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Resilient Densification: Four Studies from Johannesburg

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2015

South African Research Chair in Spatial Analysis and City Planning; Gauteng City Region Observatory

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Resilient Densification

Four Studies from Johannesburg

Edited by: Alison Todes, Philip Harrison and Dylan Weakley

South African Research Chair in Spatial Analysis and City Planning

Acknowledgements

The authors are thankful to the Department of Science and Technology, and the National Research Foundation, South Africa for funding this work, which does not necessarily represent their views.

Copy Editing: Joan Fairhurst

Report Design and Layout: HotHouse South Africa

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1 Introduction and Research Background

Dylan Weakley and Costanza La Mantia

Report Abstract

Unlike most cities in the world, over the last 20 years Johannesburg has become more dense and more compact. This reflects the increased rates of rural-urban migration from the late 1980s as urbanisation controls collapsed, but also the relative success of Johannesburg's economy and democratic-era policies to contain urban sprawl (such as the urban development boundary). The ending of apartheid regulations allowed a release in a pent-up demand for access to large cities with much of the movement directed to the three large metropolitan cities in Gauteng. Densification in the city has occurred in both planned and unplanned ways. In line with directions in planning internationally, post-apartheid planning has placed strong emphasis on urban densification and compaction. At the same time, however, market forces (both formal and informal) have driven densification in the city, in ways that are often unforeseen and sometimes contrary to city policies. In order to plan for further development and to respond effectively to the densification that has happened, and is occurring, research into the processes and effects of densification is clearly needed. In this work we use an "urban resilience lens" to investigate four forms of residential densification in Johannesburg, using four illustrative case-studies. We explore the effects that densification is having in the city, showing how diverse, complex and contingent it often is.

Research Background

This research report was commissioned and undertaken by the project: Resilience Assessment for Sustainable Urban Development, located in the South African Research Chair in Spatial Analysis and City Planning (SA&CP), in the School of Architecture and Planning (SoAP), University of the Witwatersrand (Wits). The project ran for three years and was funded by the Department of Science and Technology, administered by the National Research Foundation. The project was a partnership between Wits and the Gauteng City-Region Observatory (GCRO). Within Wits, the project team included academic researchers from SoAP and the Oliver Schreiner School of Law.

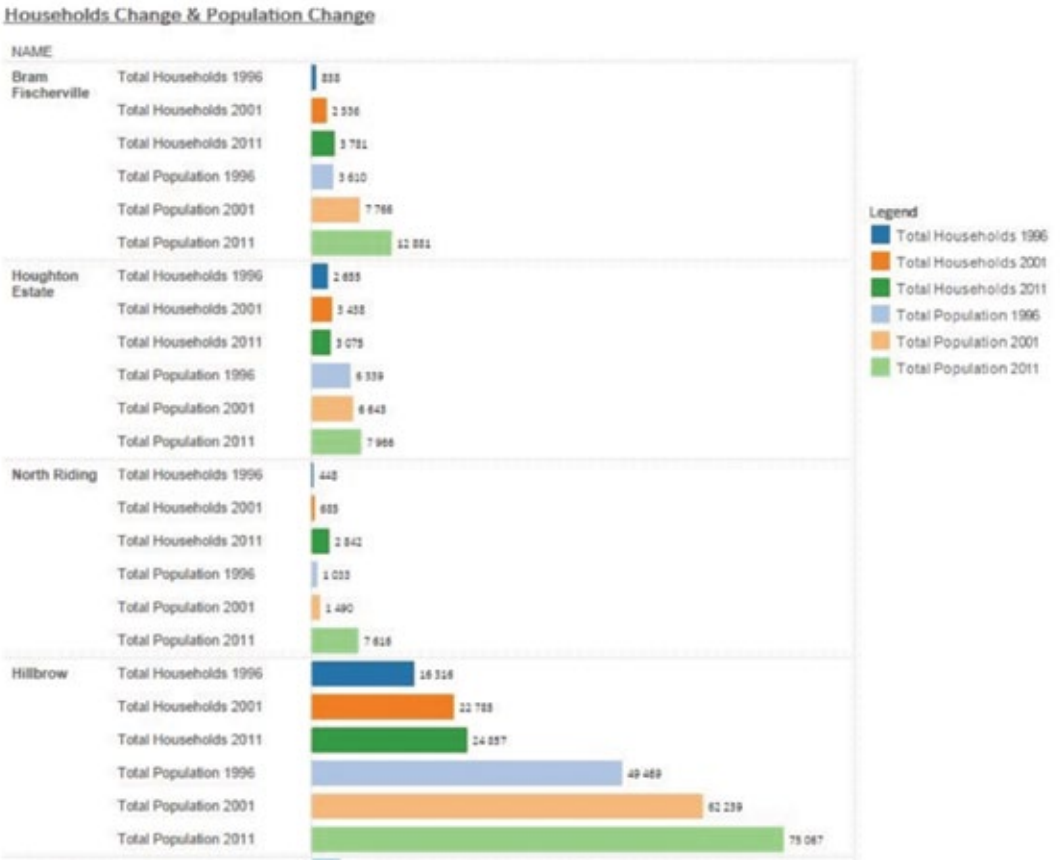
Research in the project took place under five main themes, being:

- Resilience and urban governance
- Resilience in urban form and fabric
- Resilience in urban infrastructures
- Resilience of natural assets and ecological systems
- Green economies for resilience

This report, which falls under the theme of 'resilience in urban form and fabric' follows a number of research outputs, including 'Resilience Thinking for Municipalities' (Harrison, et al., 2014a) and 'Transport and Urban Development: Two Studies from Johannesburg' (Weakley & Bickford, 2015). The research benefitted from collaboration with the City of Johannesburg's department of City Transformation and Spatial Planning, as well with the Agence Française de Développement (French Development Agency - AFD).

The primary purpose of the research report is to present the four case studies on densification in Johannesburg. The cases were chosen based on a preliminary scan of densification across Johannesburg undertaken by Miriam Maina using national census data. This work is reported on in Chapter 2. The typologies developed through this preliminary work enabled us to identify the four forms of densification under study:

- Densification through backyarding illustrated by Bram Fischerville on the north western edge of Soweto (Chapter 3)
- Densification through increased occupancy, but with no change in external built form illustrated by Hillbrow in the inner city (Chapter 4)
- Densification through subdivision and townhouse development illustrated by Houghton Estate, one of Johannesburg's early suburbs (Chapter 5)
- Densification through townhouse construction on former smallholdings illustrated by North Riding on the north western edge of the city (Chapter 6)



This introduction chapter provides an outline of the research rationale for the work, as well as a brief overview of the conceptual framework applied. The details of the conceptual framework will be published separately. We will also publish separately a comparative analysis of the case studies. What we present here is the initial scan of densification; a brief contextual account of a “resilience lens”; and, an overview of the four individual cases.

Sprawl and Densification

Before the advent of mechanised transportation, towns and cities developed, out of necessity, to be compact, walkable and mixed use (Gehl, 2013). For cities to be functional, all amenities needed to be accessible on foot or, for some, by carriage or on horseback. Thus, "... until the end of the 18th century, all the cities in the world – even the largest ones - were walking cities" (Angel, Parent, Civco, & Blei, 2010, p. 14). The industrial revolution brought about two major drivers of city expansion. The first was policy driven de-densification. The industrialisation of cities was in some cases accompanied by huge levels of urbanisation, overcrowding, poor living conditions and unhealthy environments (e.g. Engels, 1845). In response cities were actively decongested and spread out (Angel, Parent, Civco, & Blei, 2010). This process was made possible by the second main driver of city expansion; transportation technology. Advances in transport allowed people to travel longer distances in shorter periods of time, enabling cities to function at larger scales. While initial technologies included waterways, railways, bicycles and trams (Angel, Parent, Civco, & Blei, 2010) the most notable impact has been that of cars and motorways. Antrop (2004, p. 13) argues that "after the Second World War… generalized car use increased mobility dramatically, allowing rapid urban sprawl…". Along with transport and de-densification policy many other factors including economic growth, continued urbanisation and private development further drove de-densification and sprawl.

As with all cities in the world, South African cities and Johannesburg have a unique set of circumstances that influenced their physical development and growth. Probably most influential (certainly regarding sprawl and density) were policies and laws that enforced segregation. These laws divided the country racially, and particularly limited black Africans' access to cities. Urban segregation was based on the notion defined by the 1922 Stallard commission that, as cities are white people's creation, black people should only enter them to serve whites, and should leave once this service is completed (Parnell, 1990, p. 2). While segregation policies were implemented as early as the mid-17th century in Cape Town (Marback, 2009), they were most prominent in the 1900s. Early on in the century, laws were introduced that prohibited black ownership of land outside of 'reserve areas' which were mainly rural, and made up only 13% of the country. These were followed by pass laws of the 1920s which controlled and limited access to cities by black people. The height of segregation came after the introduction of apartheid in 1948 however with laws such as the Group Areas Act of 1950. The act allowed for forced removals of existing black, Indian and coloured communities, to racially segregated 'dormitory townships' on the outskirts of cities (Harrison, Todes, & Watson, 2008). These townships were largely residential settlements that forced people to travel long distances to and from work in white urban cores. One accumulative result of these exclusionary laws was suppressed urbanisation and cities that were sprawled by design.

Just as industrialisation and related urban overcrowding drove city expansion policy, the worldwide general trend towards sprawl and its reported negative impacts has promoted a policy shift towards densification and infill. Sprawl reportedly limits access to city functions and services; makes service delivery less efficient; reduces walkability, non-motorised and public transport use (Boyko & Cooper, 2011); polarises society and contributes to inequality (Turok, 2011); and has a number of negative environmental impacts, including increased per-capita carbon emissions (Jabareen, 2006). As such, urban 'compaction' and 'densification' theories have a fairly long tradition both internationally and in South Africa, often framed within the 'compact city' debate (Todes, 2006). The City of Johannesburg is a case in point, with all of its Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) since 2002 placing strong emphasis on strategic densification and infill in the metropolitan area (e.g. City of Johannesburg, 2002).

Densifying Johannesburg

Following the brief context above, there is evidence that- in general- cities in all regions around the world are sprawling and becoming less dense. The afore mentioned study by Angel et al. (2010) for example, concludes that "For as long as a century, cities in the world over have become less, rather than more, dense and less, rather than more, compact" (ibid. p. 111). From 1990 to 2000, the study finds that this de-densification took place on average at a rate of 1.7% per annum (ibid. in Harrison, Gotz, Todes, & Wray, 2014). Importantly for this research however, the same report notes that some South African cities, including Johannesburg, are the rare exception.

Although, in 2006, the City of Johannesburg reported that the city was sprawling and becoming less dense (City of Johannesburg, 2006), Angel et al. (2010) indicated that during the 1990s residential areas in Johannesburg became denser. Between 1991 and 2000, the population of Johannesburg increased by 33 percent, but the city's built up area only increased by 14 percent resulting in an increase of built up area density from 3 900 to 4 800 people per square kilometre (ibid.). During the period 2001-2009, densification figures are even more pronounced. The eight year period saw an increase to 6 479 people per square kilometre (GeoTerraImage, 2010). The exception in South African cities is argued to be as a result of segregationist planning mentioned earlier. As this planning suppressed urbanisation, demand for access to cities grew until it was released by the lifting of apartheid laws in the early 1990s (MLHF, 2014; Harrison, Gotz, Todes, & Wray, 2014). It has also, of course, been driven by other factors such as international immigration, economic growth and continually increasing demand for access to cities. Densification has been influenced in some instances by city policy and planning and in others by market forces both formal and informal. It has also taken place through densification of built form in places and, in others, through increased population densities in existing, unchanged (externally at least) built form.

This research was conceptualised in response to the densification taking place in Johannesburg. The aim was to investigate different densification trends in the city, both to find out how densification has been happening, and to begin conceptualising how this densification can be promoted where positive outcomes are evident, and how it can be responded to where outcomes are less positive. The work also served to apply the concepts of urban resilience to processes of densification. Here, a theoretical framework was formulated by Dr Costanza La Mantia and Dylan Weakley that was effectively piloted in this work. The framework which will be separately published provides various "lenses", or "resilience enablers", through which the resilience of densification in the city can be analysed. The goal was to create a common set of lenses that could be applied to both qualitative and quantitative analyses of densification. The conceptual framing is briefly summarised in the section below.

Theoretical Framework and Research Approach: Resilient Densification

The aim of the conceptual framework for this work was to build a set of indicators to be used to investigate the resilience of urban form by taking a critical view of densification. The goal was to create indicators that could be qualitatively and quantitatively investigated, although this report focuses on qualitative results. The main focus was on the relationship between urban densification and resilience.

In this research we understand resilience in relation to urban form in two ways – as urban form that can adapt to and accommodate change, and also as urban form that persists over time (as in Harrison, et al., 2014a). In some cases, densification may be desirable (for example in increasing access, complexity and efficiency of service delivery) in others it may not (for example, resulting in overcrowding and overburdened infrastructure). Urban areas may be resilient in the fact that they are adaptable, or indeed in the fact that they are stable but, in most cases, through a combination of the two. Their resilience is based on a normative conception of the term that considers the positive resilience of systems. As the work primarily focuses on qualitative data collection methods, the main emphasis was on the social resilience (including economic resilience) of the communities under study. The case studies also consider built form and infrastructure, and how it has or has not adapted with densification.

In order to compile the resilience indicators used for the work, resilience was considered in two ways, namely specific and general resilience. These are related to resilience as stability and resilience as adaptability, as mentioned above. Specific resilience refers to the resilience of a specific part of a system to a defined shock, while general resilience is the ability of social-ecological systems such as cities, to adapt or transform in response to change (Folke, Carpenter, Walker, Scheffer, Chapin, & Rockström, 2010). While we recognise the importance of both of these types of resilience (as in Harrison, et al., 2014a) general resilience enablers were the main focus, as they provide a more adaptive approach, that can be applied in different contexts and, importantly, to different research approaches.

To assemble the indicators, a number of sources were used, and we borrowed strongly from Carpenter et al. (2012, p. 3249) who define “diversity, modularity, openness, reserves, feedbacks, nestedness, monitoring, leadership, and trust” as major enablers of general resilience. Added to this, we borrowed from South African urban planning theory, and densification policy in the City of Johannesburg to compile the list of lenses used. These are summarised in Table 1.

