The effects of densification on urban resilience in Parktown West

Nombuso Phewa | 892322

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Under the Supervision of Mawabo Msingapantsi
DECLARATION

I declare that this research report is my own unaided work. It is submitted for the BSc in the Honours degree in Urban and Regional Planning, under the faculty of Engineering and the Built Environment at the University of the Witwatersrand in Johannesburg. This research has not been submitted before for any degree or examination to any other University or Institution.

Nombuso Phewa
Abstract

South African cities are continuously undergoing changes through densification and urban regeneration projects. Although mostly anticipated, these changes often have to be responded to with tools and strategies on maintaining the general character of the areas as the heritage and history then become affected. In this regard, it is crucial to observe the various ways through which densification affects the resilience of certain suburbs. This will aid in developing resilience thinking methods to aid in the maintenance and protection of the character of cities.

In many countries around the world, governments are seeking to increase urban densities (Tighe, 2010). Residential densification is often the main focus in the densification policies of South African cities as a result of the apartheid legacy of sprawling, fragmented and racially segregated cities (Turok, 2011). The aim of this research is therefore to shed some light on the impact that densification in general has on urban resilience. The suburb of Parktown West has been selected as a case study.

This research utilises qualitative research methods to establish ways through which densification has and is affecting Parktown West’s general urban resilience. The research findings suggest that the Parktown Residents’ Association, the Heritage Council, planning policy as well as the Parktown – Westcliff ridges are the key reasons behind the resilience of Parktown West’s urban environment. The study is therefore valuable in that it provides a perspective different to that of residential densification and its effects on urban resilience. The study recognises limits to the applicability as well as limits to the replicability of the study. Applicable limits are the factors identified as having contributed to the resilience of Parktown West and could still be applicable to a different context. Furthermore, the replicability of this research means that it can be conducted at a context different to Parktown West. Finally, the study recommends that South African cities need to adopt resilience thinking in order to anticipate changes to urban form that result from densification.
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LIST OF ACRONYMS
FAR – Floor Area Ratio
GCRO - Gauteng City-Region Observatory
GDS – Growth and Development Strategies
IDP – Integrated Development Framework
NRF - National Research Foundation
OSSL - Oliver Schreiner School of Law
RASUD - Resilience Assessment for Sustainable Urban Development
RDP – Redistribution and Development Programme
SA&CP - South African Research Chair in Spatial Analysis and City Planning
SAA - South African Airways
SDF - Spatial Development Framework
SoAP - School of Architecture and Planning
CHAPTER 1: INTRODUCTION TO THE RESEARCH

This research report presents findings on the neighbourhood of Parktown West, one of the prominent suburbs of Johannesburg that have undergone the process of densification. The main objective of this research is to survey the perceptions of the workers and residents of Parktown with regards to the densification in the area, in order to reveal how this is changing the neighbourhood. This relevance of this research therefore lies in the need for investigating ways in which general urban resilience is affected by the process of densification.

This chapter introduces the background from which this research emanates. It then highlights the problem statement, which sets out the main issue that the research is responding to as well as the rationale of the research. Furthermore, the chapter outlines the research question as well as the accompanying researchable sub questions that will guide the research. At this introductory level, the aim of the research question is to discover the effects that the process of densification causes on the urban form and environment of the Parktown West area. The chapter then concludes by outlining the structure of the research.

1.1 Background

In previous centuries (prior to the 18th Century) during which mechanised transportation had not yet been invented, cities were naturally developed in a mixed use, compact manner so as to accommodate walkability within the city (Harrison, et al., 2015). City expansion was therefore a product of the industrial revolution, which took place in two ways. First, there was the de-densification of cities in hopes of combatting inner city overcrowding as well as poor and unhealthy living conditions through policy (Harrison, et al., 2015). This was carried out through enforcing policy on residents so as to reduce the population density in the inner city in order to encourage cleaner and healthier living conditions free from congestion. Transportation technology was the second driver of urban expansion (Harrison, et al., 2015) as it enabled and/or supported the viability of dwellings outside of the city centre. Advanced forms of transportation technology (such as waterways, railways, bicycles, trams as well as cars and motorways) allowed people to travel longer distances within shorter time frames, resulting in efficient large scale cities (Harrison, et al., 2015) and therefore urban expansion. It was not only these two factors that drove city expansion, as aspects such as the growth of
the economy, continued urbanisation as well as private developments played a part in the sprawling of urban systems (Harrison, et al., 2015).

In observation of the South African context, it is apparent that segregation laws and policies enforced by the Apartheid regime were what influenced urban sprawl and densification. As a result of the negative externalities associated with city expansion, the global trend towards these negative impacts of urban sprawl has promoted a shift towards densification and infill policies (Harrison, et al., 2015).

According to Boyko and Cooper (2011), densification refers to the number of units in a given area. Densification also refers to the placement of activities in close proximity in order to achieve compactness and maximise the use of space (City of Johannesburg, 2014). Densification often yields greater access to livelihood and employment opportunities as well as low transport costs, which happens regardless of the steep housing costs and the limited space within these houses (United Nations Human Settlement Programme, 2009). Although it is not always perceived in a positive light, densification has played a notable role in addressing issues associated with sprawl. In the words of Boyko and Cooper (2011), sprawl restricts access to functions and services provided by the city; slows down the efficiency of service delivery; decreases walkability as well as the use of non-motorised and public transportation. In addition, Turok (2011) states that sprawl results in a fragmented and unequal society, while Jabareen (2006) writes about it having numerous negative impacts on the environment, such as increased per-capita carbon emissions. For this reason, cities such as Johannesburg are constantly working to improve their urban environments through plans and policies. Intrinsically, Johannesburg is a working example as it has Integrated Development Plans (IDPs) as well as Spatial Development Frameworks (SDFs) that have been sturdy emphasising strategic densification and infill developments in the metropolitan area since 2002, as a way of responding to urban sprawl (Harrison, et al., 2015).

Planning, city policy and market forces (both formal and informal) have all had some influence on densification (Harrison, et al., 2015). Urban planning and city policy play their part by enforcing laws that locate densification and placing restrictions in areas where there cannot be any. In addition, market forces influence these laws as private developers are constantly seeking new areas in which to develop. This desire to generate profits from areas earmarked as economically thriving cannot occur however, unless city planning and policy permits it to. This process of densification has therefore
occurred through the densification of built form in certain places as well as through higher population densities in other existing, externally unchanged built form (Harrison, et al., 2015) – known as infill developments.

Mercy Corps (2009) describe resilience as the capability that ensures hostile stressors and shocks do not have long lasting antagonistic development consequences. In this regard, urban resilience can be viewed as the capability of individuals, communities, institutions, businesses as well as systems within a city to endure, adjust to and grow regardless of the types of chronic stresses and severe changes they’re faced with (Mercy Corps, 2009). Simply put, urban resilience is the adaptability and stability of urban form to changes (La Mantia and Weakly, 2013). Davoudi and Carpenter (2012) state that resilience is not considered as a return to normality, but rather the ability of complex cities to either remain stable, adapt to and/or transform in response to changes. Resilience in relation to urban form can be viewed in two ways. Firstly, it can be seen as urban form that can adapt to and accommodate change and secondly as urban form that persists overtime, which is therefore stable (Harrison, et al., 2015). In addition, urban resilience is broken down into two types; specific and general resilience. Specific resilience refers to the resilience of a specific part of a system to a particular shock, while general resilience is the ability of socio-ecological systems, such as cities, to adapt or transform in response to change (Harrison, et al., 2015). This research therefore seeks to understand the implications that densification has on general urban resilience in Parktown West, which is a significant and established Johannesburg neighbourhood (originally residential), but is now of office and commercial use (City of Johannesburg, 2014). Parktown West was earmarked as one of the key areas to undergo densification in 2007 when the Johannesburg’s Spatial Development Framework (SDF) for the 2008-09 was developed. It was later included in the Corridors of Freedom Development Framework of 2014 for further densification.

Given this background, the following sections will then discuss the problem statement along with the rationale associated with the effects that densification has on the urban resilience of Parktown West.

1.2 Problem statement

A considerable amount of concerns regarding densification in urban planning and other related disciplines has been due to high levels of urban
density, together with its presumed undesirable effects on the quality of life for urban residents and workers (Churchman, 1999).

In the past, resilience had only been explored in several composite socio-ecological systems (Frantzeskaki, 2016) and has only recently been applied and undertaken in the cities worldwide (Emstson, et al., 2010). Furthermore, urban resilience has also, to some degree, informed plans and policies at city level (Frantzeskaki, 2016). This has been a predominantly, if not entirely, European trend. This means that phenomena such as densification were not examined or considered as part of the 'stresses' that can affect an urban system/city. This therefore means that there are limits to literature on the relationship that exists between urban resilience and densification.

The prevalent issue at hand is based on the need for there to be urban resilience strategies and tools at government level so that any changes to the city correspond to the planning principles that promote urban resilience. In this regard, the research is mainly based on the issue of how public and private developers should appropriately increase densities in a manner that maintains aspects such as the character, history, urban form, heritage and so forth, of the area in question.

The concept of urban resilience has existed in scientific literature since the 18th Century (1970s) (Pickett, et al., 2013). In this regard, research on urban ecology has engaged with the concept largely for the introduction of thinking on intricacy, socio-ecological systems as well as their weaknesses (Pickett, et al., 2013).

Densification does not entirely result in desirable outcomes and this potential for undesirable outcomes may pose a threat to urban resilience in Parktown West. The issue that this research is focused on is how densification in general affects Parktown West’s ability to remain stable regardless of changes occurring. Its purpose is to understand how densification over time poses a threat to the area’s general character. More research is required on general urban resilience, which includes the impact that densification has on the urban environment. This is crucial as there is currently quite a number of research pieces on residential, rather than general resilience. This research therefore seeks to establish the ways in which densification affects the character of the environment of the Parktown West area, which should add to the missing literature on general urban resilience and its links to densification.
In addition, this should result in possible developments of ways in which changes can be better anticipated so as to improve the general resilience of Parktown West and other areas in the city of Johannesburg. This means that assessments and interviews should be conducted to establish whether an area adapts to or accommodates densification, or if it remains stable overtime, which will answer the research question.

1.3 Rationale

Most of the research on urban resilience focuses solely on the effects of residential densification on resilience, rather than how densification in general affects urban resilience (La Mantia and Weakly, 2013). This explains why a predominantly institutional case study was selected, rather than a primarily residential area. The case of Parktown West was chosen based on a preliminary inspection of the densification process in Johannesburg.

As mentioned above, general resilience is the main focus of this research. This is due to the fact that general resilience offers a more adaptive approach and it is applicable to various contexts and research approaches (Harrison, et al., 2015). In addition, it is important to study general resilience as it specifically deals with the response of socio-ecological systems (such as cities) rather than the response of a specific part of a system in response to change (Harrison, et al., 2015). Parktown West was therefore selected as it is an economically thriving area undergoing densification. The densification in Parktown West was planned and is therefore not a shock, justifying the emphasis on general resilience. Furthermore, this research aims to establish the effects of densification on general urban resilience so that it can offer more adaptive strategies to becoming adaptable and/or stable. This will help in Parktown West becoming an area that despite change, remains stable and resistant to negative externalities and therefore maintains its character and heritage.

In the past, densification has had various effects on urban environments, which may or may not have been desirable. On the positive side, it has resulted in increased access as well as the efficiency of service delivery. This is primarily due to the compaction of different uses and activities. An example of this can be witnessed through the increased availability of public transportation on St. Andrews Road in Parktown West. According to the manager of the Engine garage on this Street, the number of mini bus taxis in the area has increased as a result of densification and the subsequent
increase in the number of workers in the area. On the other hand, densification can be associated with overcrowding in several areas, which also increases criminal activity as well as an overburden on infrastructure (Harrison, et al., 2015). These effects of densification depict the significance of the threat that densification poses to urban resilience, as the negative effects are issues that impede an area’s stability. With this said, there needs to be an inclination towards improving the adaptive capacities of the urban environment (Bobbins, et al., 2014). This will aid cities in becoming more resilient to processes such as densification, which should be done through collaborative, flexible and knowledge-based approaches (Bobbins, et al., 2014). In addition, areas such as Parktown West need to maintain their character as it houses a number of heritage sites and/or monuments.

