a good environment for children on the basis that the street is too busy and there are criminal activities occurring on the street. Yet all the respondents have indicated that they won't relocate from the street, because the street was the best comparing to other streets in the city.

All the respondents on the moderate traffic volume street stated that the street was not safe for children and the elderly because of the traffic and criminal activities occurring on the street. The respondents indicated that it will be difficult for children and the elderly to cross the street and as well keep up with pace of pedestrians on sidewalks. But as well they have describe that it will not be safe for them since people along the street get mugged. Resident 1 answered by saying "*the street is not safe for*

children. They will get hit by cars and in terms of the elderly, it is the same for them, imagine an old granny trying to cross the street or maybe even walking on this congested pavements, it will be a disaster". Most felt that the street was not the best place to raise children on it, since it does not accommodate children. Nonetheless they mentioned that the street was very convenient and they will not relocate from the street.

On a heavy traffic volume street, respondents have strongly explained how dangerous the street is for children and the elderly. Resident 1 stated that the street is totally not safe for children. She emphasized that with the amount of accidents and as well the amount of criminal activities taking place children will not be safe, since even adults and the elderly are not an exception. Respondent felt the street was not safe for everyone, including motorist themselves who are victims of traffic accidents and hijackings. They felt the street was not a best place to raise children on and as a result some indicated that they will be relocating from the street. Resident 3 respondent by saying "*no I won't raise a child here. Actually I'm expecting babe and I'll be moving out soon. The street is just too busy*". But one respondent in the contrary agreed that given her circumstances, which she work in the city centre, the street will be convenient for her to raise a child.

This in summary shows that as traffic volume increase, residents and other street users felt that the street was not safe for children and the elderly, but in terms of safety again it indicated that traffic volume was not the only variable that affects liveability of the street. It must be noted that on a light traffic volume street, street users indicated that the street was unsafe because of criminal activities taking place, but from a moderate traffic volume street to heavy its traffic and criminal activities that street users are worried about.

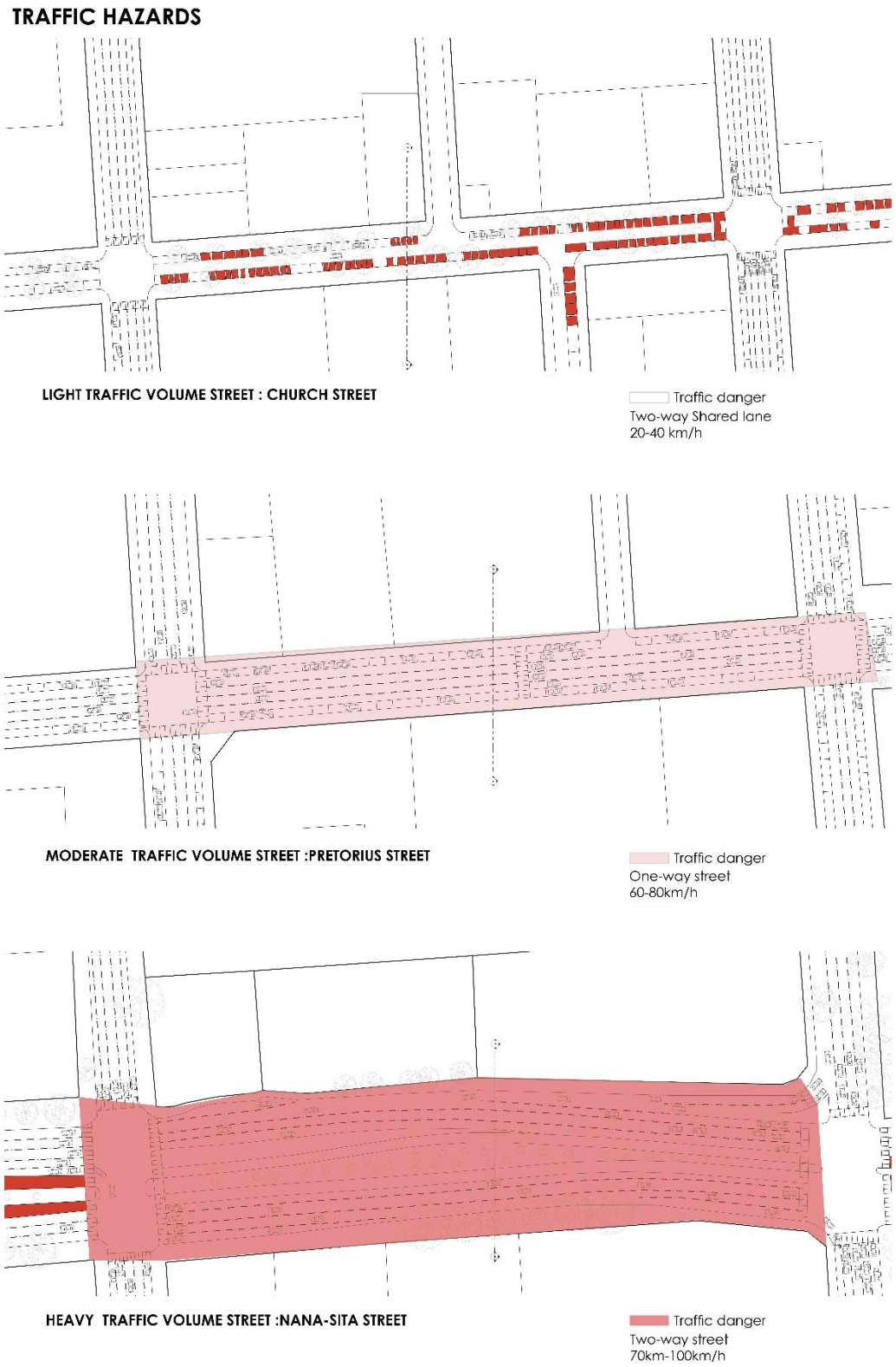


***Figure 23**: The maps shows Traffic hazards occurring on the three streets of Pretoria (Map drawn by Tswai, 2021).*

5.2.4. Stress, including noise and air pollution

i. Noise Levels

In terms of noise, respondents on a light traffic volume street indicated that the street have some levels of noise due to pedestrian activity. Resident 2 suggested that the noise represent the activeness of the street and it was something that keeps the street alive. The noise comprises of people signing, promotional music and performances, people interacting and street vendors calling out customers (marketing). The respondents regarded this as positive noise, particularly by Resident 2 and Resident 3. Resident 3 stated that "*But aside from noise from people shouting and talking, most of the time people sing and perform on the street and that for me it's beautiful and I can say is a positive noise, I actually do listen and watch*". Most of the respondents have said that the noise from pedestrian activity affect them positively, for example, Resident 2 explained by saying "*it affects me positively, cause as you can listen now, the music their playing outside is gospel, isn't it uplifting? So it shows that we are in the city and the street as well allows and accommodates such activities*". However other respondents have indicated that sometimes the noise is disturbing and irritating especially when they are studying or when they are not in the mood to tolerate it. On the other had others have mentioned that they have adapted and when the noise is loud for them they close their windows.

Respondents on a moderate traffic volume street have strong said that the noise level on the street is relatively high and it is very disturbing. When some indicated that they are now used to it. They have stated that the noise comes from moving traffic, sirens of emergency vehicles and taxis hooting. And indicated that this affected them negatively especially when they are studying. Even when some are used to the noise levels on the street, most indicated that most of the time they close their window as a way of coping with the noise on the street.

According to the respondents, a heavy traffic volume street have a high level of noise. They have described the noise as being too much and too loud and indicated that it was extremely annoying and disturbing. It was stated that the noise comes from flowing traffic, emergency vehicle sirens, car crashes, people screaming loudly when getting mugged, taxis hooting and music from cars. Resident 1 described the sources of noise by saying "*is noise from flowing traffic, emergency vehicle sirens, car crashes, people crying loudly when getting mugged, taxis hooting, honestly the things we hear*

and see can be traumatising sometimes and you don't get used to it" . The street respondent indicated that the noise levels on the street affected them greatly, because sometimes the noises are traumatising, but as well it is affecting their residential life, like when watching television or studying. Most of them stated that they close their windows to reduce the noise, even when Resident 1 mentioned that sometimes you end up not closing the window when is extremely hot in the room, but as well is noisy outside.

This illustrate that the level of noise on the street increase as traffic volume increases, which annoys and disturb the residents and other street users particularly noise from traffic.

ii. Pollution on the street

In terms of pollution, respondents on a light traffic volume street noticed that their street is kept clean and the trees along the street probably help with purifying the air. Most indicated that even when sometimes they experience smells from the street of people smoking, but they have not witnessed any major pollution on the street. However on a moderate traffic volume street, some respondents have indicated that the air is polluted by metro buses and also the presence of traffic on the street suggested that there is some level of air pollution on the street. On the heavy traffic volume street, the respondents stated that there is levels of air pollution form moving traffic and as well during accidents when car burns. But as well there have indicated littering and where they indicated that homeless people use the street to relieve themselves as well and this was also seen during field work.

Even when most of these findings were mostly based on some assumption (for example, the presence of traffic suggest some level of air pollution) and of course with some activities taking place on the streets, it is evident that an increase in traffic volume increases the level of street pollution.



***Figure 24**: The maps illustrate Noise, stress and pollution occurring on the three streets of Pretoria (Map drawn by Tswai, 2021).*

5.3. The impacts of traffic volume on the quality of street life in Pretoria.

The findings have revealed that all liveability indicators correlate inversely with traffic volume. This means that low or light traffic volume increases the liveability or the quality of street life in Pretoria. This confirms some theoretical expectation from Donald Appleyard study that heavy traffic volume create a whole range of problems for residents and other street users on the street.

5.3.1. Social interactions

This study has shown that a decrease in traffic volume, resulted in a street having more diverse street activity, engaged street users, more friendship and acquaintances patterns as compared to a heavy traffic volume street, the street was perceived to be friendly in terms of traffic and perceived to have a strong sense of community. As a result, this patterns encouraged social interactions on the street and consequently increasing the liveability of a street or the quality of street life.

On the contrary, when traffic volume is increased, there was a decrease of activities taking place on the street, there were fewer friendship and acquaintances patterns and connections and the street was seen as been hostile and dangerous in terms of traffic. And lastly street users on a heavy traffic volume street, did not perceive the street as a place for community to interact and belong. And this patterns discouraged social interaction on the street, making the street to have a decreased quality of street life.

5.3.2. Privacy and home territory

The study also revealed that a decrease in traffic volume caused an increasing amount of street users who felt that they had a responsibility over their street. In this case of Pretoria, these were street users who participated in economic opportunities found on the street. But furthermore a decrease in traffic volume also gave rise to residents who perceived the street as their home territory, which reflected feelings of stewardship and great pride for their street.

However, all the residents on the three streets have claimed to have sufficient privacy, they have all experienced some noise disturbances. The difference is the level of noise

on each street and as well the source of that noise. Therefore the perception on privacy was consistent in all three streets, but the level of noise disturbances were high on a heavy traffic volume street and their sense of territory did not extend into the street and it was strictly confined to their apartments. And therefore this reduced the level of quality of street life or liveability.

5.3.3. Traffic Hazards

In terms of traffic hazards, this study revealed traffic was a matter of concern on a moderate and heavy traffic volume street. An increase in traffic volume resulted in an increase in the number of traffic accidents and how frequent they occurred. And increased as well traffic speed. As consequence, street users felt that their lives were exposed to traffic danger, particularly children and the elderly. This as well reduced the level of liveability on a street.

But in terms of safety, the study revealed that traffic volume was not the only variable influencing liveability on the street. Since all the respondents indicated that all the streets were not safe because of criminal activities taking place on them.

5.3.4. Stress, including noise and air pollution

Appleyard (1981) indicated that noise, air pollution and vibrations may be stressful for people living or using the street. This study demonstrated that as traffic volume increases on the street, it give rise to high levels of noise on the street increase, which tend to be annoying, irritating and disturbing to all the street users, particularly noise from traffic. Furthermore resident also complained about air pollution and litter as traffic volume increased.

Chapter Six: Analysis of findings

The previous chapter has thoroughly described the findings for the various liveability indicators in three streets in Pretoria. It compared responses of residents and other street users on streets with heavy, moderate and light traffic volumes and measured the effects on four liveability indicators including social interaction, stress, traffic hazard, and privacy and home territory. As an attempt to answer the research question, the results confirmed Appleyard's findings that all four liveability indicators correlate inversely with traffic volume in San Francisco are applicable in Pretoria. Therefore this chapter will further employ the results in order to answer the sub questions of the research.