TABLE 1: Lenses of Qualitative Assessment

General Resilience Enabling Qualities (Carpenter, et al., 2012)	(Dewer, Uytenbogaardt, Hutton-Squire, Levy, & Mendis, 1977)	(Dewer & Uytenbogaardt, Places to Live: A Guide, 1995)	(Behrens & Watson, 1996)	(City of Johannesburg, 2011)	Combined Lenses for Qualitative Assessment
Diversity	Variety			Vibrancy	Variety & Vibrancy
	Choice		Choice		Choice
Modularity		Intensity		Intensity	Intensity
	Efficiency		Efficiency	Efficiency	Efficiency
		Balance			Balance
			Scale		Scale
	Integration	Integration			Integration
Openness				Connectivity	Connectivity
	Continuity	Continuity			Continuity
Nestedness	Complexity	Freedom and Complexity		Complexity	Complexity
	Coherence	Clarity	Place Making	Identity/Coherence/Clarity	Coherence
	Convenience		Accessibility	Accessibility/ Proximity/Convenience	Accessibility/ Proximity/Convenience
	Interaction				Interaction
Reserves		Equity			Equity
	Adaptability				Adaptability
			Opportunity		Opportunity

Once the case study areas had been chosen, we identified researchers that had experience and knowledge in the areas under study, and commissioned them to do the work. The terms of the project were included in terms of reference that was provided to each of the researcher and which is included here as Annexure 1. The researchers were required to: outline their chosen research method; briefly document the history of the area under study; conduct qualitative interviews with residents on the effects that densification is having in the area; and, provide an overall assessment.

Conclusion and report outline

The research report is made up of five chapters. First is a statistical analysis of densification in Johannesburg using census data from 1996, 2001 and 2011, researched and written by Miriam Maina. The chapter outlines the broad patterns of densification in the city, looking at population growth, and focussing on changes in housing types across different regions of the city. The analysis of changes in household types across the city (in the chapter's appendices) was used to identify the case studies for this report.

The following four chapters are the case studies, presented in alphabetical order. The researchers were given some freedom to adapt the research method in terms of their own approach and expertise, and in relation to the specificities of the area under study. The chapters do therefore vary in format and emphasis but they are broadly comparable. Taken collectively they provide an insightful view of diverse processes of densification happening in the City of Johannesburg. They arguably provide a number of unexpected findings on densification in Johannesburg.

Firstly, they show that densification is not always planned, and often happens in ways not anticipated by policy. This is important in relation to resilience thinking which directs attention to the unpredictability of urban development, and the difficulties in anticipating trends and planning appropriate responses. While we do need to improve our ability to anticipate change, resilience thinking stresses the importance of adaptive capacity.

Secondly, the case-studies point to the complex, contextually situated mix of benefits and challenges associated with local densification. Results from the case studies are extremely different. This was, in a way, the goal of the research, as case studies were chosen for their difference from one another, rather than their similarities. The research does not detract from an overarching argument in favour of densification but it does indicate that the benefits of densification are unevenly distributed, and that processes of densification may have negative outcomes that must be mitigated.

There are clear positives. In Bram Fischerville densification processes have transformed the suburb from a monotonous, mainly residential settlement, to a more vibrant mixed use one, with different identities and senses of place developing in different parts of the community. In Hillbrow, a sense of community and pride is evolving, and the community is seemingly transforming from a transient to a more permanent one (which, while it may not be directly linked to densification, does show positive change). North Riding provides young professionals with an affordable entry point to the property market, while providing a sense of safety for its residents. Importantly, too, the suburb is catering to a racially diverse middle class that is growing in South Africa. Houghton, which is changing at the slowest rate of the four case studies, is seeing demographic and economic diversification, although it is still considered an 'elite' suburb, and remains high income.

There are also negatives. In most cases (but to varying degrees) infrastructure and social services have not been upgraded to accommodate increasing populations. In North Riding for example, the road network

has not been sufficiently upgraded or redesigned, meaning that traffic volumes within the suburb are high. Interestingly, where government provided social services such as schools and healthcare are limited, the market often steps in to fill the gap. This is seen in Hillbrow and North Riding, where schooling and healthcare is provided, although at an increased cost to users. Densification is also associated in some cases with overcrowding and growing management challenges.

In all of the case studies, densification is driven (at least In part) by economic or market forces. In North Riding and Houghton, townhouse development has been formally driven by private developers, with profit as a main incentive. In Hillbrow high demand to live in the area along with an increasing cost of living, has led to an increase in sharing of apartments. In Bram Fischerville, backyarding is a means to supplement the income of owners, which is also driven by the high demand to live in the area.

In all cases densification is happening because the localities are attractively located for at least segments of the population, meeting needs that are responsive to the characteristics and expectations of these groups. Bram Fischerville, for example, is well connected to Roodepoort and to development nodes in the north of Soweto; Houghton is centrally located with good access to prestigious schools and transport routes; North Riding provides good access to business activity in the north of the city; while residents of Hillbrow have access within easy walking distance to an extraordinary range of urban services and to major transport routes and interchanges.

In summary, we conclude that Johannesburg is a densifying city, but with locally variable rates and forms (and even some localities that are de-densifying). Densification is actively promoted by the city administration, but densification processes often deviate from policy expectations. Densification is seemingly broadly positive for the city but does bring a mix of positives and challenges for specific localities. The city administration does, arguably, need to consider actual processes of densification and give careful attention to understanding the reasons behind divergence with policy. The decisions of ordinary people may give planners a strong indication of where the focus of development should be placed in the future.

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2 Densification Trends and Typologies in the City of Johannesburg

Miriam M. Maina

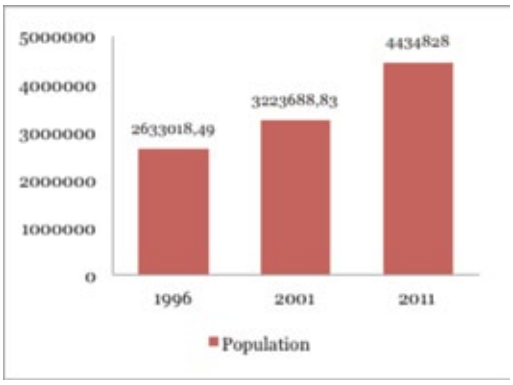
Overview

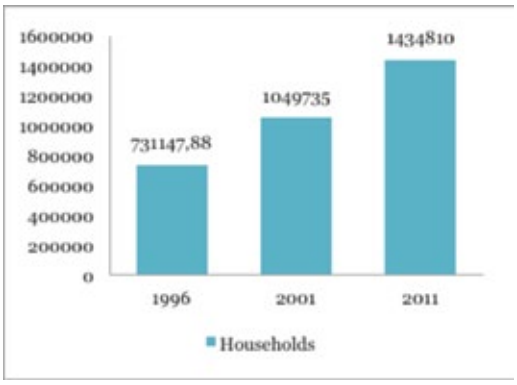
This report presents key findings and data on the patterns and typologies of residential densification in the City of Johannesburg. Data presented in this report is drawn from Quantec Research which presents 1996, 2001 and 2011 South African Census data on population and households in Johannesburg (Quantec Research (Pty) Ltd, 2014). From this data, we can begin to identify patterns of change in the city's main areas, tracking areas of growth and decline, densification and de-densification.

The report begins by tracking the overall changes in population and residential patterns in the city. We then identify a number of illustrative areas for deeper analysis.

Population and household changes in the City of Johannesburg

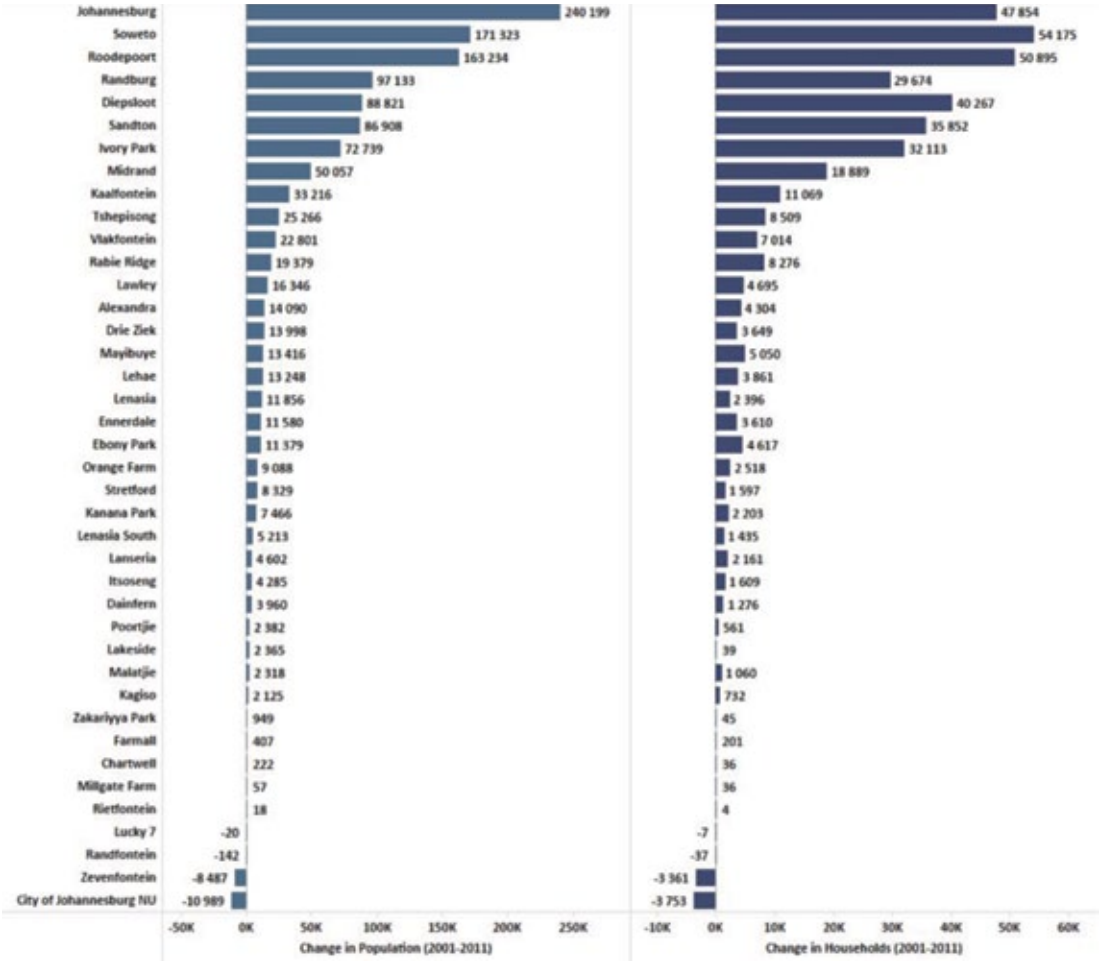
The total population in the City of Johannesburg has shown sustained increase over the period studied. In 1996, the population was 2.6m, and this increased by 22% to 3.2m in 2001. In 2011, the city's population was 4.4m, a 38% increase. Similar changes were also noted in the number of households, with this number increasing from 731,145 in 1996, to 1,049,739 in 2001 (a 44% increase) and 1,434,816 in 2011 (a 37% increase). At a City scale, we see an increase in both population and household densities. Quantec data (which it must be noted, provides higher population densities than those cited earlier from GeoTerra Image, 2010 and Angel et. al, 2010) indicates that the City's population density of built up areas increased from 5,258 pp/km^2 (people per square kilometre) in 1996, to 6,646 pp/km^2 in 2001; and then to 8,140pp/km^2 in 2011. Household densities in built up areas changed from 712 hh/km^2 (households per square kilometre) in 1996, 1,028 hh/km^2 in 2001; and to 1,398 hh/km^2 in 2011.





The growth in population and households has been varied at sub-regional level. Figure 1 below outlines some of the changes in population and number of households at Main-place level. Here, we see that there have been varying levels of population growth across the city, with the highest population growth being recorded in Johannesburg's CBD region, Soweto, Roodeport, Randburg and Diepsloot respectively.

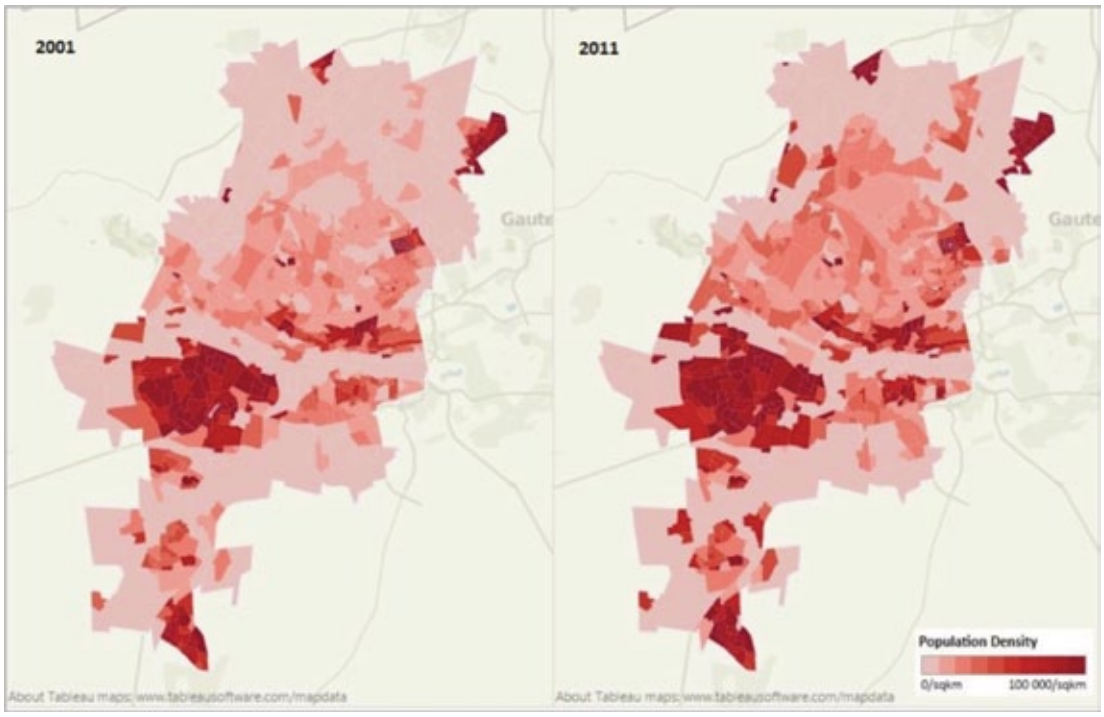
FIGURE 1: CHANGES IN POPULATION AND HOUSEHOLDS PER MAIN PLACE



Note: Johannesburg refers to the main place, and not the entire city. Due to its size, it does not necessarily represent the area of highest densification in the city.