1.4 Research question

This research is aimed at answering the question of;

**In what ways might densification affect general urban resilience (adaptiveness and/or stability) in Parktown West?**

Additionally, in respect of the context provided above, there are researchable sub questions that underpin and guide the answering of the above-mentioned research question. This research will therefore answer the following sub-questions:

**Researchable sub questions**

1. How has densification affected the resilience of the area and its residents?
2. How has densification changed/is changing Parktown West physically, socially and economically?
3. How has urban form and the general character of Parktown West changed as a result of densification?
4. What are the major factors that contribute to general urban resilience in the area?
5. What is the relationship between the intensity of densification and urban resilience?

1.5 Conclusion: Report Structure
The report is structured as follows; the first chapter provides an overview and introduction to the research, including the background within which this research arises as well as the problem statement to which the research is responding to. This chapter also outlines the research question as well as the researchable sub questions to assist in answering this question. The second chapter outlines the methodology of the research used, which mentions the type of research as well as information about the participants. Chapter three builds on a theoretical framework that locates the research within existing literature on the topic of densification and urban resilience. In the same chapter, a conceptual framework is formulated to frame the research question and assist in forming links between the key concepts. Chapter four introduces the case study, Parktown West. Chapter five provides the findings from the fieldwork, while chapter six examines these findings and provides an analysis of them. The final chapter, chapter seven, provides the final concluding remarks, which include an overview of the research, the limits to the research as well as recommendations for future research on the same and/ or similar research topics.
CHAPTER 2: RESEARCH METHODS

2.1 Introduction: Research Methods and Approach

This section of the report provides the methods utilised in undertaking together with some of the limitations encountered in the process. In addition, it also highlights the type of data and information that was required for the research, focusing on the process of the collection of this data for each of the sub questions.

2.2 Methodology: Qualitative methods

The research approach used for the afore-mentioned sub questions was that of a qualitative nature. This is primarily due to the fact that the study focuses on individual experiences and perceptions of the workers and residents of the Parktown West community. Qualitative questions seek to learn about the quality and reasons behind human actions (Karam, 2017), which is why this research approach proved to be appropriate. This method was therefore be utilised to respond to the guiding sub questions, which were carried out through conducting surveys and interviews with the residents of Parktown West. Qualitative interviews are designed to be open-ended, where responses are reputed to be unknown and the interviewer prompts the responses instead of providing the interviewee with a set list of possible answers (Sofaer, 2002). Qualitative researchers tend to observe things in their natural surroundings from which they attempt to understand and decipher occurrences according to the meanings that people attach to these phenomena (Njie and Asimiran, 2014). In addition, qualitative methods are mainly used to disentangle a composite phenomenon or one with limited knowledge about (Njie and Asimiran, 2014), such as that being researched about in this report. According to Peshkin (1993), there are four purposes that qualitative research serves;

1. Description
2. Interpretation
3. Verification
4. Evaluation

Peshkin (1993) proclaims that in the descriptive sense, qualitative research exposes the nature of a situation, setting or process. In the interpretative sense, Peshkin (1993) states that qualitative research assists in the acquisition
of new perceptions, theories as well as the discovery of issues that exist in a particular situation. Furthermore, Peshkin (1993) argues that qualitative research in the verification sense helps test specific assumptions and assists in the facilitation of judging the efficiency of certain practices, inventions as well as processes in the evaluation sense.

2.2.1 Case study: Parktown West, Johannesburg

Qualitative research is broad and therefore requires a direction, often decided upon by the objective and type of research being conducted (Yin, 1994). This direction is quite useful to efficiently attain positive results. Case studies are one way of attaining direction to one’s research, driven by the need to plunge deep into specifics in order to establish greater understanding (Yin, 1994). Case studies are often used to obtain thorough information about an institution, an individual or developments (Njie and Asmiran, 2014).

Case studies are often categorised into various typologies by different authors. Stake (1995), for instance, categorised case study types into intrinsic, instrumental as well as the multiple case study. Stake (1995) states that intrinsic case studies enthusiastically focus on a single unit, a person or institution and rely solely on the existence of these. This type of case study is often used when the researcher seeks better comprehension of a certain case that is of interest to them. The researcher then becomes biased and ignores other interests, only focusing mainly on the stories of those experiencing the case (Stake, 1995). According to Stake (1995), an instrumental case study is when a certain case is inspected for the purpose of providing awareness on a particular matter or to provide more detail on the issue so as to dispute a generalisation on it. Unlike that of an intrinsic case study, the case in an instrumental case study is assumed to be of secondary interest and is often a supportive instrument used to illuminate or comprehend something else (Stake, 1995). Furthermore, Stake (1995) refers to a case study as multiple when numerous cases are studied cooperatively to explore a certain occurrence, organisation, population or an object. This research therefore focuses on an instrumental case study as I am attempting to fill the gap of missing information on general urban resilience and densification.

2.3 Methods of data collection
The collection of data is quite an important phase of research as the depth and fruitfulness of the answers to the research are contingent on the efficacy of the data collection process in establishing relevant data on the topic at hand (Yin, 1994). Researchers uncovered six major sources of information for a case study, a range that can be utilized in accordance to relevance of the research. These are; direct observation, interviews, documents, archival records, physical artefacts as well as participant observation (Yin, 1994). Adams (1990) identifies three main methods of data collection that are part of qualitative research methods, namely; the utilisation of existing information, general observation as well as semi-structured interviews. Semi-structured questionnaire interviews were used for this research as they were seen to be the most suited method of data collection. In addition, existing information was also partially used to cover certain areas of the research, such as the chapters that required quite extensive literature. Furthermore, Desai and Potter (2006) argue for there being quite a large benefit in the use of semi-structured questionnaires to understand people’s perceptions, values as well as differences between preferences and recommendations.

2.4 Process

- Information from interviews that will provide a narrative of different perceptions on the effects of densification.
- Conduct a desktop study on various methods of measuring resilience and apply those to Parktown West.

A group discussion with the Parktown West Residents Association will also be conducted in order to obtain the Committee’s perception, with the questions as a guideline rather than dictate the conversation. These questions will start off broadly then get more detailed as the interview proceeds. This is to avoid leading respondents, allowing them to speak freely.

The interviews were undertaken in both English and IsiZulu, where necessary, in order to accommodate the interviewee. Some challenges were encountered however, where certain participants could not properly understand the questions as it was difficult to thoroughly translate all sub questions. In terms of the selection of participants, people were randomly selected at their workplaces as the research opted for adults over the age of 18, however comprising of people who have worked in the area for over 5 years.
2.5 Limitations and Ethical Considerations

The research did not deal with vulnerable people, but informed consent and confidentiality for the interviewees was considered. The interviewees' identities were kept anonymous, although some chose to reveal their identities on the consent forms. The participants were informed on the nature of the research, its purpose, aims as well as their rights as participants prior to conducting the interview. Once they agreed to proceed with the interview they were handed a formal consent form which they were to sign. The participants were also issued a Participants Information Sheet which summarises the research and has information that guarantees their anonymity and provides mine and my supervisors' contact details. It was also ensured that the participant understood that no payments were to be made for their participation in this study.

In conclusion, I do not foresee any ethical issues for this research. This research has little to do with personal issues, but rather their opinions on developments and changes to the area. An ethical clearance form will however be included in the final report.
CHAPTER 3: DRAWING FROM LITERATURE (Literature Review)

3.1 Introduction

The main concepts that frame this research will be explored in this chapter. In addition, there will be an evaluation of the main arguments and research that has been done to date on the research topic within the South African context. This chapter also includes the conceptual framework on how these key concepts may be related to one another, in the context of this research.

3.2 The process of densification: shifting from residential to mixed use densification and how it contributes to general urban resilience

Density is a complex term, a term which obtains its intricacy from the myriad activities associated with it. Critics have argued that density may be problematic to define because it is dependent on the type of density being explored (e.g. urban, dwelling, people) and how that density is described, conceptualised and assessed (Boyko and Cooper, 2011). Densification is a multifaceted process, subjective to different contexts and for this reason, the process requires contextually apposite policy responses (Bobbins, et al., 2014). The concept of densification is frequently used in an extensive and vague manner, which then takes away from the establishment of more sustainable and resilient cities (Bobbins, et al., 2014). The process of densification ought to be more than a mere increase in population or buildings per square meter, it should be supplemented by aspects such as a variation of land uses, activities, better access to social and physical infrastructure, improved public transportation links as well as the incorporation of public open spaces and green spaces (Bobbins, et al., 2014).

According to Boyko and Cooper (2011), densification refers to the number of units in a given area. Densification can also be defined as the number of land units, such as acres, hectares, square miles, square kilometres and so forth, all depending on the country or context (Churchman, 1999). In addition, several disciplines also refer to densification as the placement of activities in close proximity to achieve compactness and maximise the use of space (Empire Perth Development Corridor, 2014). Densification therefore takes place in various forms in different parts of the world. Some of these approaches to densification range from the development of backyard units in townships, the replacement of townhouses by detached houses, the increase in occupancy
levels in flats and houses within the inner city and developments on the peripheries of the city in form of strips of townhouse complexes as well as RDP housing units (Bobbins, et al., 2014). With this said, it can be added that the variation in the measurement of density is also subjective to the topic of study. Population density, for instance, would be appropriate in a study that is examining the population of a particular area by humans. It therefore would not make sense to utilise this method of population density if one was conducting a study that focuses solely on densification or population by buildings rather than people. All things considered, the choice of the measurement system is completely idiosyncratic to the relevant topic of research.

All these descriptions of density reflect a different version of reality in that they each indicate the intricacy of the concept. This is reflected in how the process of densification can occur in several ways and through the increase of various forms of reality and still all be referred to as the same term. This research will, however, narrow it down to the amalgamation of Boyko and Cooper’s (2011) theory of densification as the number of land units in a certain area, as well as that of the Empire Perth Development Corridor’s (2014) description of densification as the compaction for the maximising of space. Harrison, et al. (2015) as well as Harrison and Todes (2014) argue that densification in South Africa does not always occur in line with planning policy. In addition, Harrison, et al. (2015) also states that more research is required on the processes and effects of densification in order for there to be appropriate plans for further developments and responses to current densification.

This research will assess densification, as a certain amount of land units in a particular compact area, for its relationship with urban resilience and therefore how Parktown West’s stability and adaptive capacity may be affected by it. The reasoning behind this choice of definition is that it outlines general densification and does not define population or residential density, factors which are not the focus of this research. Bobbins, et al. (2014) suggests that densification is driven by the availability of a potential for growth within a given area and the following are therefore examples of these potential drivers of densification;

a. Accessibility
b. Availability of transportation
c. Key/central location
d. Diverse activities
The growth of certain types of businesses and institutions.

The aforementioned aspects therefore drive cities to earmark certain places for densification, according to their growth potential and economic success. In addition, Turok (2011) and Harrison, et al. (2015) state that both formal and informal market forces also drive planned densification. This means that it is driven by private developers whose main incentive is profit. Harrison, et al. (2015) continues to suggest that densification has also been driven by aspects such as policy and planning, international immigration, economic growth as well as the constant increase in the demand for access to the inner city. These drivers are therefore quite similar, which indicates some consensus between the academics on the topic of densification.

The impacts of densification are not always positive as some are unanticipated. The negative impacts have an effect on general urban resilience as they cause disturbances in the maintenance of stability and also make it difficult for these communities to adapt to the changes. Some of the positive impacts include energy efficiency, the provision of better access, the promotion of social cohesion as well as a vibrant urban environment (City of Johannesburg, 2014). These may not all necessarily change an area, but rather contribute to its advancements. It is the negative externalities that therefore pose a threat to an area’s resilience as these make it difficult for a place to adapt to or remain stable to change. Churchman (1999) also states that redevelopment through densification should occur at densities high enough to recapture and/or maintain an area’s former vitality, which would be an act that contributes to the urban resilience of a particular area.