6.1. The relationship between traffic volume and pedestrian activity.

The findings suggested that as traffic volume decreases on the street, there was an increase in street activity and diversity of pedestrian activities and the more people felt that the street was friendly and had a sense of community. A light traffic volume was characterised by street performances, street vending, and street photography, and walking, seating, skirting, street soccer, people eating, shopping on formal retail stores and exercising.

Carmona and Tiesdell (2007) divided these activities in three activities which are, necessary activities, optional activities and social activities.in this case necessary activities are those that compulsory, like street vending, whereas optional activities being those that occur when the exterior conditions are optimal, when weather and place invite them, for example people playing street soccer . Carmona and Tiesdell (2007) define social activities as resultant activities, those that evolve from compulsory and optional activities such as people seating and eating, street performances and people interacting. This implies that lack of traffic on as street create a better condition(human scaled blocks, open and active ground floors) and space for this activities to occur. And as a result Jacobs (1961) and Jacobs (1993) noted that a street which is characterised by these range of activities becomes friendly, safe, comfortable and more liveable. But in terms of safety, Jacobs (1961) and (1993)

statement was challenged in Pretoria. Respondents indicated that the occurrence of this activities attract criminal on the street.

However, the other two streets, moderate and heavy traffic volume street are characterised by necessary activities, like for instance people walking, people visiting fast food restaurants and some doing shopping or some waiting for the bus. This is because there is not enough space for other activities to occur, the noise from traffic makes casual conversations much more difficult, the flow of traffic creates impediments to freedom of movement, the threat of car accidents and crashes causes parents to keep their children away from the street, air pollution make its unpleasant to spend time on the street, so people only use the street when it is necessary, not a potential place for social opportunities, hence the street becomes more unliveable for its residents(Hart, 2008). These factors will also tend to hinder formation of community.

6.2. Other variables other than traffic flow influencing liveability in Pretoria.

6.2.1. Crime

Appleyard`s four liveability indicators did not consider crime as a variable influencing liveability. However in the context of Pretoria, crime was considerable concern related to safety among the residents and other street users on the three streets more than traffic, it seem as traffic was not a problem. This study revealed that the criminal activities affected the behaviour of street users on how they perceived the street and on how they use it. Criminal activities such muggings, pick pocketing, robbery and hijacking resulted in making people to use the road only during specific times of the day and as well on specific days of the month. For example, some residents on Church Street, a light traffic street indicated that they avoid walking or using the street during month end because that when a lot of pick pocketing and muggings take place. Some have totally no longer us the street, like a resident in Nana-sita Street, a heavy traffic volume street, opting to walk or use other alternative streets, even when they are indirect and not easily accessible. This of course influence the liveability of a street.

According to Jacobs & Appleyard (1987) a liveable city or street should be a place where everyone can live in relative comfort, with well managed environment relatively devoid of danger and other unwelcome intrusions. And in addition, Francis (2016) and Jacobs (1961) notes that a safe street contributes to liveability of the city by enhancing people`s sense of comfort and giving them freedom to choose to walk without any fear of danger. Most residents and other street users have described how unfriendly the street was especially because of criminal activities taking place on their streets. Jacob (1993) argues that this activities occurs because the streets are dead with lack of pedestrian activities that can bring community and visual surveillance (eyes on the street), inactive ground floors and heavy traffic volume.

However in Pretoria, it can be agreed that the intensity of criminal activities on the streets increased with an increase in traffic volume, but challenging Jacobs (1993) argument, residents still felt unsafe even on an active and light traffic volume street, characterised by diverse pedestrian activities and activated and open ground floors. Residents felt that the street`s activity was too much and criminals used that as an opportunity to get more targets. Most have as well indicated that, the street was not a good place to raise a child since there were high possibilities for the child to get lost or abducted. Therefore the more criminal activities on the street, the less liveable the street tend to be perceived.

6.2.2. Economic activities

This study has shown a decrease in the number of economic activities taking place on the street as traffic volume increased. Most residents in a light traffic volume street indicated that the presence of street vending made the street to be more convenient in the sense that they were able to get everything they need on the street, within a walking distance. The respondents on moderate traffic Volume Street, revealed that there were pockets of street vending and as well street entrepreneurs such as car guards, car washer, parking assistant, people who assisted with carrying groceries and others. Aside from the economic benefits they get on the street, the study indicated how this activities encouraged social interaction on the street.

According to Gehl & Matan (2009) and miller (2007) describes liveable streets as places where economic exchange occurs. And Ajaria (2006) further notes that both

formal and non-formal economic activities such as street vending offers convenient access to economical goods and services for a wide range of income groups, especially the poor and also providing opportunities of employment for the urban poor. Carmona and Tiesdell (2007) categorises economic activities on the street as necessary activities that brings about social activities or resultant activities such as meeting or interacting with a friend. Some respondents in this study, choose to live on a light traffic volume street because it offered economic opportunities or some form of informal employment and it was in close proximity distance to their place of residence. Again these activities brought about opportunities and convenience hence improving the quality of street life or liveability.

6.2.3. Human-centred Street design

Giles-Corti & Donovan (2002) argues that there is an increasing evidence that street design has a major ability not only to influence driver behaviour but also impact individual travel choices. A light traffic volume street, Church Street is considered to be safer in terms of traffic danger, more active in terms of pedestrian activity and more liveable compared to the other two street. The street consist of the following street elements such as human scaled street blocks, activated ground floors, space allocated for street trading, traffic calming measures such as paved road surface, limited number of parking spaces and wide sidewalks and provision of street furniture and street vegetation. This elements encourages a friendly environment for the residents and other street users to walk, socialize and be able to increase their friendships and acquaintances, to be a community, to utilise economic opportunities and this result at reduced, traffic noise, air pollution and traffic accidents and other undesirable impacts.

Dudley (2014) mentioned that a street should cater pedestrians with physical comfort, which is fundamental element of liveability. This elements of human-centred street design on a light traffic volume street, Church Street, improved its liveability as compared to the other two streets, Pretorius and Nana-Sita Street.

Chapter Seven: Conclusion and implication for Development Planning

7.1. Overview of research

This research report aimed to explore and assess the impacts of traffic volume on the quality of street life or liveability in Pretoria, through applying an existing research study of Donald Appleyard's (1981) as a theoretical model. Like Donald Appleyard`s original study, this research compared responses of residents and other street users on streets with heavy, moderate and light traffic volumes and measured the effects on four liveability indicators including social interaction, stress, traffic hazard, and privacy and home territory. The results confirm that Appleyard's findings that all four liveability indicators correlate inversely with traffic volume in San Francisco are applicable in South African context in the CBD of Pretoria, but furthermore this study also revealed strongly that there are other variable other than traffic volume influencing liveability in Pretoria including crime, economic activities and human-centred street design.

However, there has been criticism of the original Appleyard study that it failed to take into account the bias of self-selection that people who tended to be less social will prefer to live on a less social street, whereas highly social people would choose to live in a social street. People will choose to live on certain streets based on their preference and other factors such as their personality, affordability, convenience and access. While it is probably true that those who are most sensitive to traffic choose to live away from it, and those who are already adapted to heavy traffic, or aren't particularly bothered by it are more amenable to living on a busier street.

But for residents who own a car, wouldn't prefer to stay on Church Street even when this study present it as a more liveable street, whereby there isn't enough parking spaces. Even when the study have shown that the participants did recognize the impacts of traffic, there are other factors that they choose over traffic impacts such as convenience, affordability and access.

7.2. Implication for Development Planning

As Kost et al (2011) highlights that many cities across the globe struggle to reconcile the competing needs of mobility and liveability. This study have revealed the negative impacts of traffic on the quality of life in the city of Pretoria. Even when Banerjee (2001) admits that while such problems have been addressed in some parts of the world, they simply grown apace in others and South African cities are not an exception. Particularly given the historical spatial planning, where people are currently forced to travel into and out of the city every day. Faced with a reality of unreliable, unsustainable and unaffordable public transport, most people in the city are cornered to use their private cars as a convenient option.

Given this context and the results of this study, it seem very impractical to totally get rid of the motor vehicle on the street but at the same time, even when they`re appreciated for their benefits of mobility and access, but their negative impacts cannot be avoided. Hart (2008) notes that individuals would like to maintain the level of mobility they are accustomed to, while avoiding the negative impacts of other's mobility. In other words, we want to be able to drive through other people's neighbourhoods, we just don't want anyone driving through our own as Patton (2007) stated. Most of us want the best of both worlds. We want to live in a safe neighbourhood free of noise and air pollution. We want to be a part of a healthy local community with many friends and acquaintances. We want to live in a world without the threat of potentially catastrophic future climate change. Yet we still want to retain unlimited auto mobility, and perceive any attempt to address growing traffic volumes as a restriction on our personal freedoms even our quality of life (Steg and Gifford, 2005). Yet as the study revealed it is impossible to have both mass unfettered mobility and a quality environment.

The light traffic volume street in this study, Church Street can suggest theories such as complete street and shared space principles as a way of improving liveability while retaining accessibility. The following are measures of how the functions of mobility and of public space contribute to the liveability of an urban street using church street as an example of a shared space:

7.2.1. Functions of Mobility or travel-way realm

i. Provide Travel mode choice

According to Denver (2012) the availability of travel choice gives people both independence and control over their lives. Providing choice contributes to liveability by allowing people to provide for their own needs and aspirations, without dependency on others to meet their transportation needs. If people have a choice to travel independently, it encourages them to care for their own needs. Therefore streets that comfortably accommodates different modes of transport including public, private motor vehicles and non-motorised provide choice and convenience which contribute to liveability.

ii. Support the economic vitality of a street and the city

Denver (2012), Dudley (2014) and Gewald (2005) mentioned that the motor vehicle is essential in growing wealth and productivity. Maintaining the economic vitality of the region or of street as it relates to the mobility and accessibility of goods and services is an essential aspect of the transportation system. Streets are vital for day-to-day operation of the region's employment centres, industrial areas and commerce centres. Therefore, street design must accommodate the accessibility and movement of goods by truck. Traffic as well creates high employment opportunities from formal to informal, such as car guarding, car washing, parking assistants and others as seen on this study.

7.2.2. Functions of public space/Pedestrian realm

i. Support public social contact interaction

Public social contact shapes our personal identity, fosters learning and influences our social behaviour. Creating street environments where people have the opportunity to formally organize, such as for a public outdoor market or festival, or informally gather, such as to pursue recreational, leisure or social activity, are both necessary and desirable. For example: social greetings, conversations and passive contacts, where people simply see and hear other people, are those social activities that shape our

personal identity by how we choose to respond. This type of social activity depends on the presence of people in the same physical environment, whether it is a street or a public park. For this to occur spontaneously, these activities need to be in a safe and comfortable environment that supports open public social contact.

ii. Provide for safe environments

According to Francis (2016) and Jacobs (1961) a safe environment minimizes exposure to vehicle accidents and other hazards, and contributes to liveability by enhancing people's sense of comfort and giving them freedom to choose to walk without any danger. Creating a safe environment requires controlling negative impacts of traffic, pollution, crime and other undesirable impacts. A safe environment also supports people choosing an alternative to the automobile and fosters public social contact, as described. According to Jacobs (1993) Safe environments also occur when there is activity on the street because there is visual surveillance (eyes on the street). But also the provision of lined trees, bollards and also curbs, create a safe and liveable street.

iii. Provide for physical comfort

Dudley (2014) mentioned that pedestrian realm cater for physical comfort, which is fundamental an element of liveability. It includes attention to human sensory experience. If an environment is physically uncomfortable and unattractive, people will choose to travel by car or choose to do only those outdoor activities that are absolutely necessary. Other desirable activities that create pedestrian places, such as window shopping, will not take place. Providing physical comfort requires considering temperature, wind, rain, sun and shade for human comfort and it also requires controlling physical nuisances such as traffic, noise and pollution and street furniture.

iv. Provide high quality of construction and design to a street

The pedestrian realm contributes with high-quality design than the travel-way realm. It takes into consideration, human scale, function and sensory experience. It is creating an attractive and functional pedestrian environment. High-quality design and construction provides many benefits: it enhances the quality of the physical

environment; it supports human comfort and safety, it can enhance the status and economic value of adjacent properties, it can provide identity to a street and it can support public social activity.