Patterns of densification

FIGURE 2: POPULATION DENSITY PER SUB-PLACE, 2001(L) AND 2011 (R)

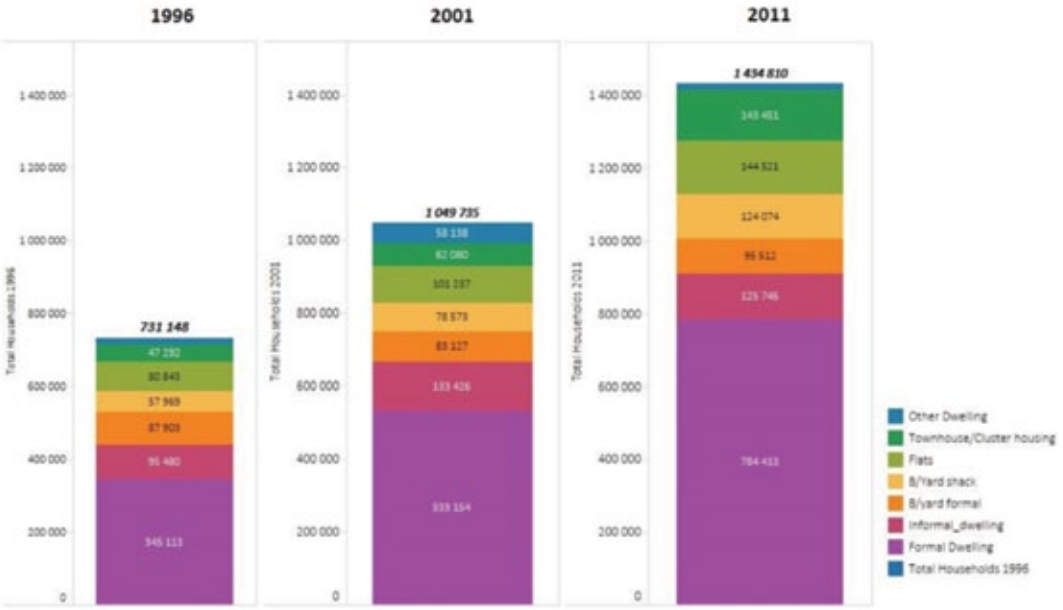


Source: Quantec Data, 2013

Figure 2 above clearly illustrates that there has been significant densification across the City of Johannesburg. This growth has been occurring towards the North, with exceptions in Soweto, Orange Farm and Lenasia to the South. The increases in density have taken different forms across areas, with varying typologies, as we shall see in the following section.

Changing residential patterns in the City of Johannesburg

FIGURE 3: CHANGING HOUSEHOLDS AND HOUSEHOLD TYPES IN JOHANNESBURG



The majority of the city's households reside in formal dwellings. The proportion of households in this category increased from 47% in 1996 to 51% in 2001 and 55% in 2011. The largest change in the number of households has been in Townhouses, Cluster Housing and Semi-detached housing . Between 2001 and 2011, the number of households in this category has increased by over 100%.

There has also been a notable increase in the number of households in backyard dwellings , from 145,872 in 1996, to 161,700 in 2001 and 219,586 in 2011. As we see in Table 1, there has been a difference between the changes in formal backyard and those in informal backyard dwellings. There has been a greater increase in

informal backyard dwellings as compared to formal backyard. Here, a 57% increase was noted between 2001 and 2011, with the share of households in this category rising to 8.6% of the city's population.

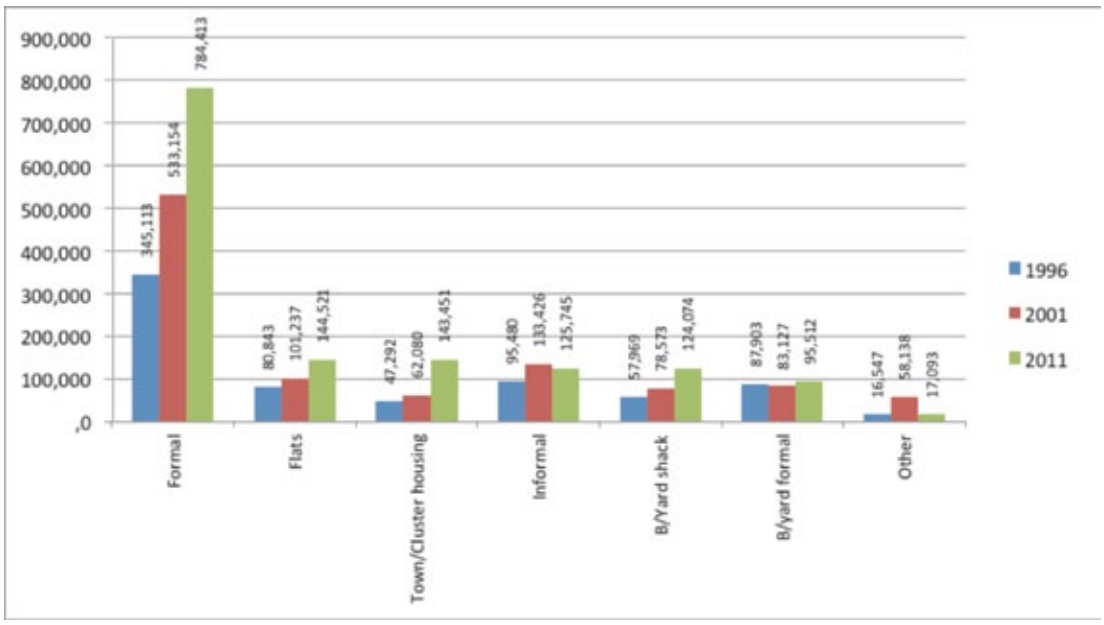
Although the number of households in informal settlements increased between 1996 and 2001, we see that the proportion of households in this category has been on the decline, from 13.1% in 1996, to 12.7% in 2001, and 8.8% in 2011. While the actual number of households increased from 95 480 in 1996 to 133 426 in 2001, it decreased to 125 745 in 2011.

The changes in the number of households per dwelling type are outlined in the graphics below.

TABLE 1: PROPORTION AND NUMBER OF HOUSEHOLDS IN VARIOUS DWELLING TYPES

TYPE	1996		2001			2011		
	House-holds	% of Total	House-holds	% of Total	% Change from 1996	House-holds	% of Total	% Change from 2001
Formal Dwelling	345 113	47.20	533 154	50.80	54.49	784 413	54.70	47.13
Flats	80 843	11.10	101 237	9.60	25.23	144 521	10.10	42.76
Townhouse/Cluster housing	47 292	6.50	62 080	5.90	31.27	143 451	10.00	131.07
Informal dwelling (informal settlement)	95 480	13.10	133 426	12.70	39.74	125 745	8.80	-5.76
B/Yard informal	57 969	7.90	78 573	7.50	35.54	124 074	8.60	57.91
B/yard formal	87 903	12.00	83 127	7.90	-5.43	95 512	6.70	14.90
Other Dwelling	16 547	2.30	58 138	5.50	251.35	17 093	1.20	-70.60
Total	731 148		1 049 735		43.57	1 434 810		36.68

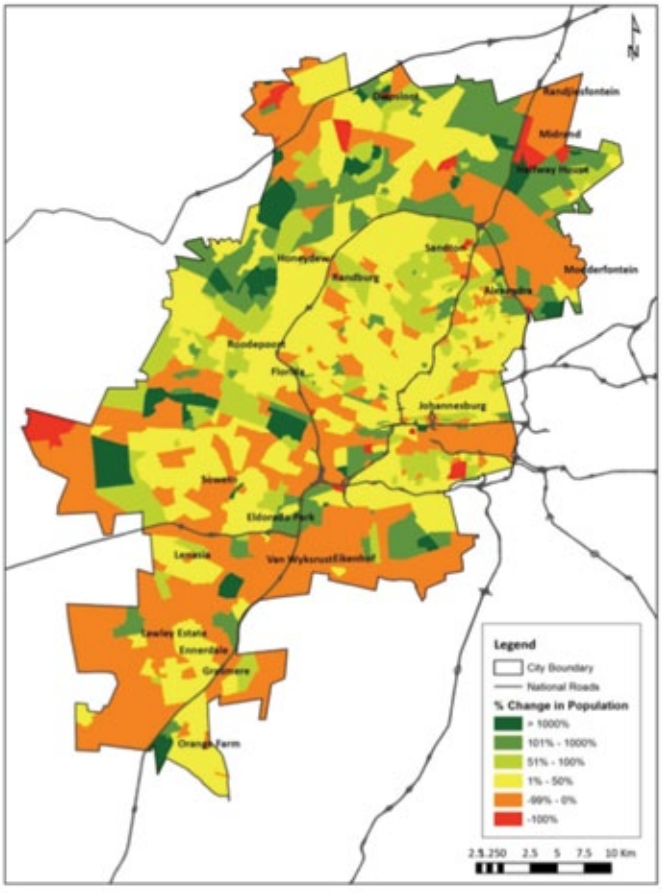
FIGURE 4: CHANGING DWELLING TYPES IN THE CITY OF JOHANNESBURG



Changing patterns across sub-areas

As we saw in the previous section, the changes in population have not been uniform across the City. In Map 1 below, we see that the absolute and percent changes in population have differed significantly across sub-areas. Most of the growth occured in the northern areas of the city, with percentage increases mainly less than 100%. The rate of decrease has been comparatively lower and mainly concentrated at the city's edges.

MAP 1: PERCENT CHANGE IN POPULATION PER SUB-PLACE IN THE CITY OF JOHANNESBURG

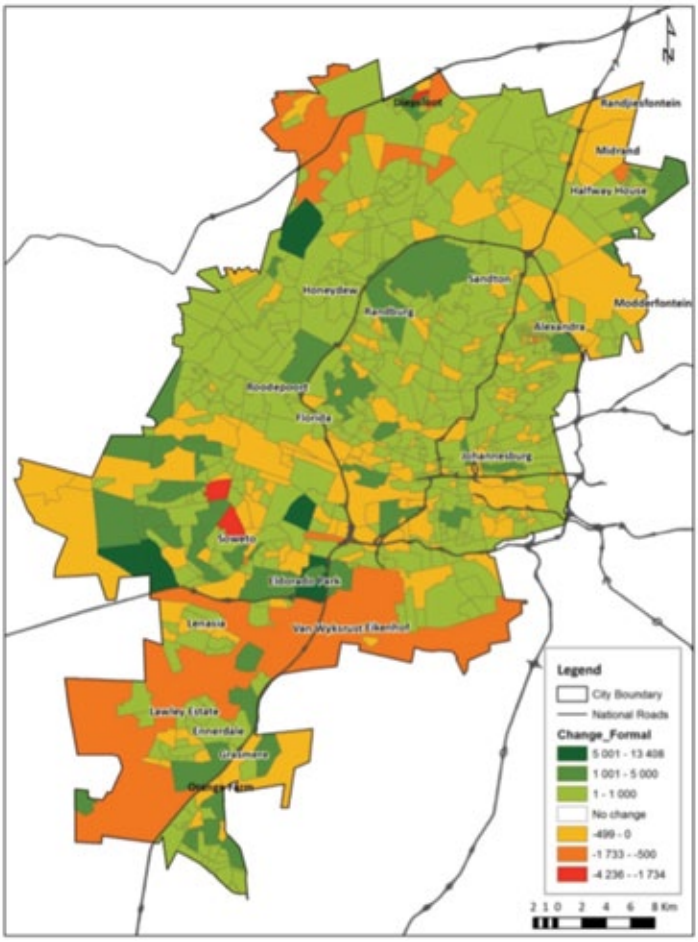


Source: Quantec Data (Quantec, 2013)

Changing patterns across housing typology

Further variation is apparent when the patterns of increase/decrease are analysed on house typology, as we saw in Section 2 above. The most notable increase has been in Formal Detached housing, where, in majority of the city, increases were noted. This is illustrated in Map 2below.

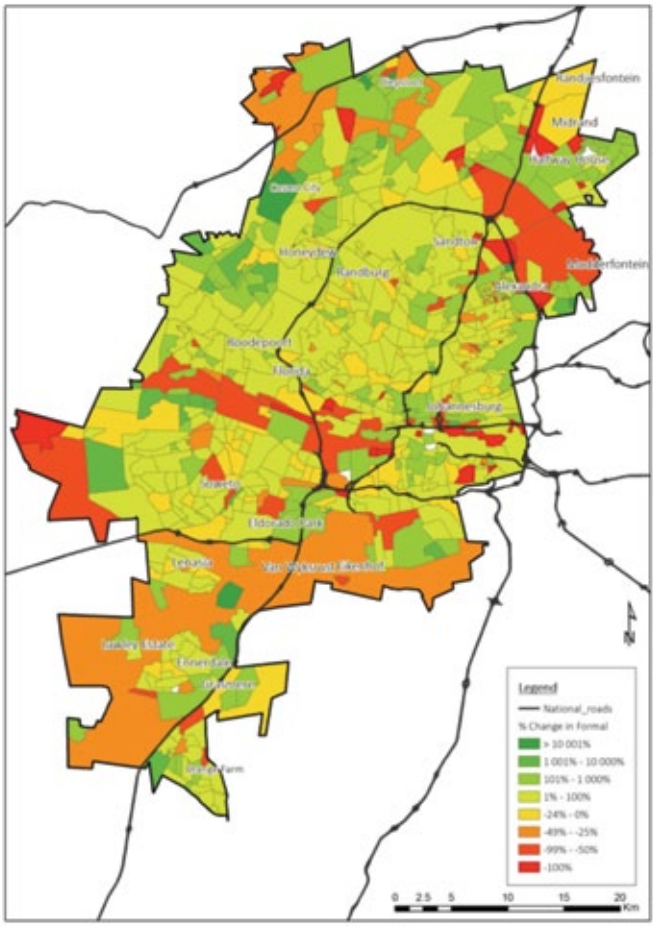
MAP 2: CHANGE IN HOUSEHOLDS IN FORMAL DETACHED HOUSING PER SUB-PLACE



Source: Quantec Data (Quantec, 2013)

There has been an overall decrease in the number of households living in informal settlements (from 133 426 in 2001 to 125 745 in 2011). However, there were some pockets in which this number increased in the last decade. In Diepsloot, for instance, the number of households living in informal settlements increased by over 10,000 households.