Various types of densification measures exist, but this study focuses on two of these, vertical densification as well as ground coverage. Vertical densification is an increase in building height, where buildings grow higher rather than in a horizontal manner (Bobbins, et al., 2014). Ground coverage, refers to the overall plot of land that may be covered by buildings, where buildings are viewed vertically from the air and are measured from the face of the exterior walls (City of Johannesburg, 2011). This form of densification is calculated as a percentage of the plot area of land and should be inclusive of all roofed areas. Ground coverage therefore covers more land space and often results in shorter buildings. Furthermore, the following parts of buildings are however omitted when calculating ground coverage (City of Johannesburg, 2011):

1. An unroofed steps, entrance steps and landing
2. Open balconies, retractable awnings
3. Chimneys, arches, water pipes, drain pipes and minor decorative features projecting less than 500 mm from the building
4. Eaves that project less than 1,0 m from the building wall
5. A canopy erected on the street frontage of a shop
6. Electrical high and low tension chambers
7. The swimming pool area

In the planning context, densification is often pursued to achieve various interdisciplinary goals. According to Churchman (1999), these goals can be loosely separated into the categories below:

a. Enhancing the environmental quality
b. The improvement of transportation systems
c. Physical infrastructure and urban form
d. Social factors
e. Economic factors

These goals can be perceived as the advantages associated with densification. Although some of the goals from the different categories may coincide/overlap, they have been separated in accordance to the most fitting category together with the relevant disadvantages.

Enhancing the environmental quality
Densification generally results in the reduction of energy consumption and other natural resources (for construction) allied to environmental effects (Churchman, 1999). This then improves the quality of air. In addition, green open spaces, flora and fauna are also all preserved as a result of achieving the goal of good environmental quality (Churchman, 1999). The establishment of historical and heritage sites also aids in the maintenance of the environmental quality of an area. Stenhouse (1992) and Owens (1992) support this goal of environmental quality as they add that pollution in the form of exhaust fumes decreases with an increase in density, resulting from the decline in the use of cars, the mixing of land uses as well as the availability of sufficient and efficient public transportation. With this said, densification may also result in negative externalities for the quality of the environment. High density construction may, for instance, require high energy consumption (Churchman, 1999). In addition, Troy (1996) suggests an opposing view of environmental quality, stating that a high density area may be subject to congestion and pollution. Troy (1996) further states that this
congestion and compaction transpires from the compaction of space that impedes the growth of greenery that purifies the air.

The improvement of transportation systems
Densification, according to Churchman (1999), often leads to the shortening of trips as a result of a much more compact environment, which subsequently lessens the frequency of the utilisation of private vehicles. This then increases the use of public transportation for a number of reasons, one of which might be due to an increased number of employees in the area requiring public transportation. Densification enables the development of public transportation systems into the thresholds of productivity and efficiency (Churchman, 1999), which are the places of employment. On a more negative note, some academics disregard transportation systems as a goal to be achieved by densification. Jenks, et al. (1996), Troy (1996) and Rydin (1992) write about higher densities possibly resulting in increased traffic congestion and traffic accidents as a result of an increased number of people in the area.

Physical infrastructure and urban form
Certain inner city urban areas constantly experience gradual decreases in land reserves, which justifies the need for densification (Churchman, 1999), as this phenomenon enables the most lucrative use of limited space. In addition, increased density results in intensifying the use of urban areas so as to make the most of the available resources. The availability of public transportation systems in proximity to densified areas tends to reduce the demand for land located further from these lines of transport (Shireman 1992), leading to further (and often unanticipated) densification in the same areas. Furthermore, densification through infill developments in existing areas can regenerate those areas while reducing the pressure to invade and develop on open spaces (Churchman, 1999). One of the disadvantages of densification for physical infrastructure and urban form is that choice for the placement of a building on a plot is inversely proportional to the increase of the net density increases. In laymen’s terms, this means that the choice of where to build decreases as an area becomes more densified (Hitchcock 1994).

Social factors
According to Churchman (1999), higher densities allow for there to be a variety of opportunities (school, work, play) to meet the needs of a diverse
community. Densification also creates a liveable environment through the placement of a range of activities in close proximity, with various options of transportation for efficiency. In opposition, Evans and Cohen (1987) state that densification may lead to physical overstimulation as well as negative health effects. Baum and Paulus (1987) further contribute to this statement by stating that this primarily results from the stresses of operating in a very dense environment.

Economic factors
Densification leads to an increased number of people within an area, which promotes patronage for local businesses. This has been witnessed in areas that have undergone a densification process different to that which is being studied in Parktown West. An example of this is the case of North Riding and Bellairs Park which underwent densification through the development of new townhouses. This was reported in a study conducted by Bobbins, et al. in 2014, where the feedback from the qualitative research revealed that the new tenants stated that they had good access to shops. This therefore serves as evidence in support of higher densities having resulted in increased support of local shops. In addition, continuous densification attracts new businesses, increasing an area’s economic productivity (Churchman, 1999). This attraction of new enterprises is primarily due to the fact that there is often good returns for property owners on investments in newly developed areas located around prominent areas (Churchman, 1999).

In addition, the Cape Town Partnership (2012) also supported the claims made by Churchman (1999) that densification is pursued to achieve certain goals which ensure that people stay closer to their places of employment, have access to efficient public transportation as well as spaces that cater for recreation and diverse retail and commercial activities. With this, our cities are able to relink people to different social and economic opportunities, which will aid in the alleviation of poverty and income inequality (Cape Town Partnership, 2012). These goals are also key components of realising general urban resilience. Furthermore, the Cape Town Partnership (2012) writes that South African cities need to be supple and efficient in order to guarantee the sustainability of our environments and economies, which is a key factor that the process of densification should incorporate. These therefore present us with a different perspective of the justification of the densification process.

Furthermore, the City of Tshwane (2005) also proposes some goals that drive densification. These goals include;

a. Minimising or reduction of the footprint of the city
b. Preventing the destruction of agricultural land
c. Improving the use of public transportation and facilitating pedestrianised spaces
d. Improving the efficiency of urban areas
e. Reducing inequality
f. Increasing the city’s marketability
g. Adhering to legislative directives

These goals are closely related to those presented by Churchman (1999) outlined above. Not only do they share similar explanations, but the names are also quite alike.

The minimising or reduction of the city’s footprint would aid in limiting the impact on urban ecosystems (City of Tshwane, 2005). An example of these footprints includes the pollution caused by vehicles that travel longer distances within a non-compact city. Having higher densities therefore enables the amalgamation of various activities within close proximity so as to reduce pollution, subsequently decreasing the city’s carbon footprint. This goal is therefore reminiscent of Churchman’s goal of achieving good environmental quality. The second goal of preventing the destruction of land is linked to the previous goal in that densification slows down urban sprawl (City of Tshwane, 2005). The phenomenon of urban sprawl encroaches valuable pieces of land located on the outskirts of the urban environment. Densifying the city therefore impedes this from happening as these developments occur in the inner city, stopping the spreading of the developments into the agricultural land. The third goal of improvements to public transport systems and the facilitation of pedestrianised spaces helps in the provision of greater access to certain areas. This subsequently provides labour pools for corporations and provides employees with easier access to places of employment and work opportunities for the unemployed. Improvements to the efficiency of urban areas results in a flexible and therefore highly accessible and convenient city (City of Tshwane, 2005), which is parallel to Churchman’s goal of improving physical infrastructure and urban form. Subsequently, this leads to an urban environment that enables its users to conduct their daily routines efficiently, where the time frames, money spent on daily activities as well as the opportunity costs are reduced. In addition, planning for infrastructure in the densification process also contributes to the improvement of an area’s efficiency (City of Tshwane, 2005). Another goal is that of the reduction of inequality, which takes place when there is greater access to the benefits and opportunities provided in an
urban environment. This goal is meant to be a solution to the current fragmented manner in which the city operates (City of Tshwane, 2005) and it is also an addition to that which is stated in the goal of social factors by Churchman (1999). Increasing the marketability of the city involves improving the quality and liveability of the urban environment as it plays a major role in the city’s competitiveness. This then helps attain potential investors for future developments that can expedite a sustainable economy, an increase in employment opportunities as well as growth in income generation (City of Tshwane, 2005). The final goal is that of adhering to legislative directives, where several acts and policies have been presented by the state as a tool for local authorities to appropriately respond to the issue of urban sprawl and urban form. This has not, however, been a success in practice (City of Tshwane, 2005).

The aforementioned is therefore a representation of the similarity between the goals that can be achieved by densification as written about by different authors. This means that the general goals that drive densification are quite similar. In addition, all the goals that were presented by Churchman are in line with the topic of urban resilience, whereas those by the city of Tshwane are more applicable to the context of residential densification. This means that the goals outlined by Churchman (1999) are to be used in this research.

Additionally, densification also allows for the resourceful use of land and public services or urban development while still maintaining a high quality of life (Churchman, 1999). Densification does not only result in economic advantages as high densities may raise a feeling of lessened personal security (Troy 1996; McCarthy and Saegert, 1978). High densities may also result in rivalry and other social conflicts amongst various groups, organisations, businesses and so forth for space (Churchman, 1999). Land prices in the inner city tend to skyrocket due to high density developments (Alexander, 1993), accompanied by the requirements of the costly upgrading of the current infrastructure (Troy 1992).

According to the Tshwane Compaction and Development Strategy (2005), other advantages of densification include; the establishment of places of opportunity to support extensive rates of densification in spaces driven by good access to a concentration of public services and infrastructure. Finally, another advantage is that of developing economic opportunities at crucial nodes with constellations of social facilities.
3.3 The foundations of general urban resilience - Adaptability, stability and resilience thinking

Adaptability and stability are the main concepts that form the basis of urban resilience. According to La Mantia and Weakly (2014), urban environments are resilient in the sense that they easily adapt or remain stable to change, but mostly through a combination of the two. In addition, Harrison, et al. (2015) state that the main emphasis is on the stability or resilience of the social and economic aspects of the area under study, which includes the built form and infrastructure, and how these have or have not adapted with densification. Furthermore, resilience thinking does not explain urban resilience, but rather provides the opportunity for cities to become resilient prior to any changes to the urban environment.

Stability generally refers to resistance to change. In this case, the stability of Parktown West would mean that it is resilient to undesirable changes that result from densification. Stability can be measured by the maintenance of the area’s general character, amongst other factors, regardless of changes to the area’s urban form (City of Johannesburg, 2008). In addition, stability reflects urban resilience in that an area persists regardless of possible externalities brought on by changing urban form. Adaptability can be defined as the capacity to influence and explain various trajectories that improve the overall responsiveness of a system to unanticipated changes (Pike, et al., 2010). In addition, adaptability is also referred to as the capability to restructure the system in response to unanticipated change as well as the ability to adjust on a constant basis to the unforeseen situations imposed by the transformation of an area (Bobbins, et al., 2014). Several ideas can be drawn up on how areas can improve their adaptive capacities. An example of this would be for the area or city to attempt to develop shared understanding and approaches to identify and surmount the constraints that may be blocking their adaptability to certain changes (Pike, et al., 2010). These concepts are not studied in depth in this research report as they merely aid in the deepening of understanding the concept of urban resilience, outlined below.

The process of densification is not always planned, which often occurs in ways unanticipated by planning policy (Harrison, et al., 2015). Resilience thinking assists municipalities in preparing for change by directing attention to the unpredictability of urban development. Through this, cities are able to prepare certain plans and policies, prior to any developments, to control and direct densification so as to protect the urban environment. Furthermore, resilience thinking eases the difficulties accompanied by unplanned
densification by developing appropriate responses to these changes (Harrison, et al., 2015). The most important aspect of resilience thinking is that of adaptive capacities, which heighten the capability of a city to anticipate change (Harrison, et al., 2015). Resilience thinking recognises that cities constantly changing is an integral part of the urban system (Andersson, et al., 2013).

Walker and Salt (2006) present three key factors to resilience thinking. First, we should understand the cities we live in as socio-ecological systems, where nature and human life are interconnected. Second, one needs to be aware of the complexity that these systems possess. Thirdly, we as the residents of these systems, need to be willing to advance their adaptive capacities by utilising cooperative, supple as well as educational approaches.

Cities are quite complex and as a result, urban systems are sometimes faced with unpredictable changes to which the possibility of anticipatory planning is limited (Bobbins et al., 2014). Resilience thinking also incorporates principles aimed at enhancing the adaptive capacity in response to changes such as densification. These principles include the capacity to learn; redundancy (also known as spare or duplicate capacity); diversity; self-sufficiency as well as connectedness (Bobbins et al., 2014). The capacity to learn is about enhancing our knowledge and improving our capabilities of obtaining, absorbing, preserving as well as utilising this information, which should be done by municipalities in improving their resilience thinking (Bobbins et al., 2014). Furthermore, this learning capacity can be improved by the city’s ability to classify and attain valuable information which would encourage the notion of experimenting that results in innovation (Bobbins et al., 2014). Another way in which cities and/or municipalities can enhance their knowledge is through working in partnership with other municipalities, city officials, institutions as well as research bodies to gain more information from learning networks (Bobbins et al., 2014). This further enhances the sharing of information in an open system between different entities and non-governmental institutions. The main constriction of this principle is, however, the bureaucratic idea of conformity and constancy, rather than attaining new knowledge and therefore encouraging innovation (Bobbins et al., 2014).