7.3. Avenues for further research

This study was limited in its scope and conducted during a short time frame. It applied strictly the theoretical model of Donald Appleyard liveable streets of course with some difference in context. Liveability as a very broad concept, this study was only limited to the four liveability indicators that Donald Appleyard used and applied his methodology. Further enquiry is needed into several aspects of theory that this research touches upon. For example, how can the residents of Pretoria define their own perceived liveability and what influences that liveability? It will also be of interest to evaluate the impacts of crime, street design and economic activity on the quality of life or liveability in Pretoria.

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Annexure

Interview Guide

The interview guide is structured in four liveability indicators.

1. Social Interaction

1.1. Which activities happen on this street?
1.2. How friendly is your street?
1.3. Do you have a lot of family, friends and acquaintances along the street? How can you describe those acquaintances?
1.4. Where do you meet aside from your place of residence?
1.5. Do you think the community engagement is good on this street? And why?
1.6. What do you think causes activity and interactions on the street?
1.7. What role does the physical character of the street play in encouraging pedestrian activity and interaction?
1.8. How does traffic impact social interactions on this street?
1.9. How do you describe the walking condition on the street?

2. Privacy and Home Territory

2.1. What are the responsibilities you have over this street?
2.2. Does the street feel like home to you? And why?
2.3. What spaces, outside your residence do you consider as home territory?
2.4. How far do you feel your home territorial spaces extends to?
2.5. Do you have sufficient privacy on this street? And why?
2.6. How does traffic impact your privacy and home territory?
2.7. How does street activity impact your privacy and home territory?

3. Traffic Hazard

3.1. How safe is the street for children?
3.2. How safe is the street for the elderly?
3.3. Do you think this street is best to raise children on it?
3.4. What are the traffic hazards you have identified or experienced on the street?
3.5. How fast is the traffic on the street?
3.6. Have you ever heard or witnessed any traffic accident on the street? And what happened?
3.7. How often does traffic accident occur?
3.8. What causes this accidents?
3.9. How does the occurrence of traffic accidents affect the use of the street?

4. Stress , including noise and air pollution

4.1. What do you think of noise on this street?
4.2. What are the causes or sources of noise on this street?
4.3. How does the noise affect you?
4.4. How do you cope with the noise?
4.5. What do you think about the air quality on this street?
4.6. What contributes to the quality of air you have on this street?
4.7. How does that the air quality on the street affect your wellness?

5. General Questions

5.1. Since you have been staying on this street, what changes have you witnessed in terms of traffic and street life?
5.2. If you had a choice, would you relocate from this street? And why?
5.3. What do you perceive as a great street?
5.4. How does the traffic volume influence your residential life here?

Interview Responses for Church Street

07 September 2021

From 10h00- 16h30

Interviews taking place along the street

Findings by Theme

1. **Social Interaction**;

1.1. **Resident 1** (21 year old female, 1year)

Q1.1: a lot of people walking, selling and dancing

Q1.2: the street is very friendly and safe, there are security guards and a lot of activity happening around.

Q1.3: I don't have friends or any family members along church, but I do have friends along Pretorius that I normally go visit them.

Q1.4: I normally go buy fruits and veggies on the stalls outside and some other accessories, but the other place I visit is ShopRite, which I do my monthly groceries, but I won't consider the spaces as meeting places unless if I bump into friends unplanned.

Q1.5: I don't think so because I haven't seen people or strangers communicating with each other unless if there are people who know each other or even work together.

Q1.6: I think is because of the friendliness of the street, there isn't much criminal activities taking place and there is as well street vendors.

Q1.7: I think the reason why people can sell outside on Church Street is because there is a physical space for them to undertake their business and that is due to lack of traffic tolerance on the street, example large paving and street vendor demarcations.

Q1.8: lack of traffic along Church Street allows certain activities to occur and those activities encourages social interactions, for example; people who work on the formal retail establishment on the street normally come to sit along the street to eat their lunch and I guess most also buy their lunches on this vendors. So lack of traffic has a positive impact on the street activity and social interactions.

Q1.9: I will say it depends, it sometimes gets so busy and packed by people walking that you can`t easily walk and during that time there is some criminal activities taking placing like lot of pick pocketing.

1.2. **Resident 2** (48 year old male, 11 years)

Q1.1: People performing for money and street vending.

Q1.2: The Street is safe but sometimes around month end people from Soshanguve, Mabopane and Mamelodi come to this street to do pick pocketing because of the amount of people use this street around that time. To just walk is very safe.

Q1.3: I live with my family, my wife and kids. But I also have a brother who stays along the street. I was the one who recruited him to come stay here.

Q1.4: we normally go to Sammy Marks square, and my kids love Mc Donalds and chicken licken. But as well we do our groceries along the street, at Woolworts and Shoprite.

Q1.5: most definitely, we know each other and most of the time when we meet, we interact. Most of the people who sell on the street lives along the street, some stays with us in this building. So we even support their businesses. You won't dare even try rob those street vendors, they are a community, you rob one they all attack you. They work together so that the can make the street safe and comfortable for their customers.

Q1.6: is the economic activities that attracts most of the pedestrian to use the street. Because of this street vending people interact and also bring about complementary activities such as art performances, street entrepreneurs such as drawing artist and photographers and others.

Q1.7: the physical character of the street has limited the amount of cars that can use the street and as well limited their speed as well. The street is paved not tared and it has very large pedestrian pavements and street furniture and vegetation. As compared to other streets in the city, look at Lillian Ngoyi for example.

Q1.8: not at all. The traffic is just cash in transit vehicles, deliveries and parking for people working on retail establishment along church. And their monitored and controlled.

Q1.9: movement is not that disturbed even during month end, you can walk freely, but of course this is the city you need to be more careful about your surroundings.

1.3. **Resident 3** (24 year old female, 4 years)

Q1.1: It's more like street vending.

Q1.2: Not too friendly. It's too packed, there are a lot of people. They are stealing and all this things.

Q1.3: no I don't have any person I know.

Q1.4: We normally meet at Church Square, Pretorius Macdonald and Sammy marks square. I use Shoprite as well for my groceries and Watloo for veggies.

Q1.5: There is people I know from the building who are street vendors along church and a lot of people from the building support those people` business. I sometimes as well go buy few things and you`ll people taking to each, some eating together or just seating and smoking. So yes I think so.

Q1.6: because a lot of people love it. It doesn't have much traffic and as well people can pass by to buy a few items while proceeding to their destinations.

Q1.7: I think the physical character of the street encourages this lot of pedestrian activity, for example, having designated spaces for street vendors, having large pavements and street furniture.

Q1.8: I don't think they do have impact, traffic is not that much, is only few cars moving around on the street.

Q1.9: is too dangerous for me yooh. Is just too packed and they rob people on the street especially us, women.

1.4. **Resident 4** (23 year old male, 1year)

Q1.1: Church Street is a place where the youth get to bound, it's like a youth hub basically, where the youth promote fashion, music, entrepreneur skills and art performances.

Q1.2: the street is eco-friendly, there is security and the street has vibe. During the day the street is also a place of business. And that has made the street to be friendly.

Q1.3: no, I don't have

Q1.4: Sammy Marks square, church square and union buildings. I go there to cool off my mind. And I also go to retail facilities along the street.

Q1.5: yes there is, as I have said that church street to me is more of a youth hub, young people selling on the street, those who work on the retail shops, the one who uses the street to perform and promote, they usually engage and support one another, to such that most people know who is who .

Q1.6: I feel like is the stalls and other businesses that I mostly run by young people. Which attracts people in the city. For example street photography, most young use the street in order to get random portraits and images of themselves walking through the street, with its monumental buildings , squares and contemporary street design.

Q1.7: the trees alongside the street are normally used for shadow especially during sunny days and they have as well benches around. They encourage activity along the street because most of people working on the retail shops along the street uses the during their lunch breaks instead of having lunch inside the stores. The pavements are large and you have enough space to walk and stop, without disturbing pedestrian movement much.

Q1.8: it doesn't affect anything, because as you can see, there isn't much of traffic on Church Street. But one can say it affects activity in positive way, such that it allows space for pedestrian activity and interactions.

Q1.9: is very exciting to walk through Church Street, because there are so many activities to see and experience, but as well is safe and convenient. You don't have to run to cross the street or look from back.

1.5. **Resident 5**(18 year old female, 8 months)

Q1.1: there are a lot of people selling on the streets and people like chilling outside shops.

Q1.2: it's friendly for me you know, because the street is busy and active, so you can't get mugged because of that.

Q1.3: yes I do have someone who is close. I have a cousin who lives on Church Street.

Q1.4: we normally meet at church square. We used to sometimes meet at Sammy Marks Square, but currently is far for me to go that side. So we meet at church square.

Q1.5: yes I think there is. For example at church square there is a lot of community engagement and interaction. Aside from friends, we meet our roommates, our building mate and school mates there. And of course when we do meet, we interact with one another.

Q1.6: comparing it with other streets, I would say the cause of this activities is lack of traffic on the street. That has allowed space for pedestrian activities. I also think street furniture influences this activities as well, most street in Pretoria don't have street benches, so Church Street offers that, it allows you to pause a bit and experience the street.

Q1.7: as I have indicated in my previous answer that street design, space and street furniture do encourage pedestrian activity and interactions.

Q1.8: I wouldn't say traffic, but lack of traffic on Church Street has allowed pedestrian space to perform diverse activities, including social interactions.

Q1.9: the street is too packed, most of the time when I walk on church I'm worried of my safety. Because have you seen those people who sells grocery bags? My mom once got robbed that side by those people.

1.6. **Street Visitor 1** (34 year old female)

Q1.1: skirting, football and aerobics, promotions

Q1.2: it's safe because currently is one of the street where you have soldiers and security personnel.

Q1.3: I have a friend who works along the street

Q1.4: we normally meet at her place of work, just in passing, aside from that we meet at church square.

Q1.5: it's very good, hence sometimes i do canvasing on this street.

Q1.6: because Church Street has two most used facilities in the city, Church square which is an open space and Sammy Marks square(being a retail square, adjacent to the state theatre) and as well the historical background it has.

Q1.7: the design of the street and this spaces allows for this activities to take places.

Q1.8: the traffic on the street does not affect pedestrian activities and interaction

Q1.9: I can walk conformably without any disturbance or fear

1.7. **Street Visitor 2** (22 year old female)

Q1.1: people are selling different products

Q1.2: it's not friendly because we don`t even greet each other, I guess people are just minding their business.

Q1.3: no I don't have any one. I just come here to buy my groceries.

Q1.4: we meet at Sammy Marks Square

Q1.5: it's not so good because I have once got mugged on this street. I would believe if the street had a good community engagement they wouldn't treat other people like that, or have cases where people get mugged. It will be a street where even strangers and women are treated as equals, respectfully and in honour.

Q1.6: I think aside street vendors, people who cause this activity and social interactions are street entrepreneurs, street photographers and people who clean shoes. Those are the people who interact with us.

Q1.7: the street reserve is not too wide, that makes it easy for us to walk across the street and be able to do multiple activities on the street.

Q1.8: on church we walk freely without the confusion of crossing the street, and as i have said the space is only used for pedestrian activity. So I will say less traffic encourages social interactions.

Q1.9: the street is walkable.

1.8. **Street Vendor 1** (49 year old female, 21 years)

Q1.1: People are walking up and down and we are selling different products to them.

Q1.2: I guess is very friendly more especially for us street vendors. We have our own designated spaces and as you can see as people pass by support our business.

Q1.3: I live with my family at along the street. But aside I have a lot of people I know along the street, customers, my fellow street vendors and also people that I share the building with.

Q1.5: yes there is. We are a community. If one of us were to be robbed, we stand together to fight that particular person. A lot of thieves knows that they can do as they please to people passing by, in which some are our customers, but not to our businesses. They play far. Sometimes as well if we see a criminal activity taking place, maybe someone getting mugged we go and help that particular person because most of this people are our customers, some we know by name.

Q1.6: of course it is our businesses. As I have mentioned we do interact with our customers and other pedestrians using the street. People come here to buy and that afford them with an opportunity to experience the street.

Q1.7: I think the physical character of the street encourages pedestrian activity in sense that we have enough spaces to trade on, enough to sit, and enough for movement. So this activity are happening because there is enough space to allow activity. For us street vendors, we are only allowed to be here only when you have a business license. And for the purposes of order, your license determine your space allocation. (At this point during our interview two women came, as they were buying vegetables, they were calling each other Mkhaya, translating to an acquaintance from the neighbourhood)

Q1.8: as you can see the absence of traffic has allowed us a space to make a living.