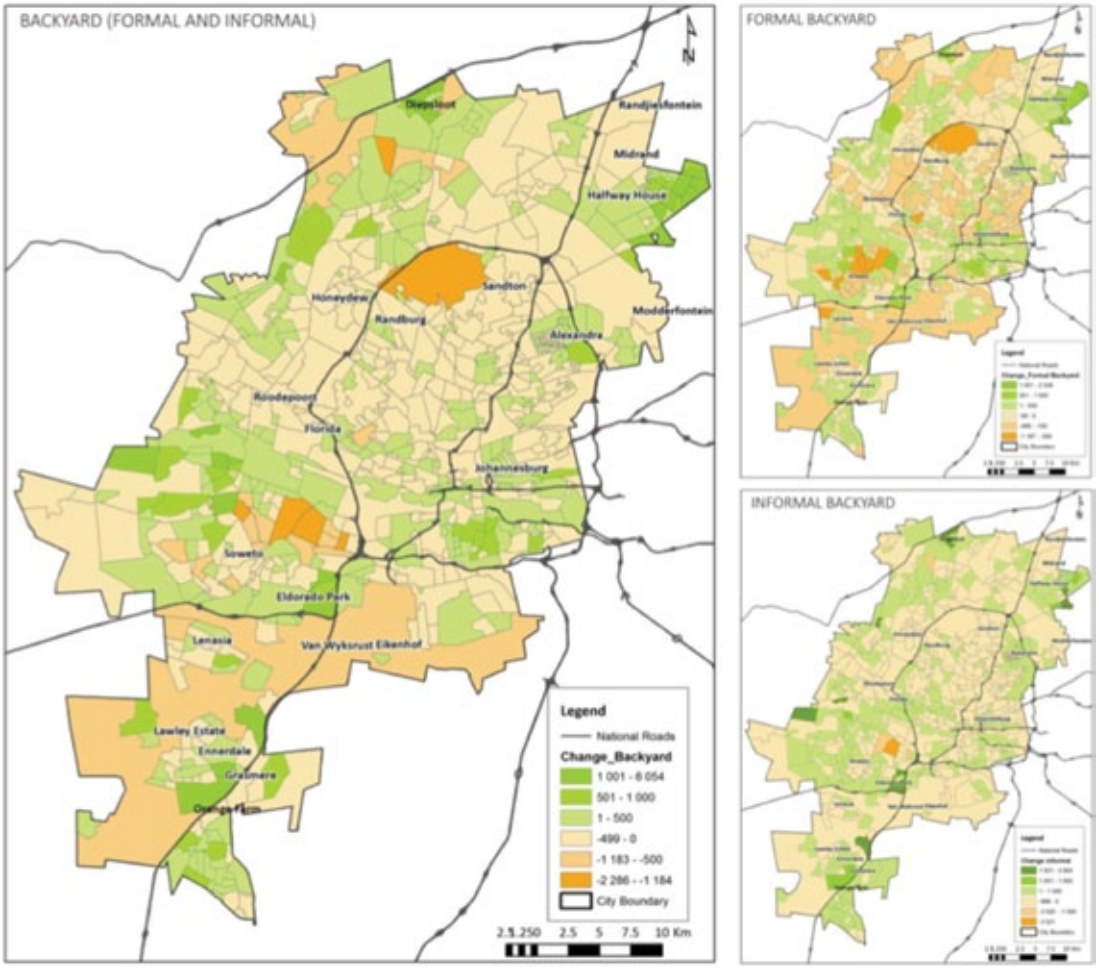
MAP 3: INCREASE/DECREASE IN HOUSEHOLDS IN INFORMAL HOUSING



Source: Quantec Data (Quantec, 2013)

The increase in backyard settlement (formal and informal) within the City has also been concentrated in certain areas. In Ivory Park, there was a greater increase in the number of households living in formal backyard, than informal backyard units. In Diepsloot, informal backyard units outnumbered formal backyard. Map 4 below illustrates these and other changes in backyard dwellings.

MAP 4: HOUSEHOLD CHANGES IN BACKYARD DWELLINGS



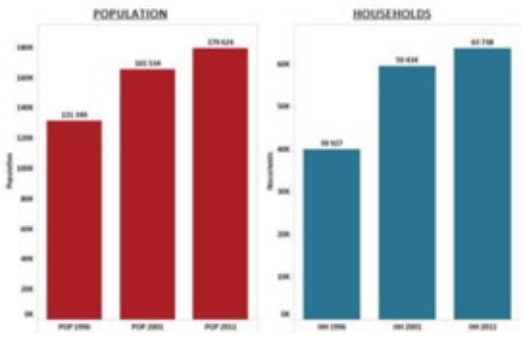
Source: Quantec Data (Quantec, 2013)

Illustrative areas

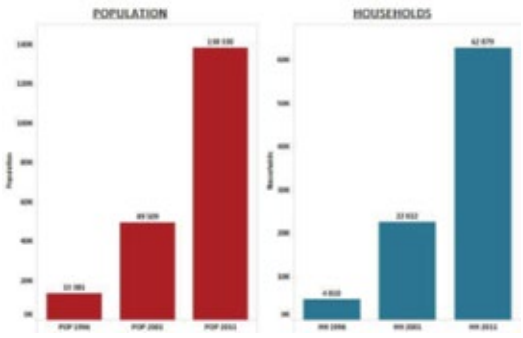
A number of illustrative areas have been selected to track the varying patterns of growth and densification in the City of Johannesburg's sub-areas. These include: Alexandra, Diepsloot, Ivory Park, Johannesburg (CBD Area), Randburg, Roodeport, Sandton and Soweto. From these, we see that the patterns of residential densification and de-densification are considerably different within and between various locations in the City. Figure 5 below outlines the scale of change in population and households in the illustrative areas.

FIGURE 5: POPULATION AND HOUSEHOLD CHANGES IN SELECTED AREAS

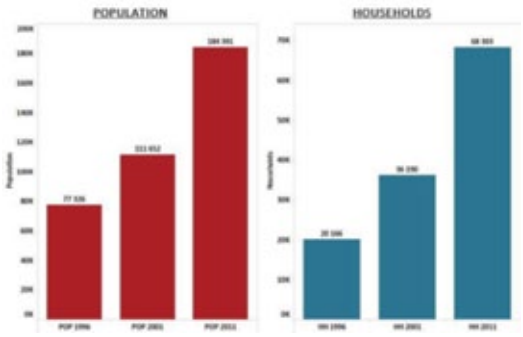
ALEXANDRA



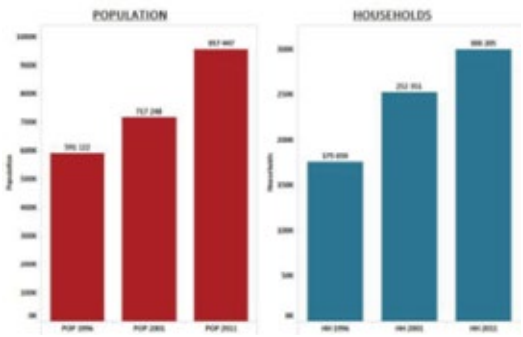
DIEPSLOOT



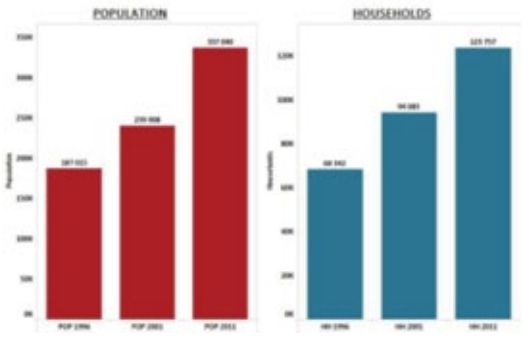
IVORY PARK



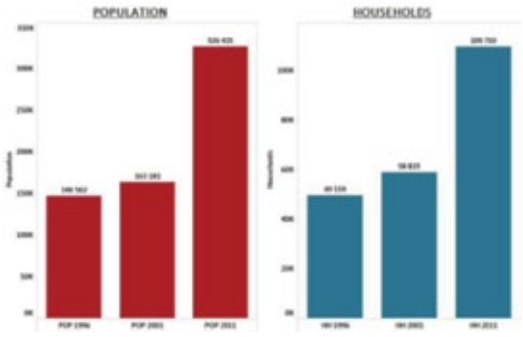
JOHANNESBURG (CBD AND SURROUNDS)