The second principle, redundancy, describes the repetition of the important parts of a system to guarantee an improved sense of dependability,
especially in the case of negative externalities due to changes to the system (Bobbins et al, 2014). Municipalities can enable redundancy by having a flexible human resources system, a diverse economy, road infrastructure as well as transportation systems and a supply of protected green open spaces. The Parktown Residents’ Association, diverse economic activity, several access points, the Parktown-Westcliff ridges and the Heritage Council, respectively, are examples of entities and institutions that could contribute to the principle of redundancy in Parktown West. These factors limit the densification in the area, which contributes to resilience thinking in that valuable spaces are thought about and preserved prior to the change.

Diversity is the third principle that guides resilience thinking, which in this topic, refers to multiple elements performing a variation of functions, or even the same functions in different ways (Bobbins et al, 2014). In addition, this principle of diversity is directly proportional to that of redundancy, and these both result in greater opportunity for future growth and development. The increase in the variation of responses to change within an urban system of a certain area improves the chances of successfully adjusting (Bobbins et al, 2014).

Municipalities that are either socially inaccessible or excessively dependent often cannot achieve resilience. Bobbins et al (2014) writes that building resilience needs elements of the third principle, self-sufficiency and strong connectedness, together with a balance between all the components of an urban system (governance, the economy, spatial settings and infrastructure). In essence, resilience thinking emanates from the sharing of local information, skills and strategies, and in addition, it feeds on the links made with external agents that enable innovation, co-operative planning and learning as well as assistance (Bobbins et al, 2014).

3.4 General Urban Resilience in relation to densification

Harrison et al (2015) write about resilience as stability and resilience as adaptability, which – as discussed above - are the key components of general urban resilience. Urban resilience may also refer to the capability of urban systems, such as cities, to recuperate, maintain function as well as prosper in the aftermaths of a particular phenomenon, regardless of its impact, magnitude as well as frequency (Frantzeskaki, 2016). The concept of urban resilience is not new as it has been deliberated upon in the past few
decades across scientific disciplines (Frantzeskaki, 2016). The concept is fairly new, however, in spatial and urban planning policy as it has rapidly acquired a central spot in this field in South Africa (Bobbins et al, 2014). In 2011, urban resilience was named one of the main themes in the City of Johannesburg’s Growth and Development Strategy (GDS) 2040, with special reference to the resilience of social, environmental as well as economic factors, amongst others (Bobbins et al, 2014). Furthermore, the municipality of EThekwini was successful in its proposition to the Rockefeller Foundation for the acknowledgement of the city of Durban as one of the first 33 international participants in a resilient cities programme (Bobbins et al, 2014). Bobbins et al (2014) also state that the City of Cape Town also incorporates ideas of urban resilience within a few of their policies and plans, while both Tshwane 2055 (City of Tshwane, 2013) and Ekurhuleni 2025 (City of Ekurhuleni, 2013) refer to resilience in their plans. Additionally, Harrison et al (2015) also state that the concept is utilised in the strategies of an increasing amount of South Africa’s smaller municipalities, especially in their Integrated Development Plans (IDPs) (Bobbins et al, 2014). This therefore serves as evidence in support of the concept of urban resilience rapidly growing within South African cities.

The concept of urban resilience originated in ecology and has mellowed across various systems such as the city (Frantzeskaki, 2016). Walker et al (2004) define urban resilience as the ability of a system to absorb disorder during the process of change, while maintaining the same functions, form as well as uniqueness.

The commonly recognized benefits of adopting the concept of urban resilience in urban planning and urban governance include five divisions of this concept of urban resilience at strategic and program levels (Frantzeskaki, 2016). With this said, the following is therefore a list of these benefits;

1. An integrative concept that enables the linking of goals and actions across various divisions for developing a common understanding and strategic program to accomplish it;
2. A concept that enables searching for holistic results in observation of vulnerabilities and risks that are to be turned into opportunities;
3. A transformative concept that needs new planning methods to address resilience qualities (for instance idleness and suppleness) which are opposing to efficiency, a basic principle of the new public administration approaches that several cities follow;
4. A complex concept that requires a different understanding of background conditions across social, ecological, economic as well as
institutional sub-systems and consecutively, allows for education on policy regarding assets and vulnerabilities;
5. An empowering concept for community engagement and programs that sanctions deeper understanding of assets and obstacles to overcome social difficulties.

The urban resilience of an area will be studied for how it is affected by densification. According to Bobbins et al, 2014, there are five principles of resilience. These range from multi-functionality; redundancy and modularisation; biological and social diversity; multi-scale networks and connectivity; as well as adaptive planning and design. These principles are also written about by Gonçalves (2013), who refers to them as the five dimensions used to assess the resilience of urban systems. These are multi-functionality; redundancy and modularity; diversity; connectivity insertion networks as well as planning for adaptability. These principles/dimensions are alike, with the only dissimilarity in their naming. This research therefore amalgamates the explanation of these principles and/or dimensions of resilience by both parties, Bobbins et al (2014) and Gonçalves (2013).

Multi-functionality is often associated with compact urban fabrics and it is usually an outcome of the amalgamation of various functions (Gonçalves, 2013). In addition, multi-functionality heightens spatial and economic efficiency and it both drives and is driven by multiplicity (Gonçalves, 2013). This means that if an area maintains multi-functionality, it has remained resilient to whatever change it has or is undergoing as this change did not result in the alteration of the area into a rigid area of a limited variation in functionality. According to Bobbins et al (2014), areas of high density and mixed-use enable the effective operation of various business types as well as social and cultural activities, using relatively low energy for the transportation of goods, services and the population. This means that in a resilient city, each area is capable of providing its community with basic amenities and necessities required for daily living in close proximity (Bobbins et al, 2014).

Redundancy and modularity constitute of elements that aid in providing a backup effect to the urban system (Gonçalves, 2013) in preparation for change. An example of this in Parktown West is the Heritage Council and how it operates in a way that assists in the preservation of certain parts or aspects of Parktown’s urban system. According to the terms provided by the National Heritage Resources Act; nobody is permitted to alter or demolish structures or portions of structures that are older than 60 years in absence of a
permit from the appropriate provincial heritage resources authority (City of Johannesburg, 2017).

Gonçalves (2013) describes diversity as the dimension that ensures varied responses to change in addition to higher adaptability. Furthermore, neighbourhoods that remain economically and socially diverse are said to be quite resilient (Gonçalves, 2013).

Connectivity insertion networks, according to Gonçalves (2013), ensure the clarification of the functioning of the different urban spaces. This enhances redundancy so that the urban fabric maintains its multi-functionality as well as the interdependence of these functions. This dimension therefore focuses on the maintenance of the area’s general character. Connections within the neighbourhood as well as the city at large are therefore quite crucial for building resilience as this upholds functional connectivity regardless of changes to the system (Bobbins et al, 2014).

The final dimension that assesses the resilience of urban systems is the notion of planning for adaptability. Gonçalves (2013) states that this dimension is used for the reduction of risks of unsuccessful and undesirable results. It aids in the provision of preparedness and anticipation as planning for adaptability results in a flexible urban system that capitalises on the reuse of spaces, buildings and resources. In addition, Gonçalves (2013) states that once flexible, an urban system can easily be transformed with the anticipation of positive results.

Furthermore, La Mantia and Weakly (2014) also write about the same principles that slightly differ in explanation. Multi-functionality generally refers to diversity indicated by variety, vibrancy and choice. Variety and vibrancy promote diversity as they are associated with the urban fabric, its uses and activities, economic activities, as well as the population that inhibits it (La Mantia and Weakly, 2013). In addition, choice is directly linked to variety and vibrancy in that the diversity offered by an area is dependent on the variety of vibrant choices available to the user. The diversity of biological and social elements is also quite crucial in that it provides a different side to the urban system. The natural environment as well as the community/people within this environment therefore form part of this diversity. This then provides for a resilience neighbourhood characteristic of all-encompassing and diverse natural and urban environments. Redundancy refers to the replication of certain constituents that are critical to a system to guarantee consistency,
particularly in the case of failures (Bobbins et al., 2014). Modularisation, on the other hand, is described as the decentralisation to various components which decreases risk within a system, averting undesirable externalities from rapidly affecting all components of the urban system (Bobbins et al., 2014). The fourth principle, multi-scale networks and connectivity, is based on the maintenance of the connections between the urban systems’ networks. This is pertinent to the building of resilience as it upholds functional connectivity in spite of disturbances to the system (Bobbins et al., 2014). Additionally, this principle may also refer to the physical and social connectedness within and outside of the community, which essentially represents multi-scale networks. La Mantia and Weakly (2014) state that these multi-scale networks are primarily liked to the human scale at the local community level, extending to the surrounding areas and the rest of the city. The final principle of adaptive planning and design is all about progressive ways of the configuration of the urban environment. This is reflected in the city of Johannesburg’s desires to use ecological assets to capitalise on service delivery and to address the serious backlogs in infrastructure. This principle is therefore perceived as a strategic planning method that could be used in the management of natural resources (Bobbins et al., 2014).

Furthermore, these principles can be linked to the afore-mentioned five goals (environmental quality, transportation systems, physical infrastructure and urban form, social factors and economic factors) identified by Churchman (1999) as the goals densification is pursued to achieve.

The goal of environmental quality can be associated with the principle of adaptive planning and design. This principle focuses on the use of ecological features to improve the quality of the environment and for it to remain stable, hence its linkage to the goal of a good environmental quality. In addition, these goals and principles overlap as there aren’t direct, single correlations between them. With this said, the principle of biological diversity also connects with environmental quality. The goal of physical infrastructure and urban form is also closely linked to the principle of adaptive planning and design, which is a principle that follows strategic planning methods that incorporate the management of natural resources. This relationship exists due to the fact that the goal of infrastructure and urban form can be achieved by following adaptive planning methods which are context-specific in order to maximise general resilience. Another relationship exists between the goal of transportation systems and multi-scale networks and connectivity. Connectivity within and beyond the study area requires an efficient
transportation system. The achievement of this transport goal therefore results in increased connectivity across the various scales of networks within the city.

In consideration of the above-mentioned principles, it can be concluded that resilience can thus be achieved through these principles, which can also aid in the measurement of general resilience. In addition, the degree of stability and/or adaptiveness can also measure resilience as these concepts are fundamental to the extent of urban resilience. It is debated that the idea of resilience improves planning by the addition of a captivating element to policy, but there will soon be uncertainty on the term’s meaning as a result of its diversity in use/meaning. Urban resilience is a neophyte in the planning field as the concept has swiftly gained momentum within spatial and urban planning policy in South Africa (Harrison et al, 2014).

3.5 Key notions and arguments of relevance to the topic

This research argues that densification has some effect on urban resilience, regardless of the desirability of the densification. Furthermore, resilience thinking should be adopted for preparedness of the effects of densification. As outlined in the second chapter, there are gaps in literature that need to be filled through this research. The capacity of adaptiveness and stability of an area in relation to density needs to be researched further. Existing literature has covered the drivers, impacts and principles of densification. This has not been completely done for urban resilience however, as most of the literature has been limited to residential rather than overall densification effects on urban resilience, which is indicated in the chapter on research conducted to date. This means that this research argues for more clarity on the drivers and impacts of general densification on general urban resilience. This will help uncover the extent of Parktown West’s stability in relation to the prevalent densification.

Several research studies have been conducted on the topic of densification and its relationship with urban resilience (Bobbin et al, 2014). A series of these studies were conducted by the same group of academics from the University of the Witwatersrand in Johannesburg as part of the same research project.