Q1.9: it's very safe here, for business.

1.9. **Street Vendor 2** (34 year old male, 8 years)

Q1.1: a dominant activity is street vending and pedestrian activity (walking, seating, people dancing and homeless people singing)

Q1.2: the street is very friendly for business and for social life as well.

Q1.3: yes I do, I have a lot of friends (people that I'm working with, but as well people that I know including customers.

Q1.5: yes I think is good, especially among street vendors. We are like a family and we help each other, we look after one another and we know each other beyond just being street vendors.

Q1.6: is because there is high amount of people using this street. Then for most of us this was an opportunity to do business since it was going to be exposed to a lot of people. Some people are it was a good place to promote their music, some people are seating to watch the promotions and yes overall there is this intense pedestrian activity interactions.

Q1.7: I think having things like trees and street benches, allow people to seat and watch, some people even have lunch under this trees. But also wide pavements also allows people to be able to stop and buy and even interact with other people.

Q1.8: I don't think the amount of traffic have any impact on the social interaction on this street.

Q1.9: I think walking through church is very exciting because you experience different things block by block, it has different character as you move through it. And this is because of Sammy Marks square and State Theatre and on the other side church square. And is very safe.

2. **Privacy and home territory**;

2.1. **Resident1** (21 year old female, 1year)

Q2.1: I don't have any responsibility on the street.

Q2.2: yes it does, it's safe and convenient

Q2.3: I don`t have any space I consider home along church aside from my residence.

Q2.4: I guess it extend to the security booth.

Q2.5: Yes I do have privacy, because I have my own private apartment.

Q2.6: it doesn't impact it much, because there isn`t a lot of traffic on the street. But sometimes I get disturbed by the taxi hooting around my place, I guess that is on other streets but not church. Street such as Mandela Street.

Q2.7: yoh, there is a lot of noise from those stalls on the street and people walking pass, sometime music or people signing and sometimes that affects my privacy negatively, but you get used to it, because we are in the city centre not in a quite suburb.

2.2. **Resident 2** (48 year old male, 11 years)

Q2.1: I just pay my rent (laughing).

Q2.2: this is home because is safe and convenient. Everything is close-by and there is tight security in our building. I once stayed in some building and it wasn't safe for my children.

Q2.3: yes, my brothers place. But as well our flat is within centre walk property, so sometimes when you even direct people, you just mention centre walk.

Q2.4: up to the entry of the building. That's where our building ends, but my home is my apartment.

Q2.5: yes we do have sufficient privacy. Because i have a private space, which is my apartment.

Q2.6: It does not impact my privacy and home territory at all.

Q2.7: It does not impact it at all.

2.3. **Resident 3** (24 year old female, 4 years)

Q2.1: I don't have any responsibilities for the street.

Q2.2: it does feel home to me because you see a lot of people moving around and some activity always when you look outside. It reminds me of home.

Q2.3: No. I don't have any.

Q2.4: our property just end by the security booth

Q2.5; my privacy is good. Because I have full control of my room. If I want it closed I can easily get it closed, same applies to noise level, and I can simply shut my window. But sometimes you want some fresh breeze from outside but it's a bit noisy. Or you want some views but you don't open up because of the amount of people who will be looking at you.

Q2.6: traffic on the street does not impact me at all.

Q2.7: as in have said, the activity on the street sometimes disturb my privacy and my home territory because having lot of people looking at you on a balcony make me not use the balcony or a window for example.

2.4. **Resident4** (23 year old male, 1year)

Q2.1: no I don't have any and I don't fall under any street association or group.

Q2.2: yes I do feel like I'm home. Because I'm surrounded by people who are diverse and who are actively doing interesting things on the street and inside the buildings along the street.

Q2.3: church square. Because I'm always meeting my friends there and as well is space that you can chill properly in peace, without being disturbed. It's a space of pause and calm.

Q2.4: the Center walk (shopping centre) is part of my home territory because immediately when I walk into it I know I'm already home. I no longer have thoughts of getting mugged, I just know I'm home and safe.

Q2.5: yes I do have privacy. I have my own private space.

Q2.6: no it doesn't.

Q2.7: for me it depends on how I feel that day, when I want to cool off my mind it's a bit irritating, that's why I prefer going to church square or union buildings sometimes.

2.5. **Resident 5**(18 year old female, 8 months)

Q2.1: I don`t have any responsibilities.

Q2.2: Not really, the street is too packed for me. But I Love this building, so the building feels more like home for me.

Q2.3: the Park, Church Square. I know being that space I meet a lot of people I know from school, from this building, from church, some are people who work at retail shops along church. So that for me makes the space to be home.

Q2.4: I think it extends to Church Square.

Q2.5: yes we do. Like in any other building. The problem here is just the noise sometimes coming from people interacting on the streets.

Q2.6: it does not impact it

Q2.7: my privacy is not impacted that much except noise levels, but I guess it has increased my home territory, like at church square.

2.6. **Street Visitor 1** (34 year old female)

Q1: not applicable

2.7. **Street Visitor 2** (22 year old female)

Q1: not applicable

2.8. **Street Vendor 1** (49 year old female, 21 years)

Q2.1: yes I do have a responsibility. We pay for our licenses, so that the municipality can clean the street and provide other services.

Q2.2; Yes it does feel like home, I live and I work here.

Q2.3: my business space. Because I spend most of my time here.

Q2.4: where do you get water and which toilet facility do you use? From our place of residence. That's why most people who sell here live along the street or at least nearby.

2.9. **Street Vendor 2** (34 year old male, 8 years)

Q2.1:yes.i think is to always keep the street active, safe and clean.

Q2.2: honestly it does, this goes back to your question about community engagement, and there is a strong sense of community on this street. But aside I live here and I as well have a business here. So yes.

Q2.3: is my space here for business and my room at the flat.

Q2.4: where do you get water and which toilet facility do you use? I use my flat for all that. That's why I meet you at my building.

3. **Traffic Hazard**

3.1. **Resident1** (21 year old female, 1year)

Q3.1: Church Street is not safe for children because it gets too packed by people and a child can easily get lost or abducted or even stolen.

Q3.2; Its safe because in terms of crossing the street it won't be that of a difficulty as compared to other streets of high traffic volume.

Q3.3: I will say yes and No .because the apartment is very safe and close to other social amenities like church square (recreational park) and schools. It is easily accessible by foot, but in terms of the safety of the children walking by themselves on the street or to the park I will say no.

Q3.4: I haven`t seen one or even heard of. Is just incidents were you'll hear people screaming "catch him" which in most cases are victims of pick pocketing, cause it get so packed that sometimes is even difficult to walk freely, especially around month end .

Q3.5: the traffic on the street is slow because of people walking up and down and as well a lot of economic activities taking place.

Q3.6: No I haven't witnessed or heard of any traffic accident along Church Street since I have been here.

Q3.7: I have never seen one.

Q3.8: I wouldn't know

Q3.9: I wouldn't know

3.2. **Resident 2** (48 year old male, 11 years)

Q3.1: it's very safe for children to walk without any fear that they can get hit by a car but sometimes not safe as well when it's too packed. A child may get too overwhelm and get lost.

Q3.2: it's very safe, there is not speeding traffic.

Q3.3: yes I think so, that's why I moved from the other street to here, eleven years ago. But of course for now.in the future I might even need something better off.

Q3.4: no I have not seen one.

Q3.5: the traffic is very slow obviously because there is lot of pedestrian activity taking place on the street and as well traffic is very limited.

Q3.6: NA

Q3.7: NA

Q3.8: NA

Q3.9: NA

3.3. **Resident 3** (24 year old female, 4 years)

Q3.1: it's not safe at all, there is lot of crime and lot of people as well, and children can get lost or even abducted.

Q3.2: it's not safe as well for them because they can't really fight for themselves if a criminal activity occur.

Q3.3: No it's not. If the street is not safe for children then it will not be safe for the family.

Q3.4: I haven't seen any traffic hazard

Q3.5: very slow and I think is because there is no space for cars

Q3.6: No I haven't witnessed or heard of any traffic accident in my four year stay here.

Q3.7: NA

Q3.8: NA

Q3.9: NA

3.4. **Resident4** (23 year old male, 1year)

Q3.1: I wouldn't say it safe for children, because there is a lot of activity happening and there's also a lot of people passing through with unknown intentions. So for kids I don't think is safe.

Q3.2: its 50% safe and 50% unsafe. Safe from cars but not safe from the increasing number of people visiting the street daily.

Q3.3: no I don't think so. Because the life here is too fast, everything happen too fast and too busy.

Q3.4: I haven't seen any traffic hazard but I have seen a person getting mugged.

Q3.5: traffic is moving slow on this street.

Q3.6: NA

Q3.7: NA

Q3.8: NA

Q3.9; NA

3.5. **Resident 5**(18 year old female, 8 months)

Q3.1: the fact that there are no cars, its safe. But when comes to human trafficking they can take the kids. And children can get lost easily on a street so busy like church.

Q3.2: I guess same reasoning applies, safe from traffic, but very unsafe from getting mugged, like my mom.

Q3.3: No, is a very busy street.

Q3.4: no I have not.

Q3.5: the little traffic on the street moves slowly

Q3.6: No I haven't.

Q3.7: NA

Q3.8: NA

Q3.9: NA

3.6. **Street Visitor 1** (34 year old female)

Q3.1: is not safe for children, it is a busy street with pedestrian activity.

Q3.2: is not safe for the elderly because people here won't be friendly with them.

Q3.3: no, I don't think it is safe as I have explained that is too busy.

Q3.4: I have not witnessed any traffic hazard on this street

Q3.5: traffic is moving very slow

Q3.6: no I haven't

Q3.7: NA

Q3.8: NA

Q3.9: NA

3.7. **Street Visitor 2** (22 year old female)

Q3.1: it's not safe in terms of criminal activities occurring on the street, but I guess in terms of moving traffic, is very safe.

Q3.2: I guess the elderly are as much vulnerable as children, therefore it will be the same for them.

Q3.3: no I won't. It's not a good environment for children. Is too busy and dangerous for children. Children need a better environment where they can play safely without worrying about their safety.

Q3.4: there isn't any.

Q3.5: the traffic is slow

Q3.6: No I have not seen any

Q3.7: NA

Q3.8: NA

Q3.9: NA

3.8. **Street Vendor 1** (49 year old female, 21 years)

Q3.1: It is safe, yes. I have a child who was born here and I raised her here.

Q3.2: I will say for that group sometimes is not because during month, thieves like to target that group, knowing very well that they won't run after them.

Q3.3: yes as I have said that I have already did.

Q3.4: no I haven't.

Q3.5: is very slow, but as you can see it doesn't come to this part of the street.

Q3.6: no I haven't

Q3.7: NA

Q3.8: NA

Q3.9: NA

3.9. **Street Vendor 2** (34 year old male, 8 years)

Q3.1: honestly the street is too congested for children to walk around, remember the street is within the city centre and you cannot just let children to walk by themselves. But in terms of traffic, children are safe from it. Everyone is.

Q3.2: I think so, but sometimes they are not safe from criminal activities. But from traffic we are all safe.

Q3.3: as I have said that is too packed, children might not be as free as they could wish to be.

Q3.4: I have seen any on this street.

Q3.5: the traffic is moving slow.

Q3.6: no I haven't

Q3.7: NA

Q3.8: NA

Q3.9: NA

4. **Stress, including noise and air pollution**

4.1. **Resident1** (21 year old female, 1year)

Q4.1: There is a lot of noise sometimes of people signing or promotions, people talking especially the street vendors and sometimes even loud music from people who uses the street as a dancing platform.

Q4.2: since there is high amount of people passing or using the street every day and pedestrian activity, people see it as an opportunity to promote their music and talent (street performances).

Q4.3: it does not disturb me at all.

Q4.4: Normally I just close my window and it becomes all quite in my room.

Q4.5: I think it is polluted hence there is a lot of human presence and activity and also smell from the drain as well.

Q4.6: the quality is not bad, I guess that is because of a lot trees along the street that absorbs most of the little pollution we get sometimes.

Q4.7: no it doesn't affect my health or my wellness.

4.2. **Resident 2** (48 year old male, 11 years)

Q4.1: I think the noise represent the activeness of the street. The noise keeps the street alive and is not like is noise from cars or unwanted noise, is just music, people perfuming and people talking to each other.