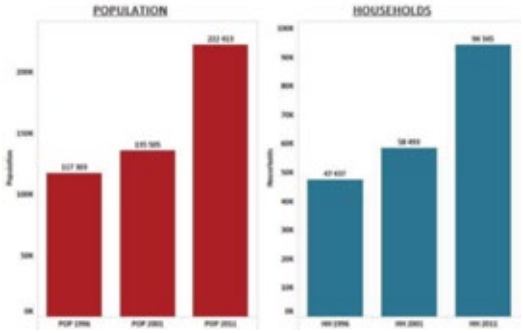
RANDBURG



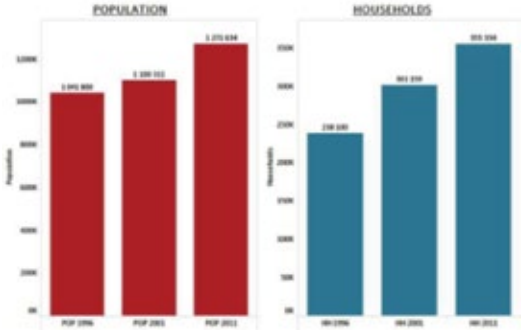
ROODEPOORT



SANDTON

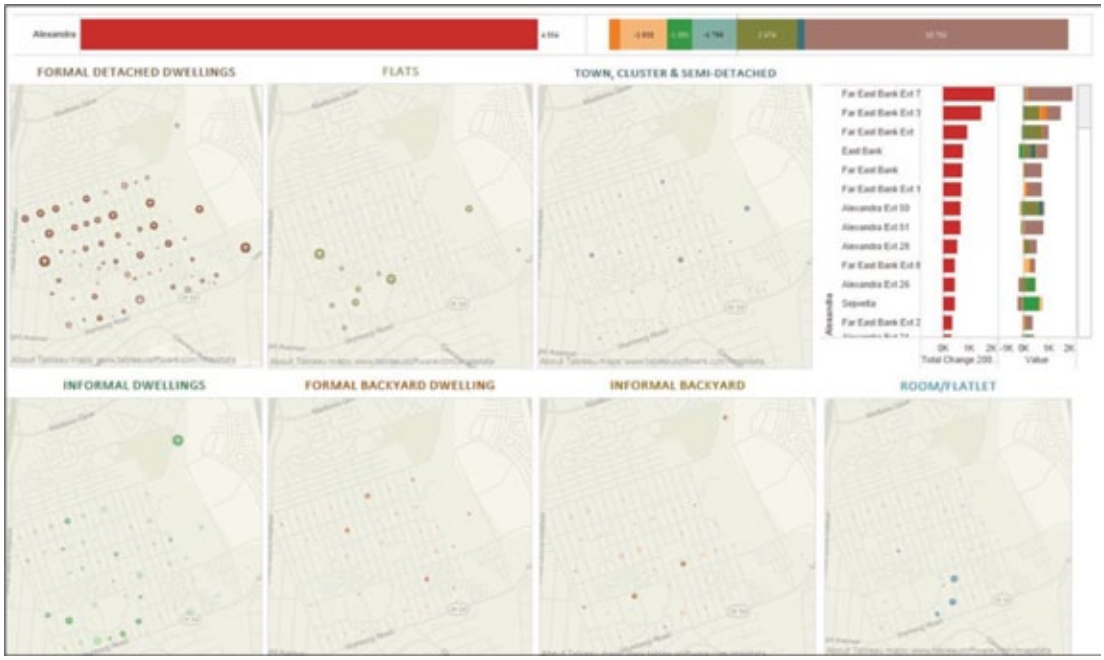


SOWETO



ALEXANDRA

FIGURE 6: CHANGES IN HOUSEHOLD TYPES IN ALEXANDRA, JOHANNESBURG

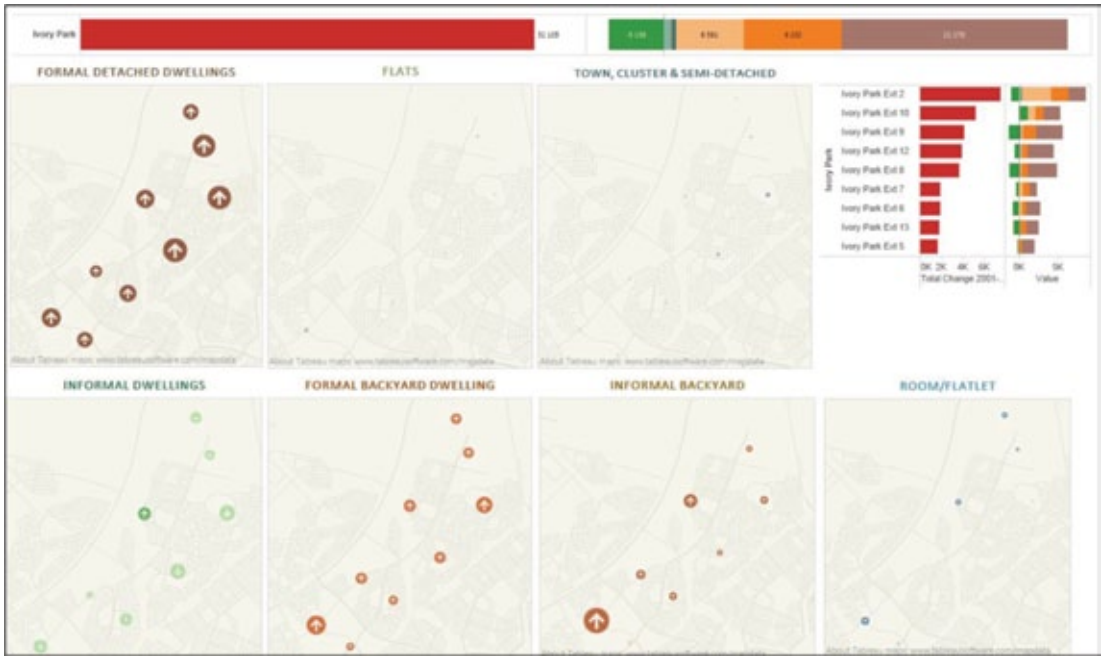


DIEPSLOOT

FIGURE 7: CHANGES IN HOUSEHOLD TYPES IN DIEPSLOOT, JOHANNESBURG

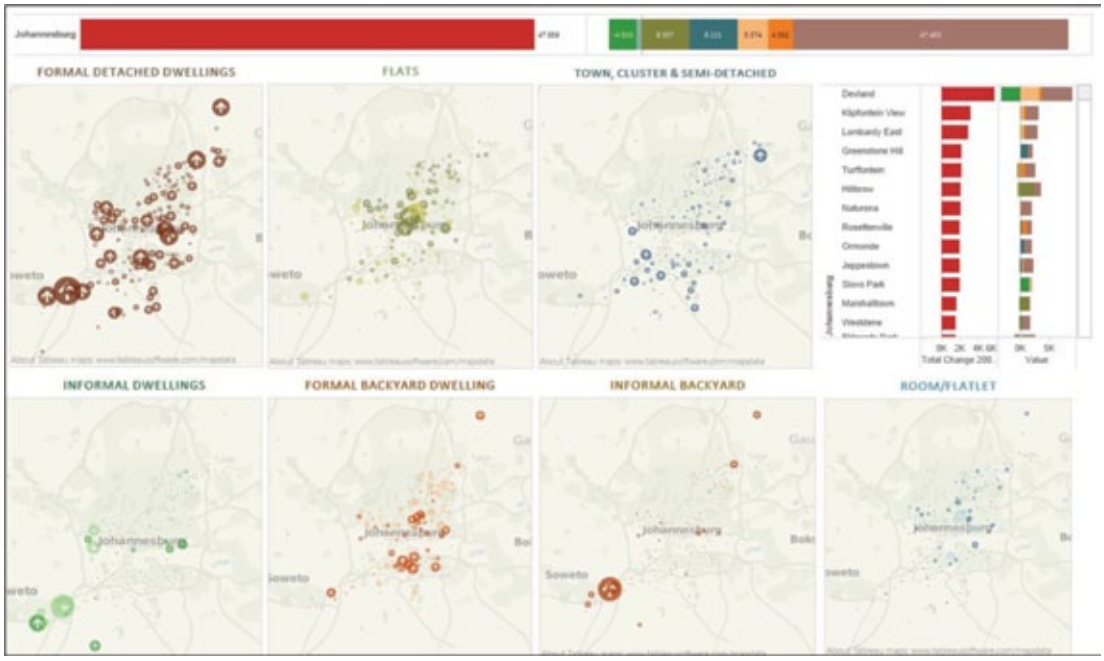
IVORY PARK

FIGURE 8: CHANGES IN HOUSEHOLD TYPES IN IVORY PARK, JOHANNESBURG



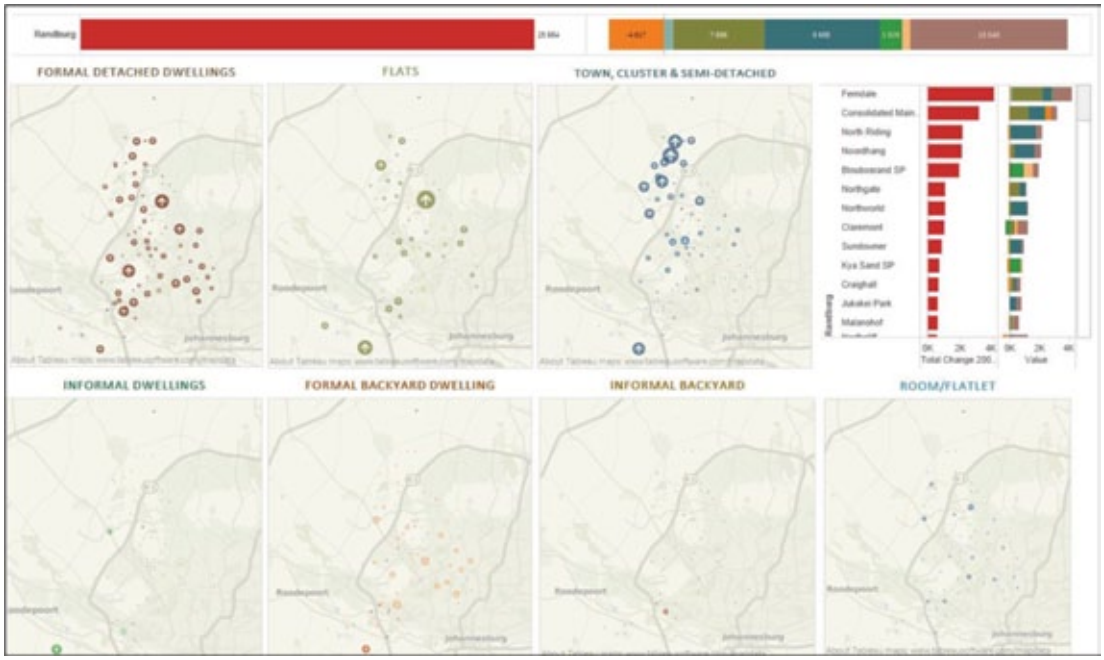
JOHANNESBURG

FIGURE 9: CHANGES IN HOUSEHOLD TYPES IN JOHANNESBURG



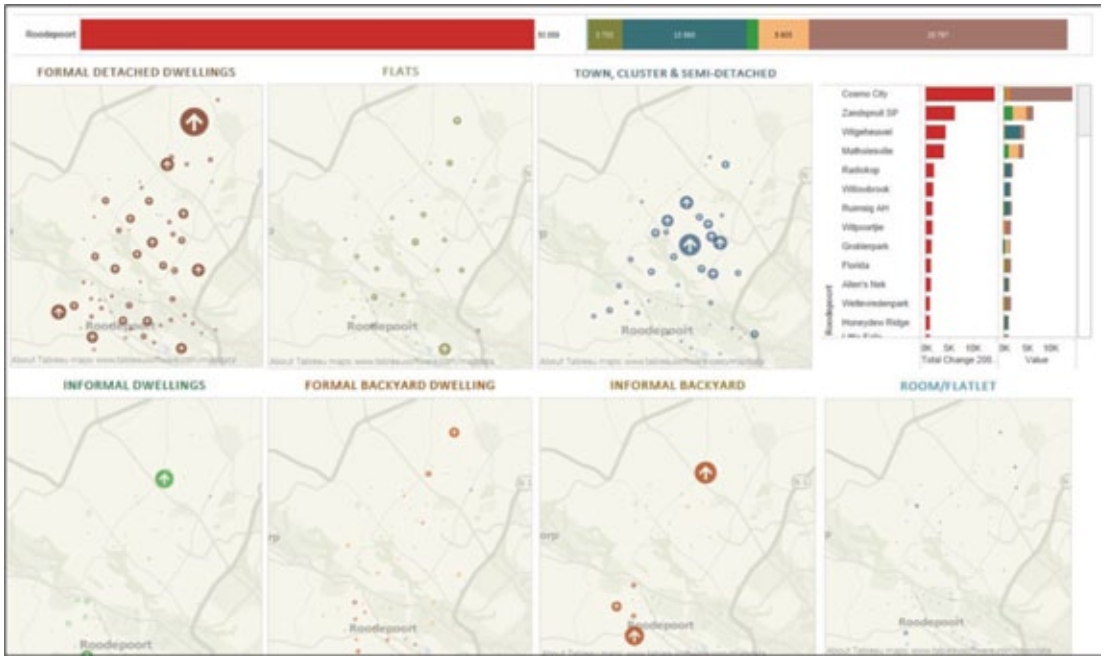
RANDBURG

FIGURE 10: CHANGES IN HOUSEHOLD TYPES IN RANDBURG, JOHANNESBURG



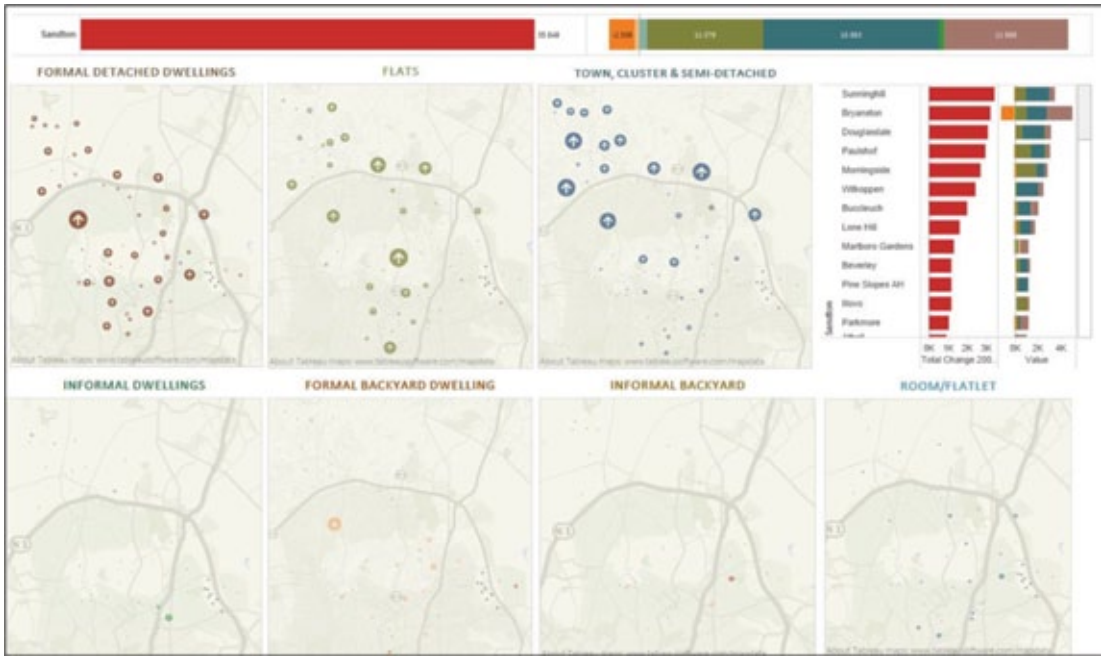
ROODEPORT

FIGURE 11: CHANGES IN HOUSEHOLD TYPES IN ROODEPORT, JOHANNESBURG



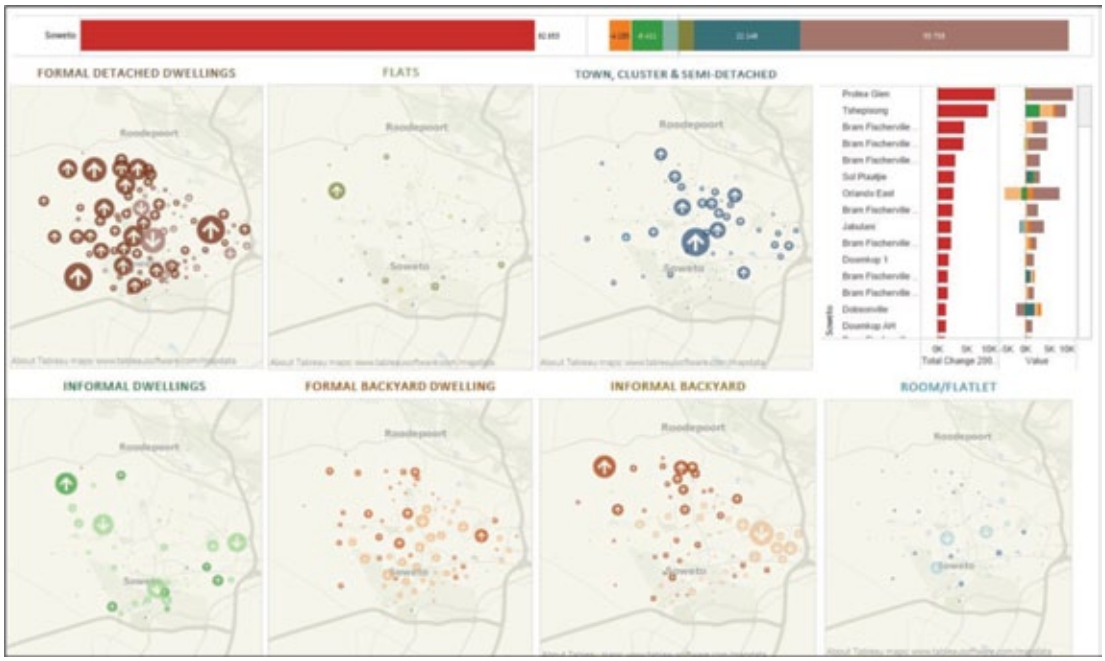
SANDTON

FIGURE 12: CHANGES IN HOUSEHOLD TYPES IN SANDTON, JOHANNESBURG



SOWETO

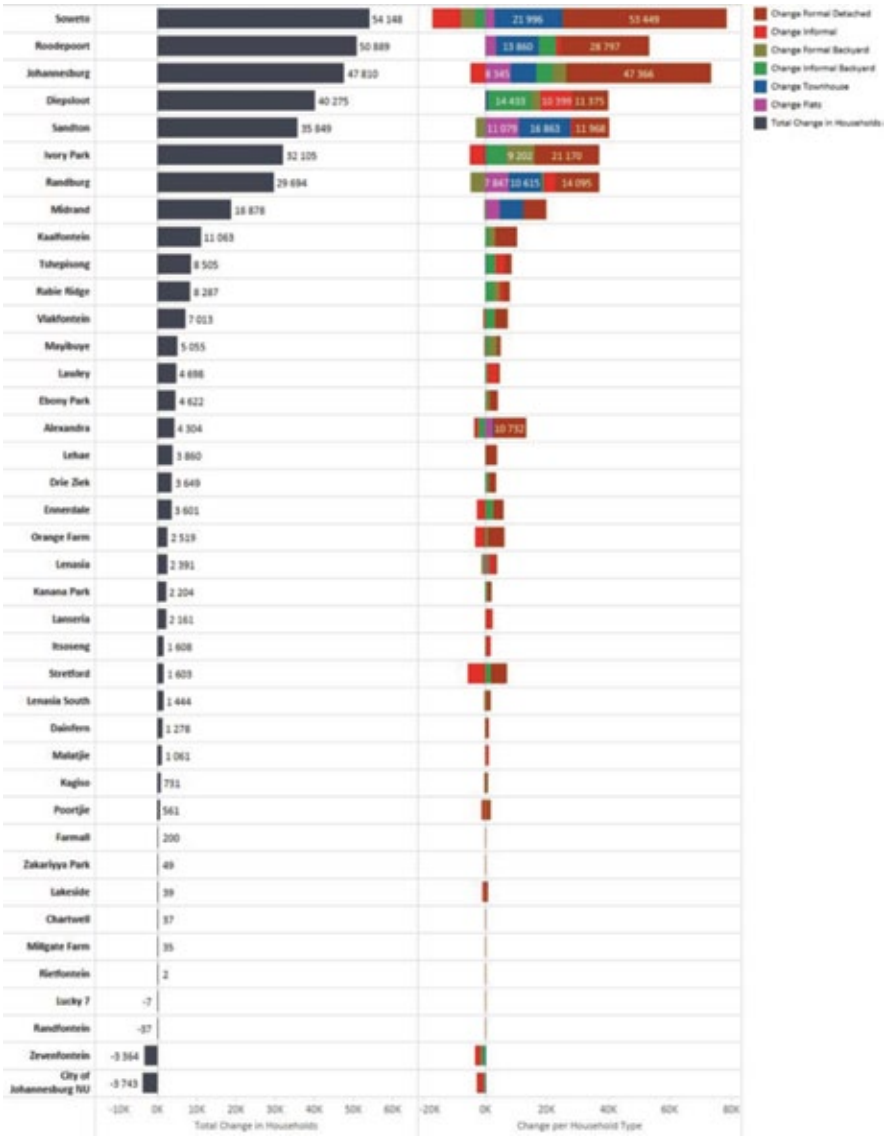
FIGURE 13: CHANGES IN HOUSEHOLD TYPES IN SOWETO, JOHANNESBURG



Appendices – additional maps and data

CHANGES IN HOUSEHOLD TYPES

FIGURE 15: CHANGE IN HOUSEHOLD TYPES PER MAIN-PLACE

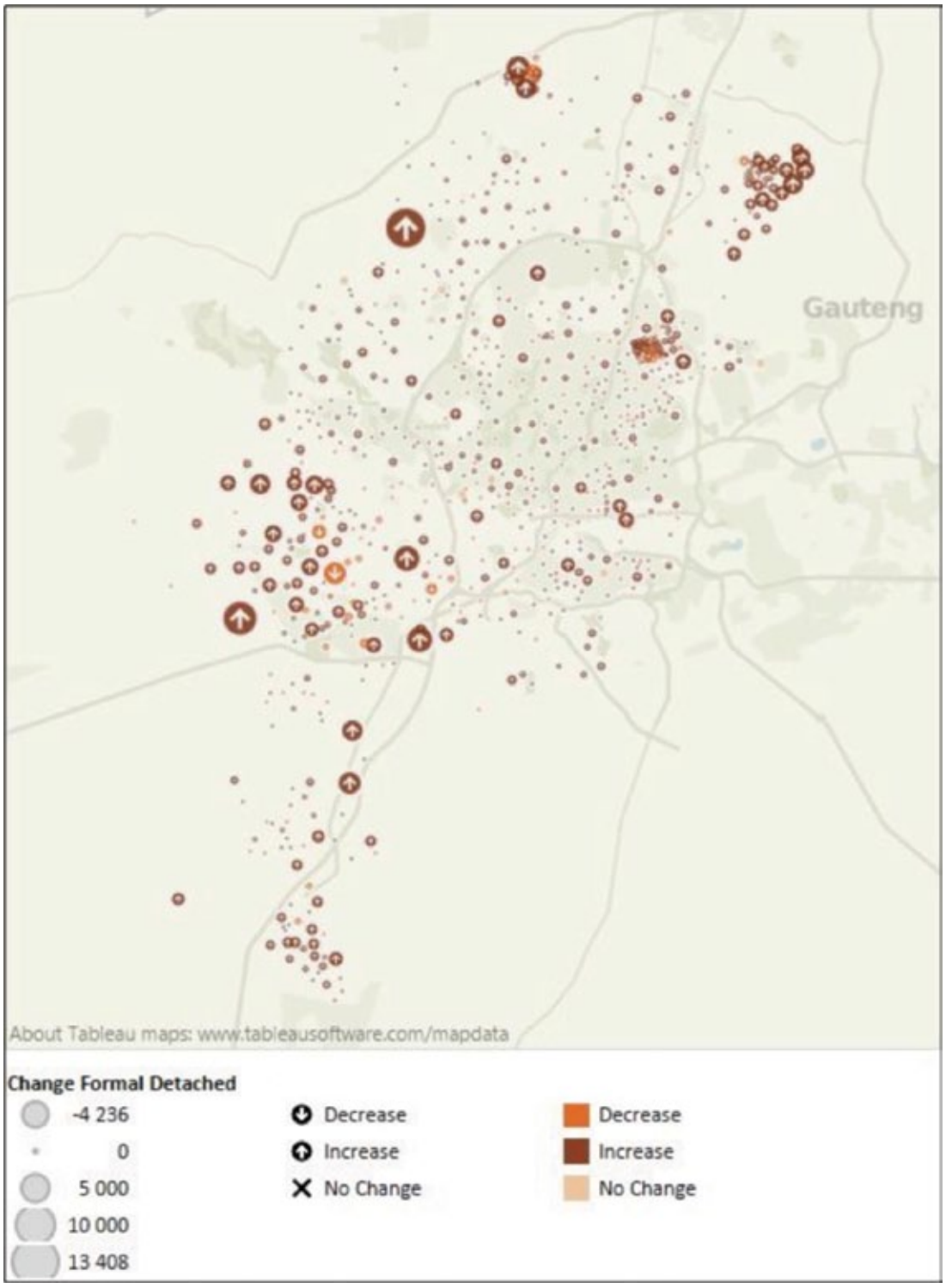


Source: Analysis of Quantec Data, 2013

TABLE 2 CHANGES IN NUMBER OF HOUSEHOLDS PER MAIN PLACE

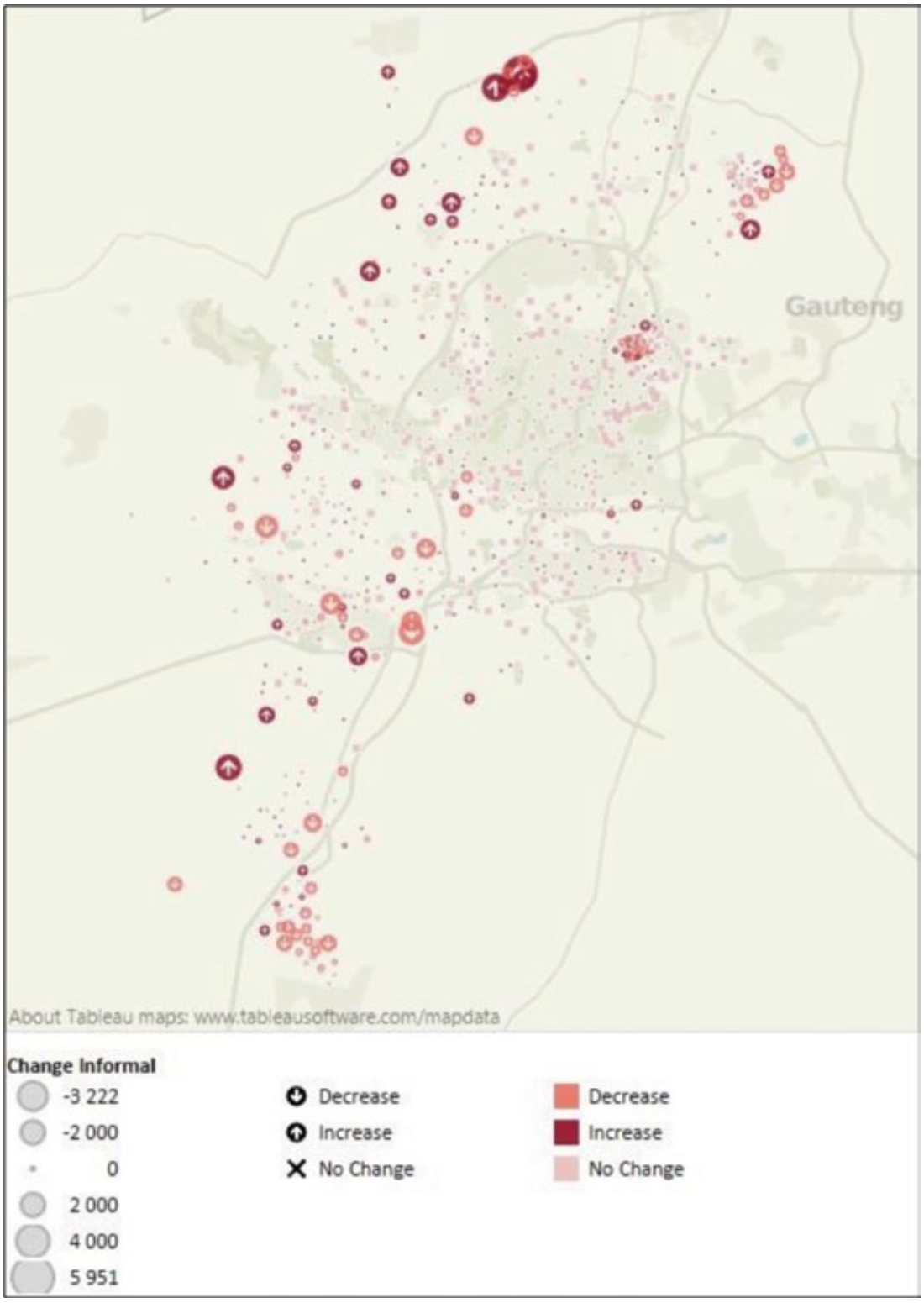
MAIN PLACE	Total Change in Households	Change in Formal Detached	Change in Informal	Change in Formal Backyard	Change in Informal Backyard	Change in Townhouse	Change in Flats
Soweto	54 148	53 449	-9 087	-4 732	-3 294	21 996	3 084