One of these projects was called the Resilience Assessment for Sustainable Urban Development (RASUD) and was a partnership between Wits and the Gauteng City-Region Observatory (GCRO). It was located in the South
African Research Chair in Spatial Analysis and City Planning (SA&CP), within the School of Architecture and Planning (SoAP) at the University of the Witwatersrand. The project received funding from the Department of Science and Technology and was managed by the National Research Foundation (NRF). In addition, the project team comprised of academic researchers from the School of Architecture and Planning together with the Oliver Schreiner School of Law (OSSL). The project research was undertaken through five main themes, namely:

1. Resilience and urban governance
2. Resilience in urban form and fabric
3. Resilience in urban infrastructures
4. Resilience of natural assets and ecological systems
5. Green economies for resilience

La Mantia and Weakly conducted a study in 2013 that looked at several Johannesburg case studies, focusing on the relationship between residential densification and urban resilience. This piece of work utilised desktop and qualitative research methods to establish the effects that densification has had on the urban resilience of several areas in Johannesburg (La Mantia and Weakly, 2013). The main objective of this study was to build an understanding of the consequences of densification on the resilience of the urban fabric and neighbourhoods that populate it. In addition, the aim was to establish the extent to which urban form may allow or resist adjustments such as densification (La Mantia and Weakly, 2013). The research was a crucial examination of the logic that promotes densification and infill. In order to establish the links of residential densification and urban resilience, this research looked at various forms of densification. These included back yarding in Bram Fischerville, the infill of townhouses and flats in Houghton Estate, townhouse developments on the outskirts in North Riding as well as the interior densification of residential buildings in Yeoville. This study can therefore be used as a starting point, from which my research will then diverge to general, rather than residential densification in relation to urban resilience.

The second of the series was undertaken by Bobbins et al in 2014, where they investigated urban resilience thinking on a municipal level. This study was based on providing municipalities with ways and strategies of thinking about resilience and how they should implement methods of thinking that advocates for proactive adaption to change (Bobbins et al, 2014). This study was essentially based on teaching municipalities that resilience thinking should be adopted so that municipalities understand the challenges of the
complexity of changes in urbanity (Bobbins et al., 2014). This would therefore assist in the preparedness for the changes brought on by densification so that municipalities easily adapt and remain persistent. Although this research was conducted at a broader scale, it helps one understand the different ways that municipalities or even smaller areas can anticipate densification externalities. This could therefore assist in increasing an area’s resilience as there would be some sort of preparedness for change. Furthermore, one of the most crucial points of this research was to assist municipalities in South Africa in applying the concepts of urban resilience in an attentive and precarious manner (Bobbins et al., 2014). Lastly, Bobbins et al. (2014) state that this piece of research was not intended to be utilised as a handbook, but rather as an instrument to encourage urban resilience thinking.

Another research piece was conducted in 2015 by Harrison, Todes and Weakly. They based their research on the general issue of resilient densification in Johannesburg, focusing on the same case studies as that of the La Mantia and Weakly (2013) study, with the exception of Yoeville which was replaced with Hillbrow. In addition to the maintenance of the same case studies as the above-mentioned, the foci for these case studies slightly differed. The densification focus was kept the same for Bram Fischerville while the other case studies were focused on densification through increased occupancy without altering the external built form in Hillbrow, the subdivision and development of townhouse in Houghton Estate as well as the construction of townhouses on former smallholdings in the north western suburb of North Riding (Todes et al., 2015). This study, like the first one mentioned, can also be used as a basis of the relationship between densification and resilience. Since my case study is Parktown West, this research will not have much influence on my study as the area under study is predominantly business and institutional rather than residential.

3.6 Conceptual Framework

The diagram below illustrates the various themes associated with the debates on urban resilience and densification presented in the literature. Change, urban form, character as well as heritage and history form some of the main influencers of densification. Elements such as stability and persistence are crucial in examining urban resilience. Lastly, various strategies and tools for the anticipation of change (such as densification) as well as the act of preparedness highly influence resilience thinking.
3.7 Conclusion

In order to plan for further developments and to respond effectively to the densification that is both underway and has already taken place, research on the processes and effects that densification has on the persistence of
certain areas is required. In addition, ways in which municipalities can be better equipped for the changes that result from densification is also crucial for urban resilience. This means that several tools and strategies can be established as a way of resilience thinking.

It can be concluded that the key concepts of densification and resilience thinking are what determines the general urban resilience of Parktown West. These are not the only important concepts though as adaptability and stability are also a crucial foundation of urban resilience. The conceptual framework is quite a useful tool in that it has assisted in establishing the links that have been formed between the concepts of densification, adaptability, stability as well as resilience thinking. This therefore helped determine a certain hierarchy of the concepts, so as to appropriately evaluate the general urban resilience of Parktown West. Furthermore, the conceptual framework was quite useful in amalgamating the different concepts previously discussed separately, into a single outcome that suggests ways in which urban form can attain, maintain or prepare for resilience. The conceptual framework therefore assisted in guiding the research to understand how densification and resilience thinking has contributed to building general urban resilience in the context of Parktown West.

Densification is to be viewed as a process of change, while resilience thinking is to be perceived as a method of preparation for this process of change. In addition, general urban resilience is therefore to be seen as the phenomenon that is affected by the densification process, negatively or positively, and presented with ways on how to anticipate the changes of this very process in the future through resilience thinking.
CHAPTER 4: INTRODUCING PARKTOWN WEST

4.1 Introduction

South Africa was previously held under the Apartheid government. Characterised by segregation, the pre-1994 era consisted of areas that separated people according to their race and/or ethnicity, which was all enforced by strict laws and policies put forward by this regime (Kubanza, 2012). Within the city centre were the white population, strategically placed in a central location for easy access to infrastructure and services provided by the city. Furthermore, the blacks as well as the other non-white populations (Coloureds, Indians, other) were placed further away on the outskirts of the city (Kubanza, 2012). These populations were placed in areas where the infrastructure, if any, was weaker and less operative than in the white suburbs. For this reason, residential densification has become one of the development trends in South Africa over the years. The aim is to provide all people with the same opportunities and equal access to infrastructure and services provided by the city. This subsequently resulted in an overburden on the city’s infrastructure, causing the decentralisation of businesses to suburbs. In response to this, general densification has also taken flight over the years in places such as Parktown West, changing suburbs into mixed use areas of convenience.

Against this background, this chapter will provide the location and the background of Johannesburg as well as Parktown. This chapter therefore focuses on both Johannesburg and Parktown. Furthermore, this chapter will also contextualise the study area of Parktown within the greater Johannesburg area. This context will provide an understanding of the Parktown’s history and development trends as this is where the interviews for the research were held.

4.2 Johannesburg: Brief History

The infamous city of Johannesburg was first established in 1886 as a disorderly mine camp (Jones, 2003), which turned out to be one of the world’s wealthiest gold mines (www.sa-venues.com, 2012). The city is one of South Africa’s major business districts, thriving economically, socially and culturally. This makes it South Africa’s economic and industrial hub and for this reason, the inner city of Johannesburg is the largest employment centre in the country (www.sa-venues.com, 2012). After three years of operating as a mine camp, the city had grown exponentially as it already housed a population of
more than 100 000 people, employing 75% of this population (Jones, 2003). The mine workers consisted of the black men from the homelands, whose families were left behind as these employees resided in hostels. The workers were taken to these mines for at least one year at a time. In order to maintain emotional contact with their roots and cultures, the men resorted to practicing their cultural dances, which soon became weekend entertainment for the white men (Jones, 2003).

![Figure 2: Image of the inner city of Johannesburg.](source: www.sa-venues.com, 2017)

### 4.3 The Parktown suburb

#### 4.3.1 Brief History

Parktown is one of the oldest suburbs in the city of Johannesburg. Located in Region F, the neighbourhood covers an area of 3.79km², with a population of 6 936 and a population density of 1 800 per square kilometre (Census, 2011).

The neighbourhood was established by Edouard Lippert in 1890. It emanated from a farm house built on a ridge by Lippert, who saw the potential of developing a town on this crest as well as the massive plain overlooking it ([www.joburgtourism.com](http://www.joburgtourism.com), 2012). This was when the site was then subdivided
into portions, from which several developments occurred and Parktown rapidly rose into an exclusive suburb (www.joburgtourism.com, 2012). The growth of the suburb gained momentum as an increasing amount of affluent entrepreneurs started a trend of mansion developments beside the ridge (www.joburgtourism.com, 2012).

### 4.3.2 Context

The neighbourhood is strategically located as it is relatively close to the city centre and is well connected to the rest of the city (www.sa-venues.com, 2012). The suburb of Parktown lies north of Johannesburg and is located between Westcliff and Saxonwold. Parktown was the first northern suburb of the inner city of Johannesburg (Jones, 2003). Furthermore, Parktown neighbours Hillbrow, Braamfontein as well as Milpark to the South; Berea, Sandton and Houghton on the Eastern side; Killamey and Forest Town in the North as well as Westcliff, Melville and Richmond on the Western end of the suburb (www.sa-venues.com, 2012).

The neighbourhood consists of the Parktown-Westcliff ridge, which is one of the prominent features of the area. There is also a Parktown and Westcliff Heritage Trust, which is a committee that serves to protect the neighbourhood’s history and heritage. This committee protects houses and other buildings older than 60 years, one of which is known as ‘The View’. ‘The View’ was constructed in 1896 along Ridge Road in Parktown and it is the oldest house in the city of Johannesburg (www.sa-venues.com, 2012).

**Figure 3: Map Contextualising the Parktown suburb in Johannesburg, Gauteng**

*Source: www.joburgtourism.com, 2012*
4.3.3 Development Trends

Over the years, Parktown has undergone densification changes that have contributed to the redevelopment of the area. This has placed various businesses, hospitals/medical centres, schools, religious institutions, food establishments as well as educational institutions within the neighbourhood, while preserving the peaceful residential parts of the area (www.savenues.com, 2012). In addition, the area has been separated into Parktown and Parktown West by Jan Smuts Avenue, both of which constitute three of the five campuses of Wits University (University of the Witwatersrand). These include the Education Campus, the Wits Medical School as well as the Wits Business School.

Figure 4: Map displaying different parts of Parktown
Source: Google Maps, 2017

Densification and redevelopment patterns in Parktown began as early as the late 1960s (www.joburgtourism.com, 2012). Approximately 56 of the houses in the suburb were demolished for the construction of the Wits Education Campus, which at that time, was known as the Johannesburg College of Education (www.joburgtourism.com, 2012). Over a decade later (1975), several more dwellings were demolished for the development of the M1 highway, which was meant to be the major arterial route connecting the north to the southern areas (www.joburgtourism.com, 2012). Furthermore, quite a number of other buildings were torn down in order to fulfil the transition of Parktown into an office and business district.
Parktown West, the study area of this research, is situated on the western part of Jan Smuts Avenue and is the more residential part of the neighbourhood. Ironically, this is the only side of Jan Smuts Avenue (the western side) where commercial activity is permitted (www.joburgtourism.com, 2012) as a way of preserving the residential essence of the suburb as most space gas been occupied by Wits University.

In addition, the Parktown area continues to undergo refurbishments and densification, but the Heritage Council ensures the preservation of the neighbourhood’s most prominent and historical buildings. Marked on the map below, some of these include the mansions designed by Baker such as Northwards, Villa Arcadia, Bishopskop, The Stonehouse as well as Brenthurst (www.joburgtourism.com, 2012). Historical mansions which are not the work of Baker are also under the protection of the council and these include Dolobran, which was designed by J.A. Cope Christie as well as the North Lodge designed by J.H. Aldwyncle (www.joburgtourism.com, 2012).
Figure 5: Map displaying the prominent buildings as well as the surrounding neighbourhoods in Parktown, Johannesburg.

Source: https://www.sa-venues.com/maps/atlas/gau_parktown.gif

4.4 Conclusion

The purpose of this chapter was to introduce the study area, Parktown West, locating and contextualising it within the city of Johannesburg. This chapter was also aimed at exploring and tracking the development trends of both the study area and briefly, the city at large. The information presented in this chapter therefore suggests that densification has been and continues to occur in Parktown since the 20th Century.
CHAPTER 5: RESEARCH FINDINGS

5.1 Introduction

The following chapter will discuss the findings from the research undertaken on the case study of Parktown West. It will then go on to analyse these findings. The analysis of the findings will be underpinned by the factors that have contributed to the resilience of Parktown West, which are the Parktown Residents’ Association, the heritage Council, planning policy as well as the Parktown - Westcliff ridges. In order to analyse and make sense of the findings, the document examines the main points in relation to the literature discussed in third chapter. In addition, the analysis answers the sub questions outlined in the first chapter. These questions range from how the densification has affected the resilience of Parktown and its residents; the manner in-which densification has changed/ is changing Parktown West; whether the densification has only changed urban form and not the general character of the area as well as what some of the methods that can be used to measure general urban resilience are.