Q4.2: mostly is people performing or signing and people talking.

Q4.3: it affects me positively, cause as you can listen now, the music their playing outside is gospel, isn't it uplifting? So it shows that we are in the city and the street as well allows and accommodates such activities.

Q4.4: if I'm not in the mood or I'm studying or I want quite, I just shut my window. The building is sound proof.

Q4.5: I don't think there is air pollution along the street. I haven't experienced any bad smell or something.

Q4.6: I don't think the quality is in any way affected, but I guess the trees plays a major role in purifying the air.

Q4.7: I think it improves my health for better. Its unpolluted oxygen.

4.3. **Resident 3** (24 year old female, 4 years)

Q4.1: when you up there, in my room, when you close your window, you can't hear any noise. But aside from noise from people shouting and talking, most of the time

people sing and perform on the street and that for me it's beautiful and I can say is a positive noise, I actually do listen and watch.

Q4.2: people talking, shouting, signing and music from people who are performing or doing promotions.

Q4.3: it's positive, but sometimes it's unwanted, like for instance when I'm studying or when I just want some silence and peace.

Q4.4: if I want to hear it I open the window and if not I just shut it.

Q4.5: is fine, not the best you could get, but best in the city.

Q4.6: I think is the trees we have on the street.

Q4.7: I can say it affects my health positively.

4.4. **Resident4** (23 year old male, 1year)

Q4.1; Like any other city centre, the noise will be there coming from different sources, people, traffic and music and other things. But the noise level on church street I have tolerable.

Q4.2: people interacting, street promotions and events and taxi hooting from other streets

Q4.3: yes it does, but as I have said it depends on my mood. Sometimes is good sometimes is irritating.

Q4.4: for me is adaptation, I have adapted to this kind of an environment. But most of the time if it's irritating I will just shut the window.

Q4.5: I think it's a bit polluted, by people smoking different things on the street and of course of course traffic from other streets do affect the air quality on this street. But there is a lot of trees as well if you look around which I think they help in improving the quality of the street.

Q4.6: a lot of people smoking different things

Q4.7: I know yet, I has just being a year staying here, and I haven't experience any air related complication.

4.5. **Resident 5**(18 year old female, 8 months)

Q4.1**:** noise pollution is very high. Those people who are selling are very noisy, they try will all they have to market their products, you will hear them shouting even before you pass by their stall.

Q4.2: is people selling, friends interacting, people promote music and as well music from retail stores, homeless people signing for money and traffic beeping as well from the close streets.

Q4.3: I'm a student, so you can imagine, how disturbing this can be sometimes.

Q4.4: most of the time I shut all the windows and study

Q4.5: it's fine for me. I won't say is polluted or not polluted

Q4.6: I wouldn't know

Q4.7: I don't think it does affect my wellness.

4.6. **Street Visitor 1** (34 year old female)

Q4.1: It is frustrating. There is just a lot to listen to.

Q4.2: is promotional music, music from stores, people singing, some selling.

Q4.3: as I have said it is frustrating, you don't know what to focus on.

Q4.4: I just ignore it and do what I came here to do.

Q4.5: is fine for me. Aside from food smells

Q4.6: some street vendors on the street sells vegetables and fruits and some are selling cooked food, so I guess the smell comes from those sources.

Q4.7: it doesn't at all. I'm just passing through

4.7. **Street Visitor 2** (22 year old female)

Q4.1; I can cope with the noise, but it's not that good.

Q4.2: music, cars from other streets, people interacting and selling on the street.

Q4.3: I'm used to it, so most of the time I just ignore it

Q4.4: I just focus on the things I came to do.

Q4.5: I can't say it's bad, so it is just fine. Because they isn't much of activities that pollute the air

Q4.6: there some trees so probably it does reduced the amount of pollution on the street.

Q4.7: it doesn't affect me.

4.8. **Street Vendor 1** (49 year old female, 21 years)

Q4.1: now we are used to this level of noise. It get us entertained

Q4.2: most of the time is us selling, as you can here now. But as well people like to promote music along this street, maybe because there is a lot of people using the street.

Q4.3: it keep us active and entertained

Q4.4: I guess we take it as a positive noise, because you could imagine, if it was quiet, it will turn to be boring and to some instances, it wouldn't attract customers.

Q4.5: I think its fine.

Q4.6: I don't know

Q4.7: I don't think it does affect my wellness.

4.9. **Street Vendor 2** (34 year old male, 8 years)

Q4.1: the noise is not bad, I'm used to it now.

Q4.2: I think mostly is music and people interacting.

Q4.3: it does not affect me that much, sometimes it keeps us revived, like today when they are playing gospel music.

Q4.4: if is not maybe music I love, I don't have any choice but to just listen or ignore. Because I can't leave my business unattended just because of boring music for example.

Q4.5: is good, there is no pollution on the street.

Q4.6: I don't know

Q4.7: is a good one maybe that is why I'm this healthy.

5. **General Questions**

5.1. **Resident 1** (21 year old female, 1year)

Q5.1: I haven't seen any changes.

Q5.2: No I wouldn't. This is home.

Q5.3: a street that has a lot of human presence, because I wouldn't get robbed easily.

Q5.4: on Church Street less traffic has made it very convenient and safe.

5.2. **Resident 2** (48 year old male, 11 years)

Q5.1: the only change I have seen is when the city was installing streets bollards and as well when they were painting or demarcating spaces for street vendors. Most of the work I think is just maintenance of the street.

Q5.2: no. I think this is the best place you can get in the city especially when you are staying with children. I will only relocate from here if maybe I'm going to a suburb or maybe I buy a house in the township.

Q5.3: a safe street for family including children and my wife.

Q5.4: the low traffic volume occurring on church street impact my residential life positively because promotes a safe environment for children and for people doing business on the street, thus that create convenient.

5.3. **Resident 3** (24 year old female, 4 years)

Q5.1: I have seen any change

Q5.2: I love it here, I won't change. Even when the street is not safe for me, I'm not an outgoing person, so I'm always indoors.

Q5.3: it's a safe one, it doesn't have to active as long as is safe.

Q5.4: of course less of traffic on the street makes life much easy and a bit safe.

5.4. **Resident4** (23 year old male, 1year)

Q5.1: I have seen a lot of buildings shutting down and new buildings being constructed.

Q5.2: not really. This is fine for me.

Q5.3: for me it is a best street, everything you need is close by, it is very convenient.

Q5.4: it doesn't at all. Cause I mostly walk.

5.5. **Resident 5**(18 year old female, 8 months)

Q5.1: I haven't seen any changes

Q5.2: I will relocate, is too busy for my liking, but as well my apartment is well located and convenient. Everything I need is just within a walking distance.

Q5.3: I prefer an active street, but yet a quiet one, because I'm a student. I don't know if that is possible. Because a quiet street is also boring for me. So I don't know really. Or maybe both busy and quiet, like certain days is quiet and some is busy.

Q5.4: less of traffic makes life a bit easy and more convenient.

5.6. **Street Visitor 1** (34 year old female)

Q5.2: no, the things that I need are specifically from Church Street.

Q5.3: a street that offers a variety of activities and its safe.

5.7. **Street Visitor 2** (22 year old female)

Q5.1: the street is busier than before, from 2014.

Q5.2: yeah I would, I come here for shopping and so there are other shops that I can go to, is just that everything is just around and very convenient.

Q5.3: a street that has everything on it, shopping facilities, residential, schools and other diverse land uses and activities.

5.8. **Street Vendor 1** (49 year old female, 21 years)

Q5.1: there has been an increasing pedestrian activity and that has also made our businesses grow.

Q5.2: no, this street is best for business, there is a lot of people along this specific street that support my business.

Q5.3: I will say a great street is like the one like Church Street.

5.9. **Street Vendor 2** (34 year old male, 8 years)

Q5.1: I have seen any change, it is always packed and it has always been like this.

Q5.2: no, the street is well located and hence good for my hustle.

Q5.3: I don't know how to answer that.

Q5.4: it doesn't.

Interview Responses for Pretorius Street

08 September 2021

From 10h00- 16h30

Interviews taking place along the street

Findings by Theme

1. Social Interaction;

1.1. **Resident1** (25 year old female, 6 years)

Q1.1: protest, walking but majority is public transport movement and cars

Q1.2: the street is very friendly, but is very difficult to cross the street more especially if you're not used to this kind of traffic. And lastly I I have heard stories about people getting mugged and staff.

Q1.3: no I don't have anyone. The friends that I have we stay in the same building

Q1.4: most of the time we accompany each other to retails stores along the street and Mac Donalds. But mostly we don't use the one on the street.

Q1.5: I would say there is community engagement, there are people I always see on the street, like those people guarding and washing cars but we never interact with them and as well I think everyone is minding their business, there is no need for us to engage with one another.

Q1.6: as I have said the majority activity is traffic, and I think that is caused by people commuting to work and places of interest and opportunity. The interaction that I have seen on the street is among people who are guarding and washing cars with car owners,

Q1.7: I don't think the street encourages pedestrian activity and interactions, because there is no space for such to take place. If you stop along the pavement, you immediately disturb pedestrian movement, the look that other people will give you, it says much. So I don't the street was designed to accommodate pedestrian activity.

Q1.8: I think traffic impact social interaction on the street, in two ways. Firstly it encourages interactions, when a car driver want a parking space or when they want their car to be guarded or washed they will interact with the complete stranger. But in the contrary it also discourages it, because of the amount of space traffic takes on the street is a lot, as opposed to the space allocated to pedestrian.

Q1.9: sometimes the street is packed such that you can`t walk freely, you have to just squeeze yourself in, I guess the pavement is narrow as well. So sometimes like on a Sunday you can walk comfortably.

1.2. **Resident 2** (23 year old male, 3years)

Q1.1: its walking and traffic.

Q1.2: the street is not that friendly cause a lot of people get mugged and as well during peak hours is difficult to walk freely. The street has uneven pavements as well which sometimes can make you fall.

Q1.3: No I don't have anyone.

Q1.4: normally we go eat at Chesa nyama with my friends on Pretorius. But if we have time, like during weekends we go to Church Square, sometimes Menlyn and Sammy Marks square.

Q1.5: no I don't think there is. Because I have not seen people interacting on the street. People are just walking through the street.

Q1.6: I guess the absence of activity and interactions on the street is caused by small pavements and also high speed moving traffic. But as well the amount of traffic on the street.

Q1.7: I think the physical character of the streets from my previous answer, discourage pedestrian activity and interactions and encourages easy and flowing traffic movement.

Q1.8: I don't think traffic is a problem. The problem is the amount of traffic and as the speed at this traffic is traveling at. The amount of traffic has taken more space that people can use to pause and talk, or when people meet, be able to pause and chat. It has as well taken space for restaurants to create outdoor dining spaces or social spaces.

Q1.9: depending on the time of the day, but generally, pedestrian walkways along the street are congested and that makes it hard for one to enjoy their walk. Because if you see something over a retail store window, you can't even pause because you feel like you are further making the street condition worse.

1.3. **Resident 3** (23 year old female, 4 years)

Q1.1: there isn't much happening on this street. Mostly is just buses traveling past here and people visiting some fast food restaurants and retail stores?

Q1.2: during the day is safe, but at night is not safe at all. A lot of people get mugged at night.

Q1.3: no I don't have.

Q1.4: we meet at fast food restaurants sometimes, but mostly is at school.

Q1.5: yes there is. A lot of people who park their cars here, talk to us, but mostly they talk to females, because they ask our numbers and staff. And as well are lot of

people who assist cars owners to find parking along the street and who as well do car washes who interact with each other.

Q1.6: I think is the retail stores, restaurants, educational facilities, residential apartments and the police station along the street.

Q1.7: I think lack of parking spaces has forced strangers to interact

Q1.8: I think traffic has increased social interaction and economic opportunities on the street by allowing street entrepreneurs to guard and wash cars along the street.

Q1.9: walking is pleasant, but during peak hours in the morning and in the afternoon during week days, it get too pack and too busy.

1.4. **Resident 4** (32 year old female, 8 years)

Q1.1: people are selling scones, some washing cars and people walking

Q1.2: the street is very safe because there is a police station situated along Pretorius Street.

Q1.3: I have a cousin who stays at Barracks, near the police station.

Q1.4: we meet at Mac Donald

Q1.5: yes there are interactions. I know some people from this small grocery shops along the street we have good relationship we greet each other and sometimes you hear this people who guard cars calling you or even greeting.