Roodepoort	50 889	28 797	1 314	35	5 603	13 860	3 733
Johannes-burg	47 810	47 366	-4 810	4 334	5 395	8 204	8 345
Diepsloot	40 275	11 375	10 399	2 990	14 433	320	457
Sandton	35 849	11 968	429	-2 509	-356	16 863	11 079
Ivory Park	32 105	21 170	-5 138	9 202	6 391	297	98
Randburg	29 694	14 095	3 816	-4 711	680	10 615	7 847
Midrand	18 878	7 296	87	-121	-58	7 910	4 632
Kaalfontein	11 063	7 090	48	2 168	1 146	11	16
Tshepisong	8 505	2 289	2 676	447	2 904	150	61
Rabie Ridge	8 287	2 121	1 091	2 128	2 558	62	91
Vlakfontein	7 013	4 090	-552	446	2 802	75	70
Mayibuye	5 055	1 353	-192	2 549	1 196	26	13
Lawley	4 698	623	3 379	94	620	23	63
Ebony Park	4 622	2 874	19	1 036	349	30	3
Alexandra	4 304	10 732	-1 001	-445	-1 938	293	2 474
Lehae	3 860	3 565	9	216	39	1	14
Drie Ziek	3 649	1 904	416	103	1 036	26	42
Ennerdale	3 601	3 307	-2 601	305	2 301	95	80
Orange Farm	2 519	5 177	-3 184	288	677	-14	23
Lenasia	2 391	817	1 847	-1 018	531	78	682
Kanana Park	2 204	1 085	199	30	679	33	38
Lanseria	2 161	66	1 791	-2	282	8	11
Itsoseng	1 608	38	1 231	13	311	5	11
Stretford	1 603	5 262	-5 474	168	1 676	19	25
Lenasia South	1 444	1 303	-192	-53	276	53	178
Dainfern	1 278	1 148	0	11	-3	141	26
Malatjie	1 061	12	889	1	104	7	24
Kagiso	731	639	-246	25	319	15	5
Poortjie	561	1 432	-1 154	13	386	90	-5
Farmall	200	220	-2	16	13	0	-2
Zakariyya Park	49	87	0	-32	-21	17	12
Lakeside	39	949	-565	-232	-32	33	44
Chartwell	37	53	-7	42	2	-6	1
Millgate Farm	35	24	21	-1	2	1	0
Rietfontein	2	0	0	-8	1	1	1
Lucky 7	-7	-2	-1	-1	0	0	0
Randfontein	-37	-17	-13	-1	-4	-1	0
Zevenfon-tein	-3 364	-131	-1 819	-11	-1 349	-8	0
City of Jo-hannesburg NU	-3 743	-731	-1 326	-384	-166	-24	-9