Furthermore, this chapter of the research will touch on the different types of methods through which densification has occurred in Parktown West. This chapter first summarises the methods of data collection as well as the process followed to attain the results. Subsequent to this, the chapter then provides a brief summary of the key findings of the research. Following this is the section that covers the findings and then the analysis of these outcomes. The chapter will then close off with concluding remarks that synthesise this portion of the research.

The use of qualitative methods through conducting semi-structured interviews was undertaken to obtain these findings. The selection criteria for potential participants was based on their age, whether they live or work in Parktown as well as the number of years they have lived or worked in the area. The length of time spent living or working in Parktown was important as these are the people that were most likely to have witnessed any major changes to the urban form of the area. Six people were selected for interviews, a group which consisted of both workers and residents of Parktown. In addition, the former chairperson of the Parktown Residents Association and frequent employee of the city of Johannesburg was also interviewed on behalf of the committee, as he was recommended as having the most useful information. This representative not only works in the built environment, but he also frequently works on projects within and around the Parktown area, run by either private corporations or the city of Johannesburg. Pseudonyms have been provided in place of the interviewees’ real names as they were
promised anonymity in the consent forms as well as the Participant Information Sheets that they signed prior to the interview. In this regard, the study aims to document the perceptions of the interviewees on the densification and regeneration of Parktown in the years that they have been in the area, particularly focusing on how it has impacted the urban resilience of the urban form and the character of the area.

In addition, various sources of information will be used to interpret, analyse and present the findings, both through visuals and text. With this said, the mapping observations within this project have made use of GIS sources such as Google Maps, the City of Johannesburg’s electronic Services as well as Google Earth. These sources proved to be quite helpful in the acquisition of accurate spatial data on the Parktown area.

The research revealed that the densification of Parktown has been desirable to a certain extent, a perception mostly dependant on the type of business the respondent runs as well as how it has affected their lives (be it social, financial, business, personal). In addition, the densification has altered the character of the area only to a certain extent as there are factors that have limited the amount and type of densification that has taken place. These factors are the heritage council, the Parktown – Westcliff ridges, planning policy as well as the Parktown Residents’ Association.

The densification has proven to be quite beneficial to most businesses in the area as the increased number of buildings and other businesses within the area has subsequently resulted in higher patronage from an increased population density. This will however be discussed further in the sections to follow.

Some Parktown West is situated along the Westcliff and Parktown Ridges, which provides scenic views for most of the residential buildings located on the top of the ridge. The close proximity of this area to the inner city is one of the main reasons behind the pressure for commercial developments and densification in Parktown (City of Johannesburg, 2007). In addition, the city’s planning policy is centred on the protection of the character and heritage of Parktown, while maintaining the accommodation of these development pressures. With this said, it is therefore evident that the area of Parktown remains resilient to these developments.
5.2 The Perceptions of the Residence + Workers on Densification

Below is a table that summarises the findings of the research, obtained from the participants that were interviewed in Parktown.

<table>
<thead>
<tr>
<th></th>
<th>Participant 1</th>
<th>Participant 2</th>
<th>Participant 3</th>
<th>Participant 4</th>
<th>Participant 5</th>
<th>Participant 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of occupation/residence</strong></td>
<td>27 years</td>
<td>8 years</td>
<td>16 years</td>
<td>6 Years</td>
<td>5 Years</td>
<td>12 years</td>
</tr>
<tr>
<td><strong>Relations to Parktown</strong></td>
<td>Residence</td>
<td>Employment</td>
<td>Employment</td>
<td>Residence + Employment</td>
<td>Employment</td>
<td>Residence + Employment</td>
</tr>
<tr>
<td><strong>Physical changes</strong></td>
<td>- New buildings - Refurbishments - More offices + institutions</td>
<td>- Refurbishments - A few new buildings</td>
<td>- Refurbishments - More buildings - Larger pockets of space (Transnet, BDO)</td>
<td>- Empire widened - New buildings - Refurbishments</td>
<td>- New buildings - Refurbishments</td>
<td>- Increased density of buildings that operate 24 hours - Refurbishments</td>
</tr>
<tr>
<td><strong>Densification effects on resilience</strong></td>
<td>- Character hasn’t changed much - Has remained resilient due to heritage committee and policy</td>
<td>- Character has changed - Seems like a different place</td>
<td>- Little change in character</td>
<td>- No change in character</td>
<td>- Character still the same</td>
<td>- General character changed - more businesses</td>
</tr>
<tr>
<td><strong>Life changes</strong></td>
<td>- Densification took over 30 homes - Increased participation in projects</td>
<td>- More business during refurbishments and construction - More public transportation</td>
<td>- Security issue - Less business as new corporations have own canteen</td>
<td>- Increased population density</td>
<td>- Less crime - More public transport - Increased population density</td>
<td>- Increased public transport</td>
</tr>
<tr>
<td><strong>Changes: +/−</strong></td>
<td>Neither</td>
<td>Positive</td>
<td>Neither</td>
<td>Neither</td>
<td>Positive</td>
<td>Positive</td>
</tr>
<tr>
<td><strong>Drivers of densification</strong></td>
<td>- Money-hungry developers - Business opportunities</td>
<td>- No idea</td>
<td>- Central location - Public transport - Accessible compared to Sandton</td>
<td>- Business opportunities - Location -Surrounding businesses</td>
<td>- Surrounding business opportunities</td>
<td>- Increased population density is good for business - Rent lower than Sandton - Flexible + convenient - Close to North + South</td>
</tr>
</tbody>
</table>

**Figure 6:** The table above displays a summary of the findings from the fieldwork. It states that there has been little change to the urban form of Parktown West as the area has remained stable and has adapted to the changes that resulted from densification. This has subsequently lead to the character of Parktown West remaining the same and the area therefore maintaining general urban resilience.
5.3 How Densification Has Changed Parktown West

Urban form can be resilient both over time and through change. This can occur by maintaining stability and adjusting to change in order to accommodate various situations or phenomena. These changes and adjustments can be achieved through physical changes and developments such as changes in the road systems, city expansion, the replacement of low density with higher density buildings and so forth (Harrison et al, 2014). An alternative to this would be to simply alter the manner in which a neighbourhood operates (Harrison et al, 2014). Changing the functioning of an area often occurs through subtle changes, where physical aspects (such as buildings and roads) stay unaffected. Furthermore, the diversity of the residents however leads to changes in certain land uses (Harrison et al, 2014) as each individual has to be accommodated as a member of the community. However, the spatial structure and character of the built environment are connected to the needs and objectives of an evolving society. This then results in spaces that are constantly being modified in accordance to the current dominant modes of development (Harrison et al, 2014), in this case densification.

The densification of Parktown was explored or quantified through the observation of google earth maps. The maps below display a comparison of maps of Parktown, which are 16 years apart. It is evident that densification has occurred, regardless of this type of map only showing densification through increased ground coverage.
Figures 7 - 11: The maps above are indicative of the pockets of densification in the Parktown area over the past 17 years. These therefore indicate the areas of growth as well as the slow process that this densification has taken. Some of the growth in the area has taken place through infill developments as well as refurbishments, where existing buildings are taken over by new corporations. This accounts for what the map cannot display.

- Between 2000 - 2005
- Between 2000 - 2010

There are numerous measures that can be used to determine the densification of an area. Two measures; ground coverage and vertical densification were used in this study to quantify how the new buildings have contributed to the densification of the Parktown West area. Both these measures have different definitions of density as it occurs differently in each case. Below is a table to help define the distinguishing characters of both these methods.

<table>
<thead>
<tr>
<th>Density measure</th>
<th>Ground Coverage</th>
<th>Vertical Densification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguishing features</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Brief description**

- The overall plot of land that may be covered by buildings. Measured from the face of the exterior walls when viewed vertically from the air
- Increase in building height. Buildings grow higher, rather than horizontally

**How it is quantified**

- Calculated as a % of the plot area of land + should include all roofed areas
- Calculated as the number of storeys in a building

**What it looks like**

- Often results in shorter buildings that cover larger pockets of space
- Often results in taller buildings with greater floor space for domestic uses (such as gardens, parking)

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**Figure 12**: The table above shows the comparison between the two measures of density that are of interest to this study. The purpose of this table is to show that the area of Parktown West has undergone the same process in different ways. Some of the information on this table was obtained from the city of Johannesburg’s 2011 Consolidated Land Use Scheme.

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**5.4 Conclusion**

Parktown West has remained fairly resistant to the on-going densification as a result of the Parktown Residents’ Association, planning policy, the Parktown – Westcliff ridges as well as the Heritage Council. In addition to planning policy, the Association has contributed to the general urban resilience of Parktown by establishing the neighbourhood’s own precinct plans and policies to direct and control densification. The Parktown-Westcliff ridges are valuable physical features on which there can be no construction. This then ensures the resilience of the neighbourhood as it limits the densification, subsequently maintaining the character of the area. To sum up, the Heritage Council contributes to the general urban resilience of Parktown West by protecting certain buildings and sites within the neighbourhood, further preserving the character of the area.
CHAPTER 6: Analysis of Findings

6.1 Introduction

The findings discussed in the previous chapter suggest that the densification that has occurred in Parktown West has received a mixed response from the residents and workers in the area. The neighbourhood’s resilience together with some of its institutions has resulted in limited negative externalities. Furthermore, the findings suggest that the resilience of Parktown West’s urban environment has been a result of the buoyant and vocal Residents’ Association, the Heritage Council, the protected status of the Parktown-Westcliff Ridges, as well as Planning policy. Instead of the concepts mentioned on the previous conceptual framework, these institutions and entities have been incorporated into the conceptual framework below, to aid in the analysis of the key findings of the research.

This conceptual framework therefore discusses densification and resilience thinking as having contributed to the general urban resilience of Parktown West. Urban resilience is dependent on the magnitude and intensity of densification, however, Parktown West has several institutions that have built resilience regardless of this densification. These concepts are also outlined within the conceptual framework displayed above.

This chapter therefore utilises the conceptual framework outlined above to assist in analysing the fieldwork findings.
6.2 The effects of densification on urban form and the general character of Parktown West

The Parktown West area consists of a range of land uses and activities, which as a result of the densification and regeneration of the area have constantly changed overtime. These activities and land uses are inclusive of places such as the BDO and Transnet corporations, the SAA offices, myriad restaurants such as Mike’s Kitchen, institutions like Wits University, banks, schools and so forth. Most of these establishments have been a result of the densification in the area as Parktown was previously predominantly a residential neighbourhood. This has therefore contributed to a sense of variety and vibrancy to the neighbourhood. These changes are therefore used to analyse the extent of the densification and its adverse effects on the resilience of Parktown West, with emphasis on the character and urban form of the neighbourhood.

Findings reveal that Parktown has been undergoing densification through the vertical growth of buildings as well as through increased ground coverage. According to the city of Johannesburg’s Land Use Scheme of 2011, the following parts of buildings are omitted when quantifying ground coverage:

1. Unroofed steps, entrance steps and landing strips
2. Open balconies, retractable awnings
3. Chimneys, arches, pipes (water and drainage) and minor decorative features projecting less than 500 mm from the building
4. Eaves that project less than 1,0 m from the building wall
5. Canopies erected on the street frontage of a shop
6. Electrical high and low tension chambers
7. The swimming pool area

As a result, this exclusion of the exterior parts of the buildings means that coverage only constitutes of the actual building without the aforementioned exterior features. This makes sense though as these features mostly hover above ground and do not cover the actual floor area from the bottom up. With this said, ground coverage therefore only incorporates buildings and parts of buildings with solid foundations rather than mere spaces that cover the floor when viewed from the top. These methods were therefore utilised in this study to quantify how the new buildings have contributed to the densification of the Parktown West area.