Q1.6: is people who work on the streets, like those people who guard cars as I have mentioned, but as well the fast food restaurants and stores along the street.

Q1.7: I think have pavements has allowed pedestrians to interact with each other and parking on the street, has also allowed car owners to interact with guards and that creates a sense of trust as well.

Q1.8: I don't think traffic has any impact of social interaction occurring on the street.

Q1.9: it is a friendly street, so walking along the street is good and but enjoyable in fact.

1.5. **Resident 5** (23 year old female, 4 years)

Q1.1: aside from walking and traffic, a lot of protest take place on this street.to point that every time there is a strike we don't go to school because the whole street get closed.

Q1.2: the street is very friendly during the day, but during the night I have heard stories about a lot of pick pocketing taking place on the street. And in terms of traffic, for a person who is not used to a busy street like this one, you will get hit. I was once almost hit by a car, when I was still fresh from Limpopo. The traffic lights are very confusing, because sometimes it close the bus lane only.

Q1.3: no I don't have.

Q1.4: at Archie`s (Grocery store, Archie is the owner of the store) and Mac Donald, Police station, Galitos and Centre Walk shopping centre.

Q1.5: yes I think so. There are these people who like to help us to carry groceries, I don't know if whether they are homeless people, or the just people who find creative ways of making money on the street. Most of the time they are the ones who usually interact with people on the street. There are also street vendors which I usually interact with and also you see those people who help people get parking along the street, they are also so friendly and they sometimes greet us and talk to us.

Q1.6: I think all this activities are caused by all the economic opportunities the street has, like mostly the informal ones. Yes even formal establishment like Mac Donald do cause some of this activities, but personally I think is the informal ones. The ones that are on the actual street.

Q1.7: I think the space allocated for pedestrian limit pedestrian activities and interactions, but physical spaces like bus station encourages it in the sense that people interact while waiting for bus. I have friends that I meet while waiting for the bus here.

Q1.8: I think relative to my previous answer, traffic, more especially buses impact this interactions on the street positively, in the sense that people waiting for a bus sometimes buy from street vendors and while other interactions comes from parking assistants with car owners or drivers.

Q1.9: only on weekends, because during the week is so congested. The pavements get so packed by people walking.

1.6. **Street Visitor 1** (26 year old male)

Q1.1: jogging and walking

Q1.2: the street is very friendly, I can easily jog along the street without any problems

Q1.3: no, I don't have anyone.

Q1.4: I go to gym along the street.

Q1.5: yes, especially from the gym that I attend. There is always staff people outside the gym who are doing promotions and most of the time they do interact with people passing by the street.

Q1.6: I think is the stores and shopping centres along the street and fast food restaurants as well.

Q1.7: I think the pavements a wide enough to accommodate people like us who usually jog on the street, even when sometimes it a bit packed for a person to jog.

Q1.8: I think the flow of traffic sometimes limit this activities because the space allocated for cars and buses is way too much as compared to space allocated for people to interact and walk through.

Q1.9: personally walking on Pretorius is interesting, because there are so many street activities taking place and you don't get bored while walking or you don't rush to pass through.

1.7. **Street Visitor 2** (22 year old male)

Q1.1: people washing cars and selling snacks

Q1.2: the street is too busy, is not friendly

Q1.3: no I don't have any, the friends I have stays in the same building with me.

Q1.4: usually we meet at Mac Donald

Q1.5: every time I go out, I go do my groceries, so I just heard straight to the store and I don't engage anyone maybe unless I meet a friend on my way there. And I have seen any group of people interacting and staff, a lot of those activities take place at church square.

Q1.6: I wouldn't know, but think is the kind of stores and restaurants you have on the street.

Q1.7: I think the façade of many buildings along the street, make the street very interesting and sometimes, when I'm with my friends will stop seeing a shoe or something a retail shop will be selling and then will start to talk about it. Even though we don't interact with strangers or people we don't know, but it's something very useful I have noticed on the street.

Q1.8: in my experience it does not.

Q1.9: it's very hard to walk, because it is always busy.

2. Privacy and home territory;

2.1. **Resident1** (25 year old female, 6 years)

Q2.1: no I don't have.

Q2.2: yes it does, it's safe and convenient

Q2.3: I don`t have any space I consider home along church aside from my residence.

Q2.4: I guess it extend to the security booth.

Q2.5: Yes I do have privacy, because I have my own private apartment.

Q2.6: it doesn't impact it much, because there isn`t a lot of traffic on the street. But sometimes I get disturbed by the taxi hooting around my place, I guess that is on other streets but not church. Street such as Mandela Street.

Q2.7: yoh, there is a lot of noise from those stalls on the street and people walking pass, sometime music or people signing and sometimes that affects my privacy negatively, but you get used to it, because we are in the city centre not in a quite suburb.

Q2.4: the Centre walk (shopping centre) is part of my home territory because immediately when I walk into it I know I'm already home. I no longer have thoughts of getting mugged, I just know I'm home and safe.

Q2.5: yes I do have privacy. I have my own private space.

Q2.6: no it doesn't.

Q2.7: for me it depends on how I feel that day, when I want to cool off my mind it's a bit irritating, that's why I prefer going to church square or union buildings sometimes.

2.2. **Resident 2** (23 year old male, 3years)

Q2.1: no I don`t have any.

Q2.2: not really is too busy and too noisy.

Q2.3: there is none.

Q2.4: I think is up to here, by the foyer.

Q2.5: I do have privacy in this building. I have a room that is my private space.

Q2.6: traffic does not impact my privacy much, is just noise.

Q2.7: it doesn't impact it at all, because there is not much street activity aside from traffic.

2.3. **Resident 3** (23 year old female, 4 years)

Q2.1: Aside from paying my rent here, I don't have any.

Q2.2: no. home cannot be a place this busy. It should be quite and a place you can have time for yourself.

Q2.3: I don't think there is on this street.

Q2.4: they end by our bus station (student bus station)

Q2.5: yes I do have. Even though I'm sharing a room but we both have our own spaces.

Q2.6: we have our allocated bus station along the street, so in terms of home territory, I think it has increased it and in terms of privacy, sometimes the traffic is too noisy.

Q2.7: it doesn't.

2.4. **Resident 4** (32 year old female, 8 years)

Q2.1: I don't have any responsibility.

Q2.2: yes it is home, away from home. I work in the city, and it is very convenient for me to be here.

Q2.3: my cousin`s space of course.

Q2.4: is just my room and other spaces within the building that I use, like laundry room and others.

Q2.5: yes I do.

Q2.6: I think only through noise

Q2.7: it does not.

2.5. **Resident 5** (23 year old female, 4 years)

Q2.1: No I don't have.

Q2.2: No, is not home. The street is too busy and there are lot of activities going on. Once you are out of the building, it get so hectic, there isn't that feeling that your home.

Q2.3: there isn't any.

Q2.4: up until the bus station, just outside our building, because that's a station where only our school buses stops.

Q2.5: yes, the only problem most of us have with this street is noise levels. Cars moving and hooting.

Q2.6: by the noise from moving traffic and hooting

Q2.7: it does impact in a way that if for instance there is a protest, sometime you can't even go out and buy groceries or go to school.

2.6. **Street Visitor 1** (26 year old male)

Q1: Not applicable

2.7. **Street Visitor 2** (22 year old male)

Q1: Not applicable

3. Traffic Hazard

3.1. **Resident1** (25 year old female,6 years)

Q3.1: No it's not safe for children. They will get hit by cars

Q3.2; is the same for them, imagine an old granny trying to cross the street or maybe even walking on this congested pavements, it will be a disaster.

Q3.3: no I don`t think I will. It's not a good environment to raise children as I have said that my children will get hit by cars.

Q3.4: traffic accidents that are caused by speed

Q3.5: I think is medium speed, from 60-100km

Q3.6: I have once saw a car colliding with a bus.

Q3.7: I have seen one traffic accident, but I have also heard of some. So I will not that often, like probably three times in a year.

Q3.8: I think is always speed.

Q3.9: it makes me feel less safe and uncomfortable on the street, hence I don't use the street more often, unless when there is something I need outside or when I'm meeting someone.

3.2. **Resident 2** (23 year old male, 3years)

Q3.1: I don't think the street is safe for children, even when there are traffic lights to control traffic.

Q3.2: I think is the same for everyone.

Q3.3: no, the city centre is not the best place to raise children at. Is too busy.

Q3.4: I have once saw a traffic accident.

Q3.5: most of the time is not slow but as well not fast, I'll say around 60km/h.

Q3.6: it has a car that chased a road sign and a wall of an adjacent property.

Q3.7: in my three year stay here I only saw that one.

Q3.8: it was reckless driving, because the driver was under the influence of alcohol.

Q3.9: for me personally, that accident have not affected how I use the street. Because accidents happen everywhere.

3.3. **Resident 3** (23 year old female, 4 years)

Q3.1: I don't think is safe in terms of traffic and also criminal activities that do occur on the street

Q3.2: the have the same vulnerability as children.

Q3.3: No, is too busy, is just easy for people to steal a child and on the other side there are too many cars.

Q3.4: the road reserve is too wide, making it difficult to cross the street quickly, I haven't identified any traffic hazard.

Q3.5: medium speed and I think is because there are many cars so you can't move fast and slow as well.

Q3.6: no I haven't.

Q3.7: I don't know. I haven't seen one.

Q3.8: I wouldn't know

Q3.9: because I have not seen any accident happen on the street, I just use the street as any other street.

3.4. **Resident 4** (32 year old female, 8 years)

Q3.1: I won't say the street is safe for children because I haven't seen those people who help children to cross the street. But as well I have not witnessed any accident where a child was hit.

Q3.2: for old people I think is safe, because the street is one-way. So is easy to cross the street. And they understands traffic lights

Q3.3: yes, definitely I will. It is my home.

Q3.4: I have once saw an accident

Q3.5: it depend on the time and traffic congestion. But mostly is moderate speed around 70km/h at most.

Q3.6: I once witnessed an accident, a taxi collided with a metro bus.

Q3.7: not often according to my experience.

Q3.8: I think the one I saw, it was speed. The taxi driver was trying to beat the traffic light

Q3.9; for me it was bit of a shock and trauma cause I have witnessed it and it has always made me to check my surrounding as I walk along the street.

3.5. **Resident 5** (23 year old female, 4 years)

Q3.1: it's not safe for children, I don't think children will be able to understand this confusing traffic lights and traffic signs.

Q3.2: I think same applies to them. I think for them the big struggle may be crossing the street as quick as possible.

Q3.3: never. The street is not a good environment for children, the street does not accommodate children.

Q3.4: yes, I have witnessed a traffic accident.

Q3.5: is medium speed, between 60-100km/h.

Q3.6: Yes. I car hit a bus. The problem is buses on this street just stops wherever, sometimes without indicating to the following car they are intending to stop. So the car was trying to beat the traffic light without noticing that the bus was stopping.

Q3.7: most of the time.

Q3.8: speed and reckless driving

Q3.9: sometimes when you're working along the street, you start to question your safety.

3.6. **Street Visitor 1** (26 year old male)

Q3.1**:** I don't think is safe**,** there is a lot of traffic going on, therefore I don't think children will be safe.

Q3.2: they will not be safe as well, since they have walking impediments.

Q3.3: no. it too busy and not safe for children.

Q3.4: no I haven't seen any.

Q3.5: I think there are times, they travel at a slow speedy, when the street is congested but most of the time they travel at a medium speed, sometimes even more.

Q3.6: there is none.

Q3.7: I wouldn't know.

Q3.8: NA

Q3.9: NA

3.7. **Street Visitor 2** (22 year old male)

Q3.1: no is not safe for children, is too busy.

Q3.2: not really, they walk slowly, so they won't cope with how fast and busy the street.

Q3.3: no I won't. The street is too busy to raise children

Q3.4: not really.

Q3.5: at a medium speed, not slow not fast.

Q3.6: no I have not.

Q3.7: NA

Q3.8: NA

Q3.9: NA

4. Stress, including noise and air pollution

4.1. **Resident1** (25 year old female, 6 years)

Q4.1: the sound is very disturbing for students

Q4.2: the only sound you hear is moving traffic and sirens from emergency vehicles.

Q4.3: it disturb me, I'm a student so I struggle to concentrate sometimes.

Q4.4: Normally I just close my window and it becomes all quite in my room. But sometimes I just study at school, because I have a roommate.