HOUSEHOLDS IN FORMAL DETACHED HOUSING



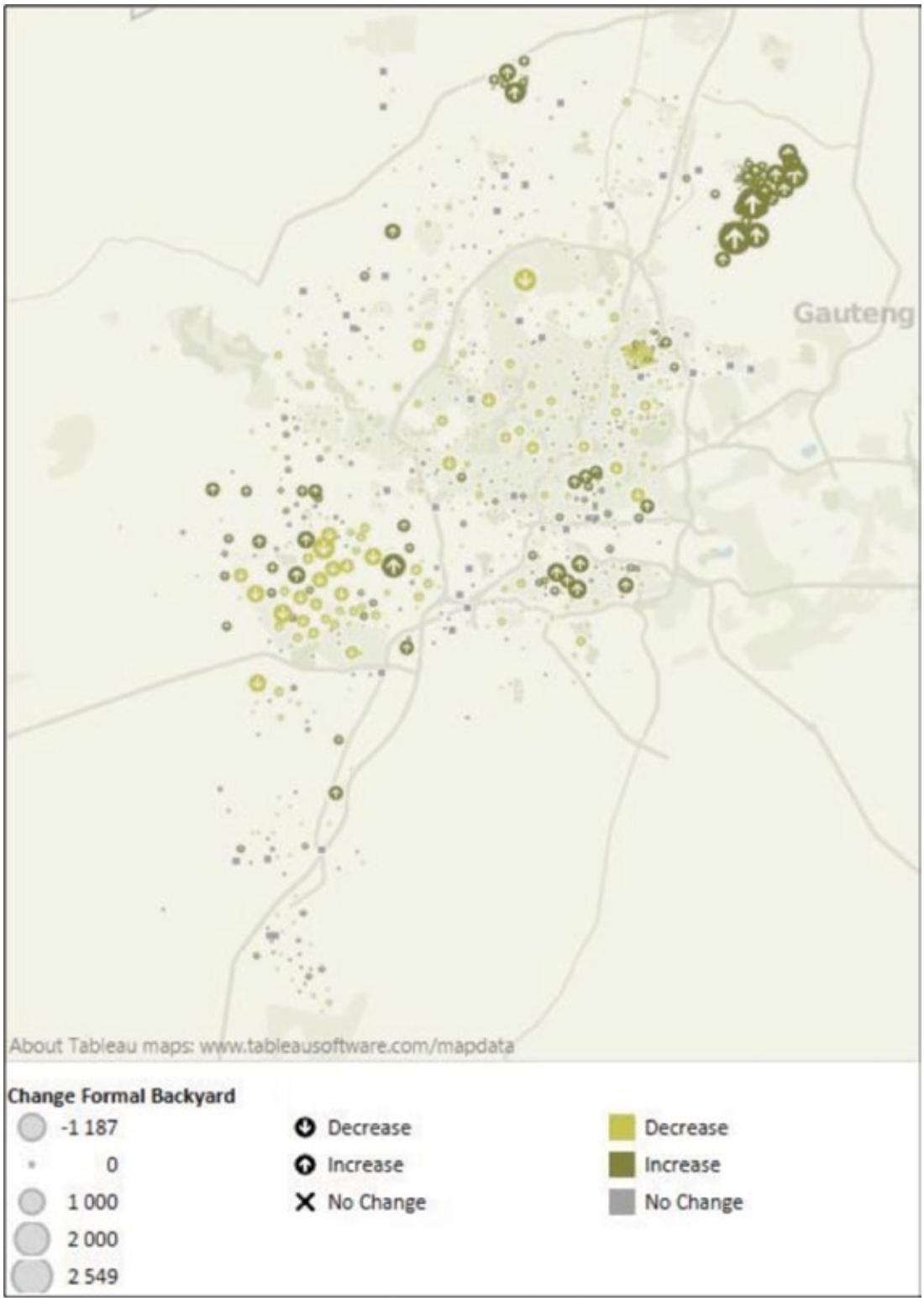
Source: Analysis of Quantec Data, 2013

HOUSEHOLDS IN INFORMAL HOUSING



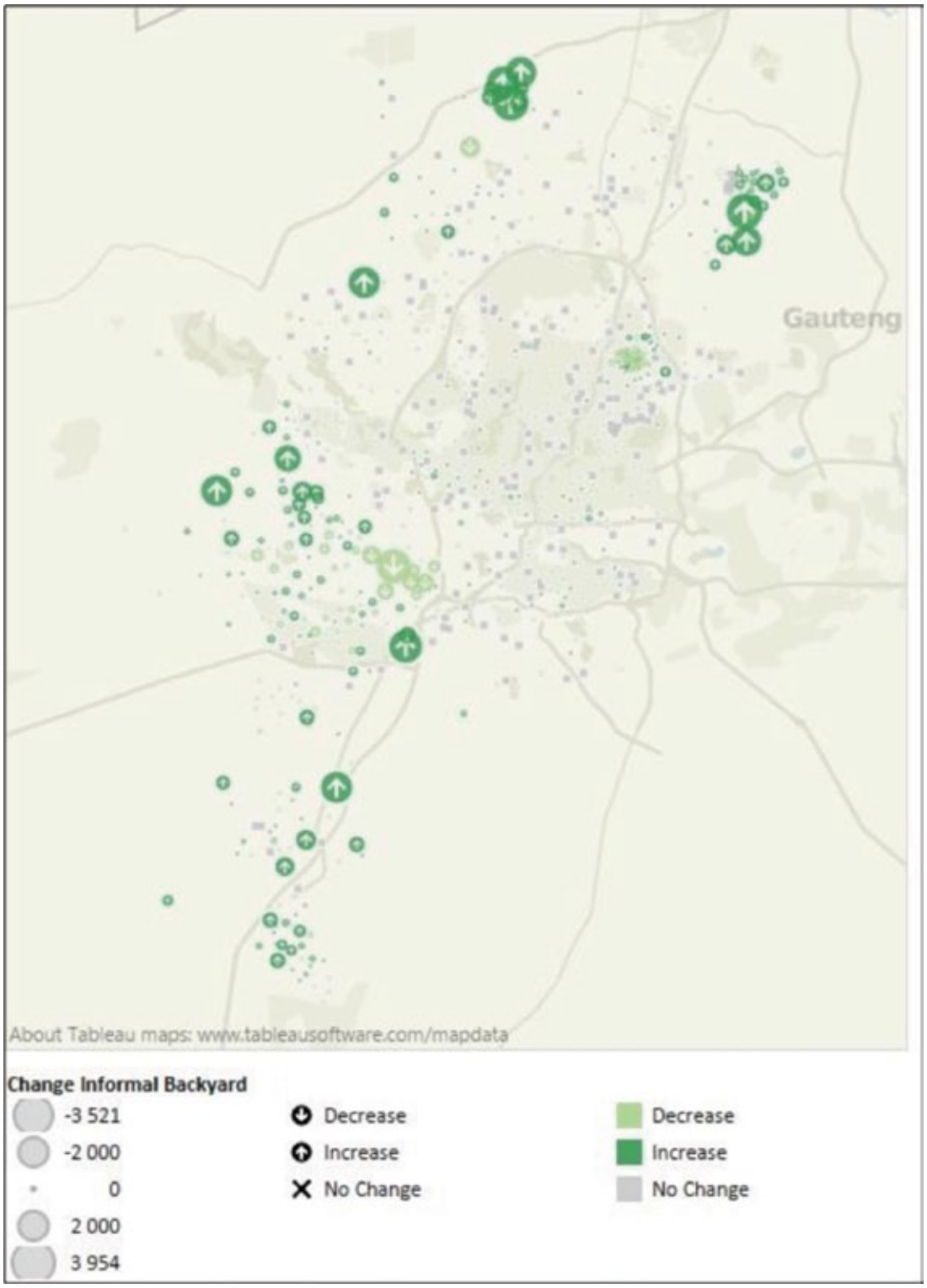
Source: Analysis of Quantec Data, 2013

HOUSEHOLDS IN FORMAL BACKYARD DWELLINGS



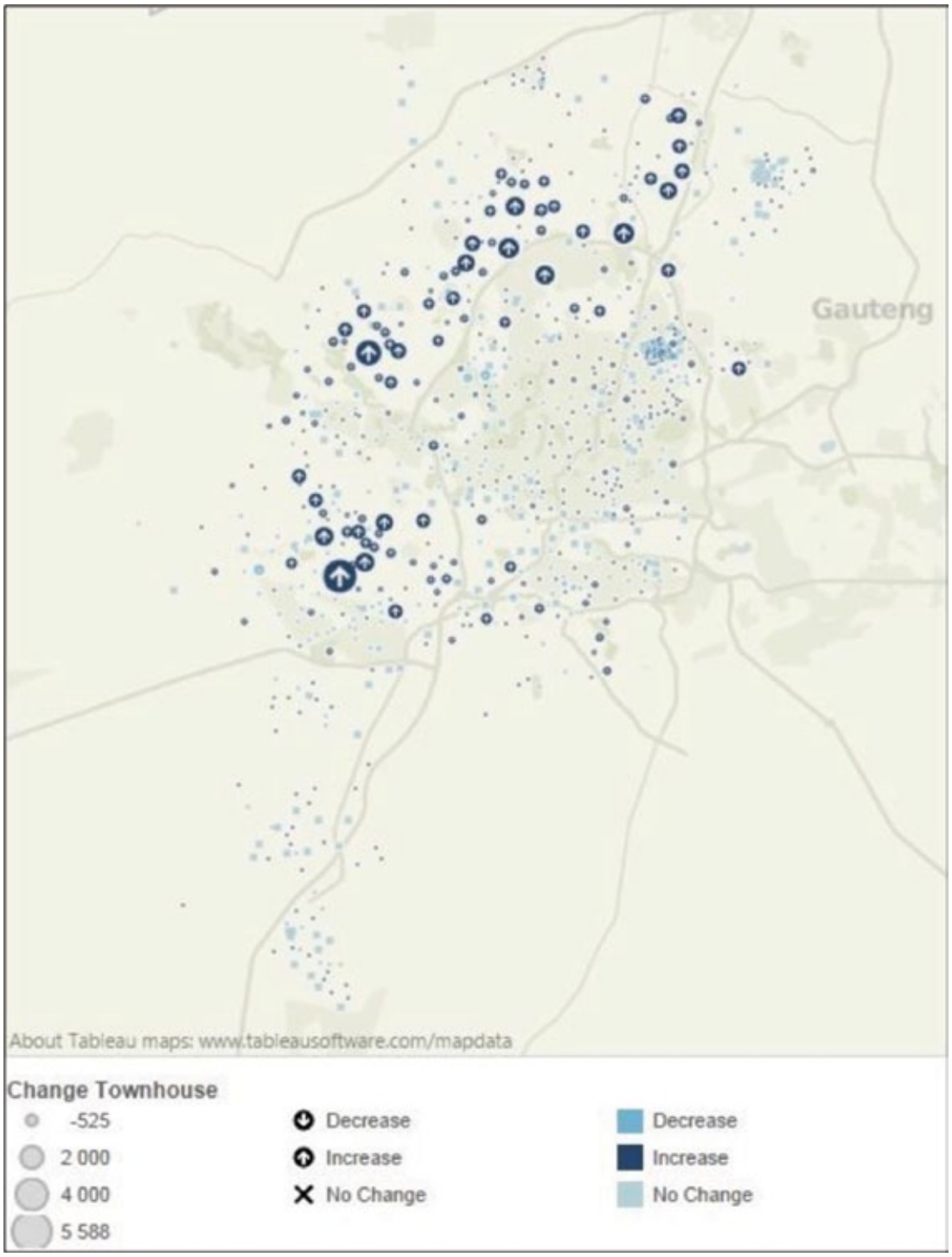
Source: Analysis of Quantec Data, 2013

HOUSEHOLDS IN INFORMAL BACKYARD DWELLINGS



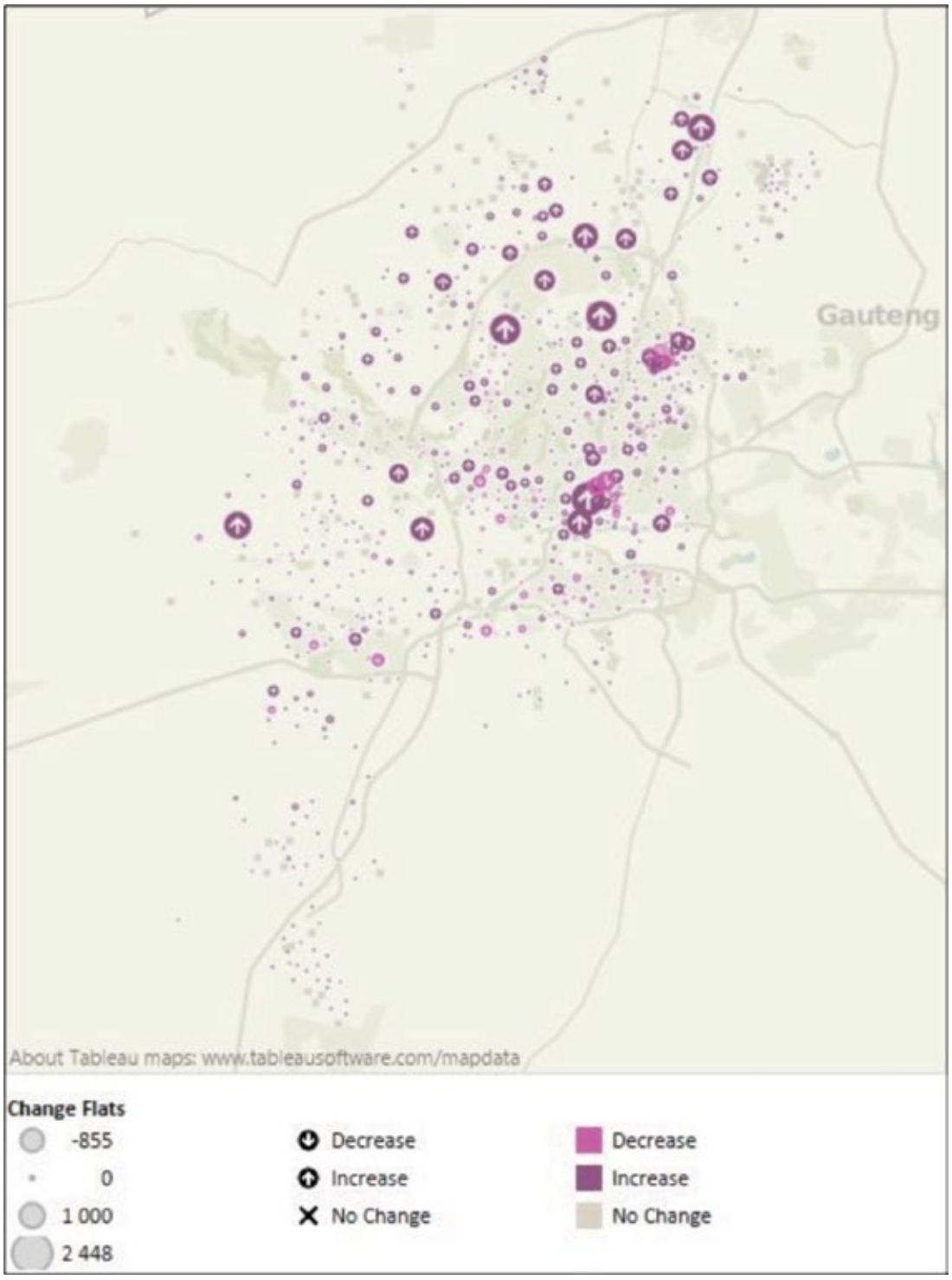
Source: Analysis of Quantec Data, 2013

HOUSEHOLDS IN TOWNHOUSES, CLUSTER HOUSING AND COMPLEXES



Source: Analysis of Quantec Data, 2013

HOUSEHOLDS IN FLATS



Source: Analysis of Quantec Data, 2013

3

Bram Fischerville

David Gardner

Introduction

This case study presents the findings of a research endeavour that focuses on Bram Fischerville bringing to the surface, some counter-intuitive findings for what is, at first glance, a standard, sprawling 'RDP' housing area on the periphery of the city of Johannesburg. Following this introduction, Section 2 describes the study method employed, and Section 3 provides a brief history and development trajectory of Bram Fischerville. Thereafter, Section 4 places Bram Fischerville in its broader provincial, metropolitan and local (Soweto) context. Section 5 describes the salient features of the settlement's urban design and housing typologies, leading to a discussion of the demographic changes the settlement experienced between 2001 and 2011 in Section 6.

The theme of Section 7 is the densification and resilience of Bram Fischerville in relation to the broad conceptual framework introduced in the first chapter of this booklet and diversity, modularity, openness, nestedness and reserves are dealt with sequentially. Finally, Section 8 provides concluding comments on this case study and Section 9 considers key potential intervention areas that could enhance the resilience of the area in response to future densification pressures.

Bram Fischerville (Figure 3) is a very large area comprising up to 22 000 subsidised houses augmented by many additional households accommodated in a variety of housing typologies. This study identifies clear differences in the urban conformation of areas within Bram Fischerville and, as a result, generalisations of results to a settlement accommodating over 90 000 people must be approached cautiously. It must also be cautioned that, due to the nature of the qualitative methodology adopted, these initial findings on the relationship between urban resilience and densification in Bram Fischerville must not be seen as definitive. More quantitative and qualitative studies are required before any clear conclusions can be drawn.

Method

Three specific study methods were adopted in this research. First, collating and studying available secondary sources of data provided spatial, demographic and contextual information about Bram Fischerville. From this a third-person view of the location, the spatial form, the housing typology, its growth, development and the political background surrounding the settlement emerged.

Second, time was spent in the field for the author to become familiar with the actual conditions prevailing in Bram Fischerville and to gain a first-hand contextual understanding of the settlement. The visits took place in winter and, to obtain a rounded feeling of the dynamics of the settlement, took place during school holidays, covering weekdays and weekends. Movement patterns were observed from early morning until nightfall, to determine the flow of people, goods and services into and out of the area. This contextualisation was also used to narrow the study area down to a specific geographical area namely the original "Bram Fischer Proper" and Extensions 1 and 2, all three of which were developed during the first phase of construction in the area. The primary motivation for this more localised focus was that this was the original area developed in the late 1990s, and therefore offered the longest historical view, whereas many of the other extensions were developed within the last decade. In addition, the location of the initial area, in close proximity to greater Soweto, offered better potential to study density and resilience.