Churchman (1999) states that densification tends to increase vertically as a result of higher land value since this is a way to practically and efficiently
utilise land. This, however, was not the case for Parktown. In addition, Churchman (1996) also states that building heights tend to decrease the further away you move from main roads, such as that of Empire Road in Parktown. Around the year 2000, when the densification in Parktown was still in its early phases, several businesses were relocating to Sandton and increasing densities was perceived to be an optimal solution to encourage the growth of businesses within the Parktown area. Land cheaper than Sandton was not the only incentive though, as the participants reported that other reasons encouraged their stay in Parktown. Cheaper rents, good infrastructure, the flexibility of the area, its convenience as well as its accessibility to the northern and southern areas are amongst some of the factors that contributed to the participants remaining in the Parktown West area. Interestingly, these are the same drivers of densification outlined by Bobbins et al (2014) in the literature that was reviewed. Furthermore, the goals and/or dimensions of densification by Churchman (1999) and The City of Tshwane (2005), respectively, also coincide with these drivers of densification in Parktown.

In addition, new buildings such as Transnet and BDO on St. Andrews Road in Parktown West have contributed to densification through increased ground coverage. This is evident in the relatively larger pockets of space that these buildings consume as single corporations, in relation to several multifunctional buildings or office blocks in the vicinity.

It can also be said that regardless of the noticeable changes that have been witnessed by the workers and residents of the Parktown West area, densification has not had any detrimental effects on the neighbourhood of Parktown. Instead, there have been positive outcomes that have reflected the accomplishment of the goals stated by Churchman (1999) in a previous chapter. These five goals are said, by Churchman (1999), to be attained through the process of densification. One of these goals is that of social factors, where higher densities are believed to result in increased diverse opportunities for the community. This has therefore occurred in Parktown West through the greater employment opportunities that have risen from the new corporations and offices within the area since densification. In addition, the diversity element has been brought on by the variation in business-types that have been introduced to the area. Another goal is that of transportation systems, which often increase with an increase in density. This has been the case in Parktown West as a small scale taxi rank has been established along St. Andrews Road due to the increase in the working population that relies on public transportation. Parktown West has successfully adapted to these
changes, which is an indication of the general resilience of area’s urban form.

The refurbishments of old buildings, the construction of new ones as well as the widening of roads has taken place, but this did not take away from the area and its character. Urban form has changed in the sense that there is evidently a greater degree of unevenness now than there was prior to the densification, which has resulted from the vertical densification on the neighbourhood. Churchman (1999) states, under the goal of physical infrastructure and urban form, that infill developments and the regeneration of existing areas revives them and reduces the pressure to develop on open spaces. This goal has been achieved in Parktown West as most of the development has occurred through infill developments and refurbishments, rather than on open spaces. This phenomenon has consequently contributed to the stability of Parktown West.

Planning policy has, however, been useful in the maintenance of a certain urban fabric. This has been carried out through controlling the developments on green open spaces, as there are restrictions to the building heights and coverage as contained in the City of Johannesburg Land Use Scheme of 2011. According to the respondents, the densification has hardly, if at all, altered the general character of the Parktown West area. When interviewed on ways in which densification has affected the resilience of the neighbourhood and its residents, the participants responded as follows:

“The area is still quite the same, even though there are noticeable changes of new and refurbished buildings like the BDO across the street. Empire Road has also been widened, but that doesn’t seem to have changed the character of Parktown really. “
- Participant 4

“When many businesses were relocating to the Sandton area, various reasons actually encouraged our stay in Parktown. Firstly, the rent is much lower than that in Sandton, there is good infrastructure, the area is flexible, it is convenient and plus it is fairly close and accessible to the Northern and Southern areas. “
- Participant 6
One of the participants had a slightly different opinion however, as they felt that the physical changes, such as the refurbishments of buildings as well as the widening and repairing of roads, have resulted in some criminal activity into the area. This participant therefore had this to say:

“I am a florist and in my 16 years of working in this area, we have had no issues of criminal activity, sometimes we would even close the shop without returning all of the merchandise back inside. At times you would even find a note in the morning of a customer that had taken something and would return to pay for it the following day as we had been closed when they had taken it. That doesn’t happen anymore, I think the densification has contributed to security issues, primarily due to the increased foot traffic. The place just isn’t the same. “
- Participant 3

6.3 Measures of general urban resilience

There are various methods to measure the resilience of an urban environment. One of these methods is that of Gonçalves’ (2013) five dimensions that may be used to assess the resilience of urban systems. These are:

1. Multi-functionality
2. Redundancy and Modularity
3. Diversity
4. Connectivity insertion networks
5. Planning for adaptability

These methods are quite essential in the analysis of the resilience of Parktown West. Multi-functionality is often an outcome of the amalgamation of several functions (Gonçalves, 2013) of an area that is diverse in what it offers the users. As mentioned earlier, Parktown West is characteristic of a dynamic and diverse usage of land and activities, which improves its spatial and economic efficiency. This improvement in the neighbourhood’s economy and use of space feeds on the multiplicity of the environment. Since Parktown West has
maintained multi-functionality, it has remained resilient to the densification it has or is undergoing as this process has not resulted in the alteration of the area into a rigid place of limited variation in functionality. Methods of redundancy and modularity focus on the backing up of the urban system in preparation for change (Gonçalves, 2013). This means that the system, in this case the neighbourhood of Parktown West, prepares itself for densification through the protection and preservation of the area’s valuable spaces and buildings by rules, regulations and laws. In addition, the Heritage Council in Parktown West also operates in a manner that assists in the preservation of certain parts of Parktown’s urban system. According to the terms provided by the National Heritage Resources Act; nobody is permitted to alter or demolish structures or portions of structures that are older than 60 years in absence of a permit from the appropriate provincial heritage resources authority (City of Johannesburg, 2017). The Heritage Council in Parktown is therefore governed by this Act and aids in the preservation of buildings which are seen to be of great value to the city of Johannesburg. Furthermore, redundancy and modularity are also enforced by the existence of the Parktown – Westcliff ridge. This ridge serves as a physical feature that limits undesirable growth as there are regulations around construction on and around it. In this regard, it is therefore quite crucial to have such elements put in place to aid with the assessment of urban resilience. The findings therefore reveal that Parktown West has remained resilient due to the above-mentioned factors, which have largely contributed to maintenance of most of the neighbourhood’s buildings and character.

Furthermore, Gonçalves (2013) describes diversity as the dimension that ensures varied responses to change and allows for higher chances of adaptability. Parktown West is quite economically and socially diverse, which also indicates general urban resilience (Gonçalves, 2013) as this diversity shows that the area is multifunctional. Choice is also viewed by La Mantia and Weakly (2014) as an indicator of a diverse environment. Parktown West has a range of choices in food establishments, for instance, which is a reflection of diversity and therefore another contribution to general urban resilience. Most of the participants reported that the densification had not had any negative social impacts on their lives, while some did complain about economic issues. The respondents did, however, voice out complaints on how some of the new developments and/or businesses have their own canteens and therefore do not support the local restaurants and other establishments that sell food. One respondent spoke about how this densification has positively impacted their business.
“Although I have been working in this area for over a decade, I have witnessed quite a number of changes within the past 5 years. As the area has become denser, this Engen garage has been receiving more business as it services approximately 1000 vehicles and approximately 2800 customers in the quick shop per day, which is quite an improvement as these numbers were relatively low pre-densification. Some of the new business are 24 hour operations, which has also contributed to the growth of our business. “

-Participant 6

It can be concluded that the diversity element is evident in how the densification has generally resulted in varied responses from the respondents as each has been affected differently by this phenomenon.

Connectivity insertion networks, according to Gonçalves (2013), ensure the clarification of the functioning of the different urban spaces. This enhances redundancy so that the urban fabric maintains its multi-functionality as well as the interdependence of these functions. This dimension therefore focuses on the maintenance of the area’s general character. In the case of Parktown West, the Residents’ Association of Parktown are in sync with this principle as they generally manage the neighbourhood and ensure the efficient functioning of each part of Parktown system. This Committee has previously established action plans, programmes as well as small-scale policies for the Parktown area, all for the sole purpose of the preservation and protection of the neighbourhood. One participant, who was a representative of the Parktown Residents’ Association, had this to say regarding one of the Johannesburg Land Use Schemes that were (according to the Committee) threatening to the character of Parktown;

“As a Committee, we decided to devise a Development Action Committee to oppose the scheme and to try and negotiate into get something that was acceptable for our neighbourhood. It has been quite successful in creating a buffer between the suburban area and the busy roads. “

- Participant 1

Assessing the resilience of Parktown West with this dimension therefore reveals that the neighbourhood’s urban environment has proven to be quite resilient. There is clarity and therefore no misconceptions around the activities and
uses of all the establishments which suggestive of proof on the appropriate interpretation of the different urban spaces within the Parktown West area.

Some of the densification in Parktown was strategically planned as the office buildings were placed alongside the busy roads. This was not only so that they could serve as a buffer (as mentioned in the insert above), but it was also a way for these businesses to be more accessible to their clientele. This notion of accessibility is also reflective of the aforementioned principles and dimensions of densification. These roads, such as Jan Smuts and Empire are located on the lower parts of the Parktown - Westcliff ridge. This means that they do not block the views of the houses located on the ridge since this would reduce the value of these houses and result in the instability and therefore non resilience of Parktown. This was not the choice of the developers though as policy was put in place to guide the development on and around the ridge. Furthermore, the Parktown Residents' Association Committee has been successful in convincing the developers of the new developments to follow the trend of turning the faces of the building towards the street to create an interface and therefore preserve the essence of the neighbourhood. This was becoming problematic as some of the new buildings were not adhering to this standard and were therefore starting to slightly alter the area.

Parktown also has the Defended Neighbourhoods Policy which defends pressure alongside some of the busy roads. The Committee states that densification started at a time where places along these roads were starting to show signs of neglect as people no longer wanted to stay there. This then heightened the pressure for the construction of offices in this area.

The final dimension used in the assessment of the resilience of the Parktown West urban system is the notion of planning for adaptability. Gonçalves (2013) states that this dimension is used for the reduction of risks of unsuccessful and undesirable results. It aids in the provision of preparedness and anticipation as planning for adaptability results in a flexible urban system that capitalises on the reuse of spaces, buildings and resources. In addition, Gonçalves (2013) states that once flexible, an urban system can easily be transformed with the anticipation of positive results. Parktown West is a flexible neighbourhood as it has transformed overtime from a predominantly residential area to an area that houses a variety of land uses and activities. According to the Parktown Residents’ Association, densification in Parktown started gaining momentum at a time when there were various unoccupied government-owned buildings alongside main roads. These buildings apparently showed signs of neglect, which then resulted in the build-up of
pressure to use these buildings as office space. The Parktown Residents’ Association then developed policy, where the Floor Area Ratio (FAR) would be 0, 2 for offices and 0, 1 for residential buildings. In this regard, it can be concluded that the Association has been quite efficient and successful in the protection of Parktown West from undesirable densification. Moreover, the Association had this to add in response to densification.

“You have to be proactive in protecting your neighbourhood. The Committee has been responding to the densification through several plans and policies, such as the Defended Neighbourhoods Policy and the Ridge Policy. We also believe that developing your own Regional Development Frameworks and Precinct Plans is quite crucial. All these plans play an important role in the planning for change while trying to maintain the aesthetic of the neighbourhood. “

- Former Parktown Residents’ Association chairperson

6.4 Conclusion

The findings of this research provide evidence in support of densification mostly having positive outcomes. The main reason behind this is that the Residents Association does not merely focus on small scale issues pertaining to the households of Parktown, but instead focuses holistically on the entire Parktown area and major issues affecting it, such as development, crime, the preservation of the area and so forth.

The relationship between the intensity of densification and urban resilience is that of an almost equal connection. The reason behind this is that Parktown has maintained general urban resilience in different parts of the neighbourhood, regardless of the variations in intensity of the densification. Furthermore, planning policy, physical features as well as the Heritage Council all contributed to the maintenance of the aesthetic of Parktown, which has assisted in controlling the type of developments in the area. Parktown West has remained resilient regardless of the amount of densification it has endured.

In addition, findings have revealed that most of the participants share a common view on the reason behind the relocation of most businesses into the Parktown West area. It is said that relatively low rentals (as compared to Sandton); the central location that provides easy access to the north, south,
west as well as eastern parts of Johannesburg; contains good infrastructure and is generally quite a convenient and flexible.
CHAPTER 7: IMPLICATIONS OF DENSIFICATION FOR PARKTOWN WEST

7.1 Introduction

The findings from the previous chapter reveal that the densification in Parktown West to date has not necessarily had negative externalities due to the neighbourhood’s resilience. Furthermore, it was discovered that this resilience of the urban environment has been a result of the buoyant and vocal Residents’ Association, the Heritage Council, the protected status of the Parktown-Westcliff Ridges, as well as Planning policy.