Q4.5: I think the air is polluted by metro buses.

Q4.6: the quality is not bad, I guess that is because of a lot trees along the street that absorbs most of the little pollution we get sometimes.

Q4.7: no it doesn't affect my health or my wellness.

4.2. **Resident 2** (23 year old male, 3years)

Q4.1: honestly the noise from moving traffic and the hooting is disturbing.

Q4.2: Is traffic, mostly taxi hooting and moving traffic, especially buses

Q4.3: yes it does, negatively of course. It's disturbing.

Q4.4: most of the time I close my window. But sometimes I use the study rooms when I'm studying, they are sound proof.

Q4.5: is not that bad.

Q4.6: Because there is so much traffic, I'll just say from traffic (pollution), but is not that bad that you can see smoke going up.

Q4.7: I don't think it does, because I have been healthy ever since.

4.3. **Resident 3** (23 year old female, 4 years)

Q4.1: the noise, is okay. We are in the city centre

Q4.2: taxis with the hooting

Q4.3: no it does not affect me

Q4.4: my room is a bit far, I barely hear the noise, unless if I'm outside or here on the foyer. So I don't have any coping mechanism that I use.

Q4.5: I think the air is being polluted by both school buses and metro buses. But of course the cars as well may be contributing towards the pollution.

Q4.6: traffic or should I say the motor vehicles

Q4.7: it doesn't affect wellness.it might in the future, but for now I don't think it does.

4.4. **Resident 4** (32 year old female, 8 years)

Q4.1**:** there isn't much noise except taxi hooting and moving traffic.

Q4.2: is taxis and other types of motor vehicles

Q4.3: no it doesn't at all. Cause most of the time I just hear the noise when I'm outside the building, when I'm at my apartment I don't hear a thing.

Q4.4: I'm used to the city life, so I just focus on where I'm going.

Q4.5: of cause due to the amount of cars passing through it every day, I think is polluted, even when I can't say how much polluted it is.

Q4.6: Traffic

Q4.7: it does not affect my wellness. It has been eight years, I have seen any effects on my health.

4.5. **Resident 5** (23 year old female, 4 years)

Q4.1: is too noisy and when is quiet is too lonely, because I'm used to hearing the sound.

Q4.2: traffic moving and hooting

Q4.3: not really cause I'm used to it now.

Q4.4: I just close the window.

Q4.5: I think the air quality is fine.

Q4.6: Maybe because of the volume of traffic on the street, there is air pollution, but is not that bad, because it does not affect us.

Q4.7: it does not.

4.6. **Street Visitor 1** (26 year old male)

Q4.1: for me is fine. I`m used to it now.

Q4.2: taxis hooting and the flow of traffic as well.

Q4.3: not really, I been living in the city since all my life, so I'm used to it.

Q4.4: I just focus on what I'm doing

Q4.5: in the morning and the afternoon, it get polluted such that it disturbs sometimes when I'm jogging.

Q4.6: I think is the volume of traffic on the street, especially during peak hours

Q4.7; I think it does, because inhaling carbon monoxide isn't healthy.

4.7. **Street Visitor 2** (22 year old male)

Q4.1**:** The noise is too disturbing.

Q4.2: is traffic, but mostly as you can hear is taxis hooting

Q4.3: sometimes you want a peaceful walk along the street, to ease your mind. So on this particular street that cannot happen cause of the noise.

Q4.4: sometimes I just used headsets to listen to music while walking, but I do that on parts of the street that are safe.

Q4.5: I think the air is fine, they might be a bit of pollution of traffic, but I don't think it does much impact.

Q4.6: its traffic obviously.

Q4.7: I don't think it does affect me, not of anything I know of.

5. General Questions

5.1. **Resident 1** (25 year old female, 6 years)

Q5.1: I haven't seen any changes.

Q5.2: No I wouldn't. This is a good student accommodation, but yes if the building was to relocate to another street, yes I will.

Q5.3: a walkable street

Q5.4: traffic makes it hard, uncomfortable and unsafe.

5.2. **Resident 2** (23 year old male, 3years)

Q5.1: no, it has always been like this

Q5.2: No, is just fine here.

Q5.3: convenient street

Q5.4: it doesn't influence it that much, I think to some point it makes it very convenient such that is the street which you can choose what mode of transport you want to use. It has metro buses, Areyeng bus system, school buses and taxis.

5.3. **Resident 3** (23 year old female, 4 years)
Q5.1: I have seen much changes on the street

Q5.2: no, everything is convenient on the street

Q5.3: a safe and convenient one

Q5.4: the problem is travelling during peak hours, I get late to school during morning classes.

5.4. **Resident 4** (32 year old female, 8 years)
Q5.1: I have seen any changes.

Q5.2: Not really, as I have mentioned it is very convenient for me.

Q5.3: the street that have a balanced activities and movement. So I mean, balancing traffic and pedestrian activity.

Q5.4: it makes a street to be too busy for a residential life, where sometimes you want some calmness and quiet.

5.5. **Resident 5** (23 year old female, 4 years)
Q5.1: there no much change I have seen.

Q5.2: no. this street is convenient, everything I need is close by.

Q5.3: a safe and convenient one.

Q5.4: it makes it very unsafe.

5.6. **Street Visitor 1** (26 year old male)
Q5.3: I think a street that allows pedestrian to be active and be part of the street life.

5.7. **Street Visitor 2** (22 year old male)
Q5.3: a street which is not congested by both pedestrians and traffic and a convenient street.

Interview Responses Nana- Sita Street

09 September 2021

From 10h00- 16h30

Interviews taking place along the street

Findings by Theme

1. Social Interaction;

1.1. **Resident1** (24 year old female, 2 years)

Q1.1: there are accidents, people are using some spaces for gambling (dices), there are people who are nyaope addicts sleeping and staying on the street.

Q1.2: it's not friendly because there are so many accidents and criminal activities taking place on the street.

Q1.3: no I don`t have anyone.

Q1.44: aside from my apartment, there is no any other place we meet at.

Q1.5: It's very rare to see people interact, because we fear to get mugged

Q1.6: as I have said, there is no much activity going on the street, because there is any land uses that encourages activity and also there are few residential apartments along the street.

Q1.7: the road reserve is very wide, making it very hard to cross the road and also the traffic lights are so confusing, such that you stress when you approach the street. But also the other thing is the street has traffic islands that have trees, most of the people use this space to chill and rest when crossing the street. But is mostly used by the nyoape addicts, who sleep and rest on them. There is also a lot of flats that are vacant and I guess there are the ones that also contribute to criminal activities occurring on the street.

Q1.8: the street is very busy, there is so much traffic, even though the pavements on the side are wide and there is as well the traffic island, I guess the noise from traffic and traffic activity makes the street to be less interesting

Q1.9: it's very bad, because it's very unsafe, when you are walking on Nana-Sita you need to walk with someone, if though that sometimes doesn't help, but does reduce the chances of getting mugged.

1.2. **Resident 2** (29 year old female, 3 years)

Q1.1: there is lot of traffic activity and people walking

Q1.2: the street is not friendly. It's actually not safe. I have heard stories about people being mugged and also about car accidents occurring on the street.

Q1.3: yes. I have a friend who stays along the street.

Q1.4: I sometimes visit my friend at her place.

Q1.5: I wouldn't know because I'm an indoor person, and most of the time that when using Nana- Sita I only focus on where I'm going and most people are doing that. Unless if maybe you meet someone you know.

Q1.6: I think the most activity I have seen is people walking, and I guess that is caused by lack of shops nearby and restaurants, so people have to walk to this places of opportunities.

Q1.7: the street has a very wide road reserve and also wide pavements and this encourages all movement activities. And on another note, yes the pavements are wide enough, but empty, there are few people walking through street.

Q1.8: no I don't think traffic impact social interaction on the street, because there are no interactions, it might be affecting the use of the street. So maybe people are not using the street because of this volume of traffic for example.

Q1.9: I will say walking along the street is fine, the only problem is fearing for your life or your belonging. Honesty when I'm walking on Nana-Sita I walk fast, if it was possible I was going to run through it, it's scary.

1.3. **Resident 3** (27year old male, 2 years)

Q1.1: traffic activity and homeless people sleep along the street

Q1.2: it's not friendly at all, there are so many accidents happening on the street especially on Cnr Nana-Sita and Lilian Ngoyi Street.

Q1.3: yes, I used to have a friend along, but now he relocated from the flat.

Q1.4: we were not meeting there, but I normally visit the Sasol filling station

Q1.5: yes, but a bit of it. There is a lot of people visiting the Unisa Building and most of them sometimes gather outside the building and sometimes they queue and they interact

Q1.6: for me personally I just think is Unisa, the church and Areyeng bus Stations.

Q1.7: the traffic island are just more than a space to pause in between traffic lanes, it has also provided the street with a recreational space for people to chil and socialize. Unfortunately the space is been occupied by Nyaope addicts who are homeless, and because of that people perceive the space been unsafe.

Q1.8: I think the noise from the street will make it very hard for people to interact, unless if maybe you're walking with someone you know.

Q1.9: walking is very unsafe, there has been incidents where people get mugged day light. There are also accidents occurring on the street. So the pavements are wide enough for people to walk freely, but the problem is crime and accidents

1.4. **Resident 4** (36 year old female, 3 years)

Q1.1: recycling activities, traffic and pedestrian movements

Q1.2: I normally use in the morning when I'm going to work and in the afternoon when I come back, and during those times the street is safe, so I will say its friendly.

Q1.3: no I don`t have anyone.

Q1.4: there is no place I go to on the street aside from my flat

Q1.5: I have not seen people along the street doing community activities or gathering. I don't think there is any.

Q1.6: I think is the availability of public transport on the street (Areyeng). Most people who are going to work, to school use it and as well there places like school and a church, which most people do visit them.

Q1.7: I don't think it encourages activity, the street is a bit dead and people just use the street as a channel for movement.

Q1.8: I think the noise levels makes it hard for people to interact

Q1.9: it is easy to walk through the street

1.5. **Resident 5** (28 year old female, 2 years)

Q1.1: people walking, homeless people sleeping ad taking drugs and traffic flow

Q1.2: the street is not friendly at all. There is a lot of criminal activities taking place on the street. People get mugged everyday

Q1.3: no I do have any acquaintance.

Q1.4: there isn't any place I meet anyone at along Nana-Sita

Q1.5: I think there is community engagement among homeless people, they chill together, smoke together and as well sometimes even work together on gathering recyclable waste along the street. But other than that I have not seen any community engagements.

Q1.6: I think is mainly Areyeng bus stations, especially in the morning and in the afternoon. There is high volume of people walking pass here and as well a lot of traffic.

Q1.7: honestly I wouldn't say there is interactions, but in terms of activity I will say wide pavements allow people to walk freely and them having an option to stop at any given point without distracting the follow of pedestrian movement. For example when you meet a friend.

Q1.8: I don't it think does, everyone is minding their own business and focusing on where they're going.

Q1.9: its havoc, and very dangerous to walk along the street, especially during the day when there is a few people walking.

1.6. **Street Visitor** (27 year old male)

Q1.1: as you can see, I just people walking and a lot of traffic passing by, nothing much.

Q1.2: I think if you're just walking pass here is friendly, but I have heard stories about this street which sometimes makes you to be more careful when you walk here. Accidents and crime.

Q1.3: No I don't have anyone.

Q1.4: there isn't any place I go to aside my work place

Q1.5: there is no such taking place on the street, because people fear for their lives and belongings, everyone minds their business.

Q1.6: I think is the bus station on the street.

Q1.7: I think for me is the trees and recreational spaces we have on the street,but the thing is there is seating furniture, but the traffic island allows people to chill on those spaces.

Q1.8: I think there is no much social interactions taking place, unless if people know each other or they walk together. And traffic is not affecting that.

Q1.9: when walk here, you have to rush and pass, otherwise you will become a victim of a crime.

2. Privacy and home territory;

2.1. **Resident1** (24year old female, 2 years)

Q2.1: I don't have any responsibility on the street.

Q2.2: no, never. It doesn't unless maybe if it changes overtime. But for now it's very unsafe for me, crime and traffic accidents and also way to busy. It's like a highway.

Q2.3: there isn't

Q2.4: I just my room and other spaces I use within the building.

Q2.5: I have privacy in my room. But the noise from traffic is very disturbing.

Q2.6: the noise from traffic is disturbing or invading my privacy

Q2.7: I guess the thing that I happening on the street, makes it hard for my friends to come visit sometimes.

2.2. **Resident 2** (29 year old female, 3 years)

Q2.1: no I don't have any.

Q2.2: yes it has been my home for the past three years. I have adapted the life around here.

Q2.3: there isn't any.

Q2.4: from the corridor up until my balcony.

Q2.5: yes I do have privacy on this building, but the noise from traffic do invade my privacy

Q2.6: the noise from traffic is very disturbing.

Q2.7: I think is the same traffic, there is noise people cause when passing by, and this occurs mostly during weekends when people are drunk. They can just park a car and play music very loud.

2.3. **Resident 3** (27year old male, 2 years)

Q2.1: I don't have any

Q2.2: no it doesn't. Is too busy for me to call it home and as well with the crime activities taking place it makes the situation worse. My place is home because basically do everything in it.

Q2.3: I don't have any.

Q2.4: the space in my room, that it.

Q2.5: yes in my room I have. There is just noise disturbances from outside.

Q2.6: the noise from traffic affect my privacy

Q2.7: there isn't much activity, therefore it does not affect me

2.4. **Resident 4** (36 year old female, 3 years)

Q2.1: I don't have responsibilities.

Q2.2: yes, it's safe. Home for me it's a place of safety. They are no intruders.

Q2.3: I don't have any place I will consider home territory

Q2.4: I think is just our unit and up until my room.

Q2.5: yes I do.

Q2.6: through the noise it produces. It is so disturbing.

Q2.7: I don't think there is much street activity on this street

2.5. **Resident 5** (28 year old female, 2 years)

Q2.1: I don't have any responsibility.

Q2.2: I feel much home in this unit and my room. We live as family and for me its home.

Q2.3: there isn't any

Q2.4: up until the door of our unit

Q2.5: yes I do. As I have said I have my own private space, even when in the unit we share a bathroom and a kitchen, but I still have my private space.

Q2.6: the noise cause by the hooting and flow of traffic used to disturb me a lot when I first came, but now I'm used to it and besides closing the window reduces the noise level.

Q2.7: it does not.

3. Traffic Hazard

3.1. **Resident1** (24 year old female, 2 years)

Q3.1: it is totally not safe for children. Firstly they will get stolen and how are they going to cross the street, when it confuses us sometimes? With so many accidents occurring, it is going to be a complete disaster.

Q3.2: I think they are as well vulnerable as children

Q3.3: no. There is just so many negative things happening on the street, and I would want my child to be exposed to such.

Q3.4: yes. I have seen many traffic accidents.

Q3.5: I think probably 100km/h or more when there is no traffic and the traffic lights are all open. But mostly I'll say average speed.

Q3.6: yes. Most of them usually happen at night, you will hear a crush and maybe 30 minutes later followed by emergency vehicle sirens. But the ones I have seen with my eyes, are being caused by traffic lights confusions, especially when people are in a hurry. Remember the street has also Areyeng Bus transit traffic lights, which I think mostly they add to the confusion.

Q3.7: most often, I'll say at least once or twice every month.

Q3.8: Confusion about who has the right of way, there are too many lanes, plus the Areyeng bus transit lanes as well.

Q3.9: that is some of the factors that makes you feel very unsafe when walking here, I guess a lot of people always try avoid the street. I have friends who don't mind to take a longer distance, rather to experience trauma on Nana-Sita. And that's what say 'Trauma on Nana-Sita'.

3.2. **Resident 2** (29 year old female, 3 years)

Q3.1: no is safe, the traffic lights on this street are bit complicated

Q3.2: even for the elderly, because they can't cross the street fast, so if it happens that they get confuse and cross, they can't recover by running to the other side.

Q3.3: Not really, it's not a good place to raise a child at, is too noise, there are no playing spaces for children.

Q3.4: Is just how difficult it is to cross the street and as well the traffic on this street travel very fast and that poses some danger to pedestrians walking on the street or even crossing.

Q3.5: is fast during the day, in the morning and in the afternoon traffic is not that fast, it travels at an average speed.

Q3.6: I have heard and sometimes I hear crush sounds. But I have not witnessed any with my naked eyes. They happen at night most of the time. Or during the day when I'm at work.

Q3.7: maybe twice in every six months

Q3.8: I think one thing that influence the use of the street is crime more than fear of traffic accidents, more especially to pedestrians. Maybe the accidents do affect drivers, but for us is crime.

3.3. **Resident 3** (27year old male, 2 years)

Q3.1: is not safe as I have said previously

Q3.2: is the same. It's not safe in terms of criminal activities and crossing the street as well.

Q3.3: no I won't raise a child here

. Actually I'm expecting babe and I'll be moving out soon. The street is just too busy.

Q3.4: I know three people who have died by car accidents on this street.

Q3.5: it depends, during peak hours I will say the travel at around 60-80km/h and during the day they travel at high speed, but also that depends on how traffic lights are operating.so if they open in all four blocks, people will try bit them or pass before they close.

Q3.6: I have witnessed 3 accidents on this street. I think it was a combination of confusion on who has the right of way and speed.

Q3.7: many times, sometimes they happen at night so can`t really give number.

Q3.8: confusion on who have the right of way, because they are so many traffic lights and speed as well.

3.4. **Resident 4** (36 year old female, 3 years)

Q3.1: you know children are sometimes playful, and with this amount of traffic passing here, I don't think they will be safe. Even crossing the road will be so difficult and more confusing for them.

Q3.2: same goes with them. Not that they are playful, but they are slow, so crossing the road will be so difficult for them.

Q3.3: yeah, remember I work in the city, so it will be very convenient for me to raise my child here, where I'm closing to my work place.

Q3.4: yes. It was a traffic accident.

Q3.5: its average speed

Q3.6: I have seen an accident once. A car collided with a bus.

Q3.7: not that frequent. But I have also heard about a number of them

Q3.8: I think is speed and reckless driving

Q3.9: no it doesn't have how I use the street.

3.5. **Resident 5** (28 year old female, 2 years)

Q3.1: it is not safe. Anytime they can get hit by traffic or experience the trauma of seeing another person being hit or even get mugged.

Q3.2: it is the same for them as well. Because they can`t walk as fast as myself and you and as well criminals on the street will take advantage of them.

Q3.3: no I wouldn't. I don't want my children to get traumatised here.

Q3.4: yeah someone got hijacked just in front of me and that person was a women. And also accidents.

Q3.5: they travel at an average or medium speed (70-90km/h)

Q3.6: yes I once did. Two cars collided

Q3.7: I will say twice in a year

Q3.8: confusion and speed, the street is too large with too many lanes so the traffic lights are very complex, and I guess to even people who are still learning how to drive or those new to the city.

Q3.9: I think lot of people avoid it, both drivers and pedestrians, unless if you don't have choice, like those who use the Areyeng Bus system.

3.6. **Street Visitor** (27 year old male)

Q3.1: no, not at all. If it scares us adults what about small children?

Q3.2: it also applies for them, I just think it's not safe for everyone including even people in their cars.

Q3.3: no not at all. It's not safe as I have said.

Q3.4: its few traffic accidents

Q3.5: I'll say it's fast around 100km/h

Q3.6: I have witnessed three traffic accidents on the street. I think the last one I remember clearly, the traffic lights were not working and a bus hit a car.

Q3.7: I have seen three since from last month, so I'll say three accidents in a month.

Q3.8: traffic lights malfunctioning, and speed

Q3.9: as I have said, normally I rush through the street, before anything happens

4. Stress, including noise and air pollution

4.1. **Resident1** (24 year old female, 2 years)

Q4.1: it's very annoying and most of the time disturbing.

Q4.2: is noise from flowing traffic, emergency vehicle sirens, car crashes, people crying loudly when getting mugged, taxis hooting, honestly the things we hear and see can be traumatising sometimes and you don't get used to it.

Q4.3: yes it does. Greatly!

Q4.4: normally you I just close my window, but sometimes is extremely hot, you want some fresh cool air but you can`t do that because you will be disturbed.

Q4.5: the air quality is fine. Know there are different cars passing and polluting the air, but it's not that bad.

Q4.6: I think is traffic

Q4.7: I won't say it does because I haven't experience any medical complications relating to air pollution.

4.2. **Resident 2** (29 year old female, 3 years)

Q4.1: the noise is too much and very disturbing

Q4.2: traffic flow, hooting and people playing music on the street, screaming noises from people getting mugged or high jacked

Q4.3: it disturbs a lot while I'm studying or watching something on TV

Q4.4: most of the time I close the window. And I'm used to this.

Q4.5: I think is a bit polluted we are in the city centre, but as well considering the volume of traffic on this street.

Q4.6: traffic, people smoking, car accidents (burning cars) and others

Q4.7: I don't think it does.

4.3. **Resident 3** (27year old male, 2 years)

Q4.1: the noise from traffic is too loud as you can hear from here, but I'm used to now.

Q4.2: traffic flow and hooting

Q4.3: there those days you want some peace of mind or you want to study, so the noise is destructive.

Q4.4: I close the windows

Q4.5: I think the air is just fine.

Q4.6: obviously traffic emissions plays a role. But I can't prove it, is just common sense.

Q4.7: it does not affect my wellness

4.4. **Resident 4** (36 year old female, 3 years)

Q4.1: the noise on this street is just way too much

Q4.2: flowing traffic, emergency vehicles sirens and sometimes people screaming

Q4.3: it's irritating so much, especially when I'm studying

Q4.4: I close my windows, sometimes I play music. But think it as well a matter of adjusting.

Q4.5: I think is fine.

Q4.6: I don't know really

Q4.7: it doesn't affect me.

4.5. **Resident 5** (28 year old female, 2 years)

Q4.1: even though I'm used to the noise, sometimes I react to the sounds especially when I'm sleeping.

Q4.2: is traffic mostly, sometimes sirens from ambulances and police vehicles, people screaming sometimes yeah.

Q4.3: as I said sometimes a big truck noise wake me up from my sleep.

Q4.4: I close my window, but still you can still hear it.

Q4.5: I will say it's a bit polluted because sometimes you smell burned rubber, I don't know where I will say where that is from and there is also traffic emissions that pollutes the air.

Q4.6: I will say mostly is traffic

Q4.7: I don't think it does, or maybe it does and I`m not aware.

4.6. **Street Visitor** (27 year old male)

Q4.1: the noise is too much, but we are in the city, what can we expect?

Q4.2: I will say mainly is traffic.

Q4.3: I'm used to it now

Q4.4: honestly I just ignore it and focus on what im busy with.

Q4.5: the air quality is fine

Q4.6: I think dust and people smoking

Q4.7: I don't think it does.

5. General Questions

5.1. **Resident 1** (24year old female,2 years)

Q5.1: Most of the time is just maintenance of street infrastructure, like traffic lights. Most of this this cars collide or hit traffic lights, so they keep fixing and installing new traffic lights.

Q5.2: yes, most definite.

Q5.3: a street like church, it does not have a lot of this negative activities taking place.

Q5.4: it makes the whole city experience more traumatic and very inconvenient.

5.2. **Resident 2** (29 year old female, 3 years)

Q5.1: yes, a few buildings were demolished two years ago and most of the buildings are vacant, I don't know why?

Q5.2: no, I prefer this one. I'm very conformable here.

Q5.3: the street should be more active

Q5.4: honestly other than noise it does not influence my life directly.

5.3. **Resident 3** (27year old male, 2 years)

Q5.1: not really much. Aside from buildings being vacant.

Q5.2: yes, and I'm going to relocate. I`m expecting a babe and this is not a good environment to raise a child.

Q5.3 a street where traffic and pedestrian activity are be balanced, because a reality is, we can't get rid of cars.

Q5.4: sometimes is traumatising to hear a person screaming in the middle of the night, without knowing what's going to happen to them, sometimes you witness accidents of people you know closely. So yeah

5.4. **Resident 4** (36 year old female, 3 years)

Q5.1: I haven't seen any changes on the street

Q5.2: I wouldn't relocated, it is very convenient for me and as well access to public transport

Q5.3: an active street but with reasonable noise levels

Q5.4: not peaceful at all

5.5. **Resident 5** (28 year old female, 2 years)

Q5.1: I haven't seen any changes

Q5.2: No I wouldn't I'm fine here. It's close to work and school

Q5.3: a safe street from both traffic and criminal activities

Q5.4: sometimes it brings fear and trauma to use the street

5.6. **Street Visitor** (27 year old male)

Q5.3:a more friendly and safe street.