This final chapter then offers an overview of the research, followed by the limitations of the research as well as recommendations for future research on the same or similar topics.

7.2 Research Overview

The main aim of the research was to determine the effects of densification on the general urban resilience of Parktown West. The main issue to which this research is responding is that resilience has only recently been applied and undertaken in cities as it had only been explored in various socio-ecological systems in the past (Frantzeskaki, 2016). This means that subsequent to stresses and major changes, cities were not being assessed for damages and possible solutions for prevention and/or preparedness. A considerable amount of research that has been done to date on urban resilience focuses exclusively on the effects of residential densification on resilience and disregards the effects of densification on general urban resilience (La Mantia and Weakly, 2013). Furthermore, the case study was chosen based on a preliminary scan of densification across Johannesburg, which therefore elucidates the selection of a case study that isn’t predominantly residential.

In light of the afore-mentioned context, this research was driven by the following research question; “In what ways might densification affect general urban resilience (adaptiveness and/or stability) in Parktown West?” In order to carry this out, Qualitative methods of research were utilised. This method was therefore used to respond to the sub questions, through surveys and interviews with the residents, workers as well as the Residents’ Association of the Parktown area. In addition, the study of Parktown West was used as a tool to attain direction for the research. This was also beneficial in plunging deep into specifics to obtain thorough information. In attaining this information, semi-structured interviews were conducted in English and IsiZulu in order to accommodate the respondents. Minor hiccups were encountered during several instances as some respondents could not properly understand the
questions, especially when they got lost in translation. The last few chapters touch on literature, which delves into the main concepts and themes of this research; the introduction of the case study; the findings and analysis of the fieldwork as well as the concluding remarks that incorporate the implications and recommendations for future research.

The key findings of the research suggest that Parktown West has built general urban resilience without being affected by the intensity of the densification that has occurred in the area. This has been a result of the aforementioned factors of the irrepressible Parktown Residents’ Association, the Heritage Council, planning policy as well as physical features such as the Parktown – Westcliff ridges. The Association has been successful in establishing programmes and regional policies that, together with the city’s planning policy, restrict the developments that can be undertaken in the Parktown area. In addition, the heritage Council has served a similar purpose as this committee limits the densification through the preservation of buildings older than sixty as well as other sites valuable to the neighbourhood and the city at large. Furthermore, the ridges have contributed in controlling the location of new developments as these ridges are valuable physical features on which construction cannot occur.

7.3 Limits and recommendations

From this research, one can gather that there is a correlation between densification and general urban resilience. Despite change to the urban fabric, certain factors about the neighbourhood assist in keeping it resilient by remaining stable and adapting to the minor changes.

Certain limitations can be presented as having an influence on the research. This research therefore recognizes two kinds of limits; limits in terms of the applicability of the study as well as limits in terms of the replicability of the study. With regards to this research, the limits are all the factors that contributed to the resilience of Parktown. Applicable limits are the factors identified as having contributed to the resilience of Parktown and would still be applicable to a different context. An example of this is whether the Parktown Residents Association is resilient on its own or if it is and operates the same way as other Residents’ Associations. If it is the same, the notion of the committee having an influence on the resilience of an area is therefore applicable to other cases on the same research. This would therefore mean that a Residents’ Association can be used in another study in the future to assess or prove the resilience of another researchable case study.
It was established that one of the reasons for resilience is a buoyant and vocal association. The area was able to remain resilient as the residents of Parktown are a union and they work in unity in making certain that the general character and urban form of their neighbourhood is maintained. In addition to this, another limitation could be that there only has to be a common interest between the above-mentioned factors (association, heritage council...) for there to be resilience. This is because had there been opposing views, it was going to be difficult for Parktown to maintain its character as there were going to be different forces pulling away from each other, therefore weakening the resilience of Parktown. In other words, there should be a positive correlation between them in order for the area to maintain stability. These factors should speak to each other in a sense that one should relate to the other for the results of the research to be this way. This means that the Residents' Association’s regional policies and action programmes, for instance, need to be aligned to the city's planning policy for the neighbourhood to maintain general resilience. It also means that the land use regulations, development policies as protocols around construction on the ridges should apply to all developers so as to ensure that the urban fabric remains constant and does not impede the resilience of the area.

Furthermore, it can be concluded that this research is replicable in the sense that it can be taken and applied to a different case study for the sake of comparison. The same research could also be undertaken as an addition to the existing knowledge on the topic of densification and its effects on general urban resilience.

7.4 Conclusion

The research suggests that densification doesn’t always result in negative externalities. It may also be suggested that this phenomenon can occur without drastically altering the urban environment, which might have resulted from the low intensity in which it occurred in Parktown. The case of Parktown West provides some evidence in support of the irreplaceable Residents’ Association’s capability to safeguard the neighbourhood, given that its members play proactive roles in advocating for the community at large. This committee serves as the backbone of the Parktown community as other factors also come into play, but its support and resilience binds everything. In addition, planning policy, the Parktown-Westcliff ridges as well as the Heritage Council have also been found to contribute to the general urban resilience of Parktown West. These institutions limit the amount of densification within the area due to reasons mostly around the protection of
valuable and historical places and spaces. As mentioned before, the limitation of densification occurs on buildings and sites older than sixty years (according to the National Heritage Resources Act). For this reason, these institutions are therefore conducive of general urban resilience in Parktown as they are backed by national (and in some instances regional) policy and therefore take preference over any densification.

Had there been another chance to conduct the same research, I would have selected a different case study where the densification has been rapid or the urban fabric has changed drastically. This is primarily due to the fact that the densification in Parktown has taken quite a slow and gradual pace.
REFERENCES

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APPENDICES

Appendix A: Ethics Clearance Certificate

SCHOOL OF ARCHITECTURE AND PLANNING
HUMAN RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE
PROTOCOL NUMBER: SOAP111/09/2017

PROJECT TITLE: The effects of densification on general urban resilience in Parktown

INVESTIGATOR/s: Nombuso Phewa (Student no #892322)

SCHOOL: Architecture and Planning

DEGREE PROGRAMME: BSc (Honours) in Urban and Regional Planning

DATE CONSIDERED: 04 September 2017

EXPIRY DATE: 04 September 2018

DECISION OF THE COMMITTEE: APPROVED

CHAIRPERSON
(Professor Daniel Irurah)

DATE: 05-09-2017

cc: Supervisor/s: Mawabo Msingaphantsi

DECLARATION OF INVESTIGATORS
I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to endure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature 05-09-2017

Date
Appendix B: Residents and Workers Participant Information Sheet

PARTICIPANT INFORMATION SHEET

Greetings
My name is Nombuso Phewa and I am a BSc (Hons) Urban and Regional Planning student in the School of Architecture and Planning (SOAP) at the University of the Witwatersrand. For my research project, I will be looking at how general urban resilience in Parktown West is affected by densification. This research aims to contribute to the knowledge on the resilience of Parktown West and how it can better adapt to and remain resistant to any changes (especially negative) to the urban environment.

You have been selected to participate in this study as you either live/work in the area. I am therefore kindly inviting you to be part of the study by completing this survey. The survey will take approximately 5 to 10 minutes. I can either ask you the questions verbally or hand you the questionnaire, but I will wait for you to complete it. The survey will ask you a few questions about your knowledge of Parktown West, what brings you to this area (whether you stay here, work here, etc.) as well as how you think the area has changed. The survey will take place at different locations in Parktown West, such as shopping areas, bus stops as well as on the street.

Your participation in this survey is voluntary, you may refuse to answer any questions that make you uncomfortable and you may withdraw at any time without penalty or loss. You will receive no payment or other incentives for your participation. There are also no foreseeable risks associated with your participation.

Your participation will be completely anonymous and no identifying information will be requested. Furthermore, any information that you share will be kept confidential and can only be accessed by myself as the data will be kept in a password-protected personal computer. The results of this survey will be incorporated into my final research report and your identity or views will not be linked to you in the final report. The results of this study will be made available to Wits staff, students and other researchers via the Wits Library WIReDSpace electronic repository.

If you have any questions, concerns, or comments or if you would like a copy of the final report, please feel free to contact me at
892322@students.wits.ac.za or Mawabo Msingaphantsi at mawabo.msingaphantsi@wits.ac.za or (011) 717 7623.

Thank you for your interest.
Nombuso Phewa
Greetings

My name is Nombuso Phewa and I am a BSc (Hons) Urban and Regional Planning student in the School of Architecture and Planning (SOAP) at the University of the Witwatersrand. For my research project, I will be looking at how general urban resilience in Parktown West is affected by densification. This research aims to contribute to the knowledge on the resilience of Parktown West and how it can better adapt to and remain resistant to any changes (especially negative) to the urban environment.

You have been selected to participate in this study as you are part of the Parktown West Residents' Association, which has all the relevant information on Parktown West. I am therefore kindly inviting you to be part of the study by participating in a group discussion. The discussion will consist of questions about Parktown West as well as how you think the area has changed. This discussion will take place in the Parktown West Residents' Association offices and will not be audio recorded.

Your participation in this survey is voluntary, you may refuse to answer any questions that make you uncomfortable and you may withdraw at any time without penalty or loss. You will receive no payment or other incentives for your participation. There are also no foreseeable risks associated with your participation.

Any information that you share in this discussion will be kept confidential and will only be accessed by me. The data will be safely kept in a password-protected personal computer. In quoting you in my report, I will ensure your anonymity and I will refer to you as ‘Committee Member 1’, etc. The results of this study will be presented in a Research Report which will be made available to Wits staff, students and other researchers via the Wits Library WIReDSpace electronic repository.

If you have any questions, concerns, or comments or if you would like a copy of the final report, please feel free to contact me at 892322@students.wits.ac.za or Mawabo Msingaphantsi at mawabo.msingaphantsi@wits.ac.za or (011) 717 7623.

Thank you for your interest.

Nombuso Phewa
FORMAL (SIGNED) CONSENT FORM

I hereby confirm that I have been informed by the student researcher of the purpose, procedures, and my rights as a participant. I have received, read and understand the written Participant Information Sheet. I have also been informed of:

☐ the nature of my participation in the form of a written survey
☐ the place and duration of the survey
☐ the reasons for why I was selected to participate in the study
☐ the voluntary nature, refusal to answer, and withdrawing from the study
☐ no payment or incentives
☐ no loss of benefits or risks
☐ anonymity
☐ confidentiality
☐ how the research findings will be disseminated

I therefore agree to participate in this study by completing the survey.

Participant:

_________________________________________   ___________________
Signature       Date
FORMAL (SIGNED) CONSENT FORM

I hereby confirm that I have been informed by the student researcher of the purpose, procedures, and my rights as a participant. I have received, read and understand the written Participant Information Sheet. I have also been informed of:

☐ the nature of my participation in the form of a group discussion
☐ the place and duration of the discussion
☐ the reasons for why I was selected to participate in the study
☐ the voluntary nature, refusal to answer, and withdrawing from the study
☐ no payment or incentives
☐ no loss of benefits or risks
☐ how the research findings will be disseminated

I therefore agree to participate in this study by being part of the group discussion

Participant:

_________________________________ _______________________
Signature       Date
Appendix F: Questionnaire

**Research Questionnaire**

This is a guideline for questions, and it may be adapted as needed depending on the context and respondent.

**Broad Introductory Questions:**

1. What is your relationship to this area, do you live here, work here, worship here, etc.?
2. How long have you worked/lived/worshipped etc. here?
3. What is your general perception of the area, do you like it, dislike it and why?
4. How has the area changed physically (in terms of roads, buildings, parks, new land uses)?
5. Have you noticed increased densification in the area? If so, how has this happened?
6. How do you think this densification has affected the resilience of the area and its residents?
7. Has densification only changed urban form and not the general character of Parktown West? How has the area changed socially?
8. What kind of changes has your life taken as a result of this densification (shopping, transportation, work, school and so forth)?
9. Have these changes had positive or negative effects?
10. What has driven this densification? (Policy, private developments, market forces etc.)
11. What effect have these changes had on the area?