Third, ten qualitative interviews were conducted with residents of the targeted area within Bram Fischerville in situ, and one interview was undertaken with a city official at a later date. The ten respondents from Bram Fischerville were found via holding informal discussions with people in the community, who were either able to be profiled and requested for an interview, or to help 'snowball' respondents that fitted the required interview parameters. Interviewees were sought that met the key parameters outlined in the Terms of Reference, as well as other criteria set by the author directly. The applied criteria covered a variety of respondents, including original RDP beneficiaries, newer residents in houses and other forms of accommodation, people living in different housing typologies (original unchanged houses, developed houses, backyard rooms and outbuildings and backyard shacks), gender and age ranges, as well as employed and unemployed people. Finally, formal and informal business owners were included in the sample. Two specific interviewees were sought out personally: first, a ward councillor in the area under study (Bram Fischerville is covered by two electoral wards), and a City of Johannesburg representative with knowledge and views on resilience and densification in the area.

The author interviewed all the respondents (see Table 1) in their homes or at places of work within Bram Fischerville. Interviews were conducted in English, with one interview having to be abandoned due to communication difficulties. Figure 1 shows the approximate locations of the homes of all of the residents interviewed. The discussion guide (see Annexure 1) used was a version of the standardised questionnaire

developed by Gewer and Rubin for the Hillbrow case study in this booklet adapted for Bram Fischerville, thus also based on the initial interview outline produced by the Resilience Research Programme, in 2013.

TABLE 1: Interviewees

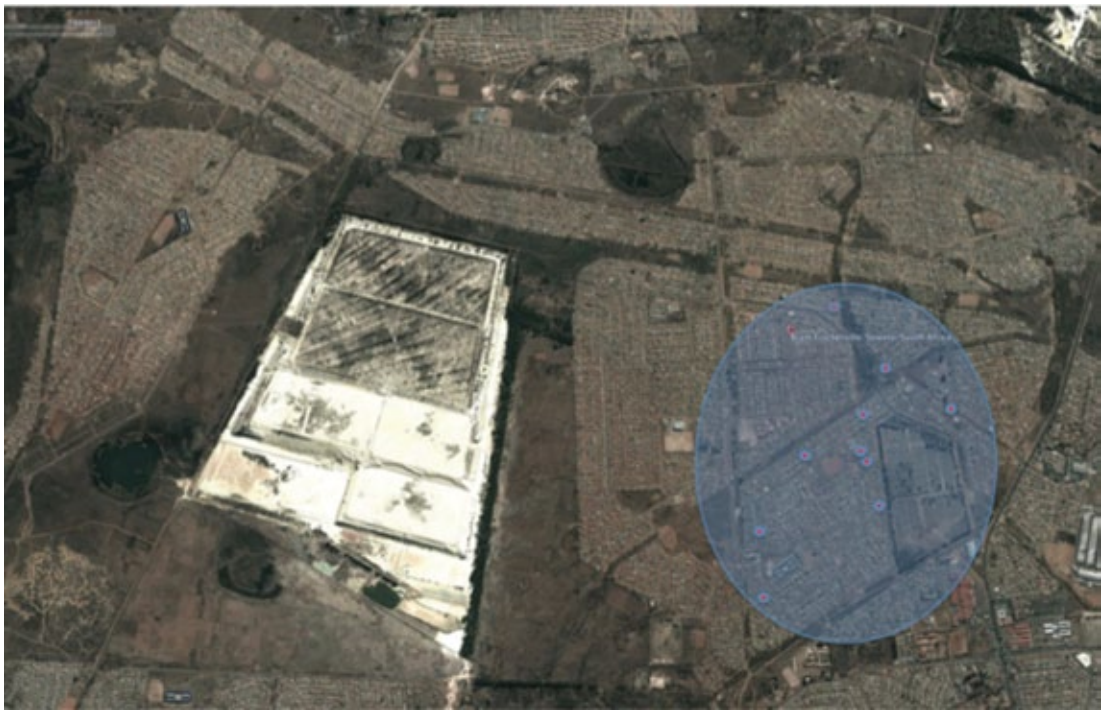
Respondent	Original RDP Beneficiary	House Renter	Backyard Accom (Formal)	Backyard Accom (Informal)	Business Owner (Formal)	Business Owner (Informal)
#1 Councillor George R	(M+4) Owner. Extensive changes	-	Family unit.	-	-	-
#2 City Official	-	-	-	-	-	-
#3 (Phase 1) Sonti	(F+S) Original modified	-	-	1 shack for family (unoccupied)	-	-
#4 (Phase 1) Lungisi S	Absent Landlord Original	Yes (M+3) Children moving	-	2 rented shacks (Rented)	-	-
#5 (Phase 1) Kgosimang M	Yes (M+S+2C) Basic changes	-	2 Incomplete Units for adult children	-	-	-
#6 (Phase 1) Walter C	(M+1) Painted	-	-	2 shacks (Rented)	-	-
#7 (Phase 1) Adele S	Owner +3	-	-	3 shacks, 2 family (3+2 people) & 1 main bedroom	-	-
#8 (Phase 2) Sindiso S	2nd Generation family	-	-	3 Shacks M+S+1C Foreign	-	Carb Mechanic
#9 (Phase 1) Jabulisile B	M+S+3C Original Specs	-	-	3 Shacks (2 rented)	-	Hair Salon
#10 (Phase 1) Frans M	M+S Unit unchanged	-	-	-	Shop Centre & Bldg Materials	-
#11 (Phase 2) Dolly M	(F+3C) Extensive Build	-	1 Room (Child)	-	-	-
TOTAL	**7 (10 coverage)**	**1 (1 coverage)**	**0 (3 coverage)**	**2 (6 coverage)**	**1 (1 coverage)**	**2 (2 coverage)**

Notes: M = Male respondent; F = Female respondent; +S = living with spouse, +1,2,x = Additional family members in structure; Accom = Accomodation; Specs = Specifications; Bld = Building;

Through careful selection of interviewees, the ten resident interviews (including the ward councillor) provided a coverage of ten RDP house owners (with one being a second generation owner), one RDP house renter, three houses with formal occupied backyard accommodation, six houses with a total of fourteen informal backyard dwellings, homes of one formal business owner and two informal business owners. Backyard accommodation was occupied by both family members and rent payers, and the rent payers included South Africans and foreigners (mostly Zimbabwean and Mozambican nationals). The formal business owner selected runs a large building yard in Bram Fischerville, and was therefore able to cast additional light on the planning building and financing of accommodation in the area.

Once the interviews were completed, the findings were extracted and this paper was drafted. The initial research results were presented at a seminar at the University of the Witwatersrand held on 8 July, 2014. Comments and inputs from that session have been built into this document.

FIGURE 1: Approximate location of Interviews' Residences in Bram Fischerville



(Photograph: © 2014 Google Earth, © 2014 Digital Globe) (Overlay: Author)

Bram Fischerville: History and Development

Bram Fischerville was one of the first major post-1994 RDP developments in South Africa, and the largest in the Soweto area of the City of Johannesburg. The settlement is named after Bram Fischer, the Afrikaans attorney who represented Nelson Mandela and others at the Rivonia Trial which ran from 1963 to 1964. During the interviews, a number of respondents indicated that their strong identity with the area includes the symbolism of its name.

> *"We don't see ourselves as Extension 1. We are all from Bram Fischer. We are proud to live in a place with that that great name" Kgosi*

Planning of the new area started soon after the first democratic elections that took place in 1994. The settlement was planned to provide accommodation for the many households living in overcrowded houses, backyard shacks and informal settlements in and around Soweto mainly, but beneficiaries were drawn from further afield as well.

> *"We came from Soweto, Alex[2], informal settlements. We were all living in bad conditions…in shacks, in backyards and in informal settlements, living with our parents or friends. I was always sick – the cold, the wet, the polluted air in Diepkloof[3]… We came from Snake Park. We were just so happy to have a home. There were issues, but we were grateful." George*

Recruitment for the settlement started in 1996, with local ward councillors encouraging beneficiaries from areas such as Meadowlands, Dobsonville, Diepkloof and Snake Park to put their names on housing lists at their local housing offices. In later phases, beneficiaries were drawn from other areas too, including Alexandra near Sandton. In accordance with the subsidy conditions, unemployed and low income households with incomes below R3 500 per month, mostly with dependants, were selected as beneficiaries.

> *"I still remember that day so well. They called me and said 'come now and get your keys in Randburg'. Just like that, with no warning. I was living with my parents…it was such a big shock that I wasn't expecting at all!" Sonti*

Bram Fischerville was developed in four phases as illustrated in Figure 2. Phase 1 was settled between 1997 and 1999 and the final of the four RDP phases was occupied by 2002. A bonded housing development was also established on the western side of Bram Fischerville to be completed by 2010 and was quickly sold out. It is currently fully developed. Phase 1 was completed and fully occupied around 1999, meaning that this study covered over a full decade and a half of evolution of the study area.

FIGURE 2: Development Phases in Bram Fischerville[4]

Green = Phase 1; Blue = Phase 2; Purple = Phase 3; Red = Phase 4; Orange = Bonded Housing

(Photograph: © 2014 Google Earth, © 2014 Digital Globe) (Overlay: Author)

The period in which Bram Fischerville Phase 1 was developed was a problematic one for the RDP programme. Building costs had been escalating, yet the housing subsidy remained pegged at a set level. As a result, during the first phase of the Bram Fischerville development the houses were built according to some of the lowest specifications used throughout the first ten years of democracy. Each unit was a 36 m^2 un-plastered maxi-brick structure with an asbestos roof constructed on a 250 m^2 stand and had no internal partitioning except for a small bathroom.

"These properties are big enough for some extra rooms to be built or to grow your house" Dolly

Bram Fischerville in Context

Bram Fischerville is located to the north-west of Soweto, between Soweto and Roodepoort. While clearly connected to Soweto, it is relatively isolated from its surroundings due to geographic and planning features, yet as a large low income settlement in the City of Johannesburg it remains relatively well located. It has links to the main Soweto trunk route, and easy access to the major transportation infrastructure between Soweto, the West Rand and the City of Johannesburg. Geographically, Bram Fischerville is located around 18 km from central Johannesburg, and less than 5 km from Roodepoort. Many residents consider Bram Fischerville as well located and well served from a transportation perspective. Residents report that it is in walking distance of Roodepoort and taxis and buses link it to Johannesburg directly, with an average twenty-minute commute at a relatively affordable one-way fare of R12.00

FIGURE 3: Provincial Context of Bram Fischerville

Note: one concentric ring = approximately 10 km (Map: © 2014 Google; Red and Yellow Overlay: Author)

This relatively good location and transport accessibility is Bram Fischerville's first major characteristic of resilience. Relative to many subsidised housing areas that are 40 km or more from central Johannesburg, such as Orange Farm, Bram Fischerville's location provides well-serviced accessibility to two major urban areas, and direct and easy access to some good urban infrastructure and facilities in Soweto, such as shopping malls, educational and sports facilities as well as entertainment venues. Both the employed and the unemployed respondents mentioned its good accessibility and location as major benefits of both living there and as a main reason why many new residents seek accommodation in Bram Fischerville.

FIGURE 4: Bram Fischerville in City of Johannesburg Context: Transport Access

Photograph: © 2014 Google Earth, © 2014 Digital Globe (Overlay: Author)

FIGURE 5: Bram Fischerville in the Context of Soweto

Photograph: © 2014 Google Earth, © 2014 Digital Globe (Overlay: Author)

FIGURE 6: Bram Fischerville Transport Links

Photograph: © 2014 Google Earth, © 2014 Digital Globe

Despite having good access to the wider city, Bram Fischerville is relatively isolated from its immediate surrounding areas. With the exception of a single main entry point to the transport network of Soweto on its western edge, and an access road out northwards onto Main Reef Road, the balance of the settlement is effectively land-locked by the surrounding topography. Large open areas of land border the whole settlement, comprising a tailings dam, a cemetery, low-lying and wetland areas, difficult to traverse concrete-lined water channels and open areas of grassland. While footpaths traverse many of these areas, vehicular and public transport access is constrained to the two major access routes.

Further study is required to determine the extent to which this constrained access has improved or impeded the development of a unique urban character and identity in Bram Fischerville. It is postulated that the open land buffers between Bram Fischerville and Soweto on the southern and western edges, and Roodepoort to the north are potential reasons for the area's unique character. Given the rapidity with which the bonded housing development in Extension 2 was sold, the possibility of opening up development through the buffer to Roodepoort, and the possible impact that may have on property prices in the area, it is believed that Bram Fischerville has future developmental potential as a mixed income suburb.

Urban Design and Housing Typologies

Figure 7 shows a portion of Bram Fischerville Proper, and shows the hierarchy of roads and block layouts. The township is designed on an adapted grid layout, with three main road hierarchies: main trunk routes, precinct access ways (frequented by public transport), and local roadways accessing each house, often used as social spaces. The layout and nature of the access routes creates opportunities for the development of precincts and neighbourhoods, and even more localised super-blocks and enclaves. This varied design assists to create visual interest and diversity when traversing the settlement, and is notably different from the standardised grid layout of many subsidised areas.

Like many other subsidised housing areas, Bram Fischerville is still very prone to the 'toothless grimaces' of promised but undeveloped public infrastructure sites throughout the urban fabric. Poor urban management further exacerbates this blight through uncontrolled littering, grass and weeds. Over time, schools, some parks and other public facilities have been developed but, given its population densities, it is far from the status of a neighbourhood fully serviced by necessary public investment.

FIGURE 7: Township Layout, road Hierarchy and Public Spaces (Bram Fischerville Proper)

Photograph: © 2014 Google Earth, © 2014 Digital Globe (Overlay: Author)

All subsidised houses built in the settlement conform to basic RDP standards. In Bram Fischerville Proper, these include a 36 m^2 bare maxi-brick finish, asbestos roof with no ceiling and no internal partitioning except a small bathroom.

> *"Look at it. We got bare walls, no rooms, asbestos roof. Dirt roads. There was no electricity for eight months when we moved here…" Jabulisile*

However, unlike many subsidised settlements, three alternative design options were constructed. These are the typical free-standing (detached) house, a semi-detached unit with shared wall on the property boundary, and what is colloquially known as a "drive-in" that comprises four houses in close proximity, two in front and two behind, with shared partitioning walls. While spatially these options vary little, over time the different configurations have enabled the creation of different levels of public, semi-public, semi-private and private spaces across the settlement, which assists to break the monotony and adds to the complexity of Bram Fischerville as an urban space.

> *"We call them 'drive-ins'. They are good areas for the children to play" Sonti*

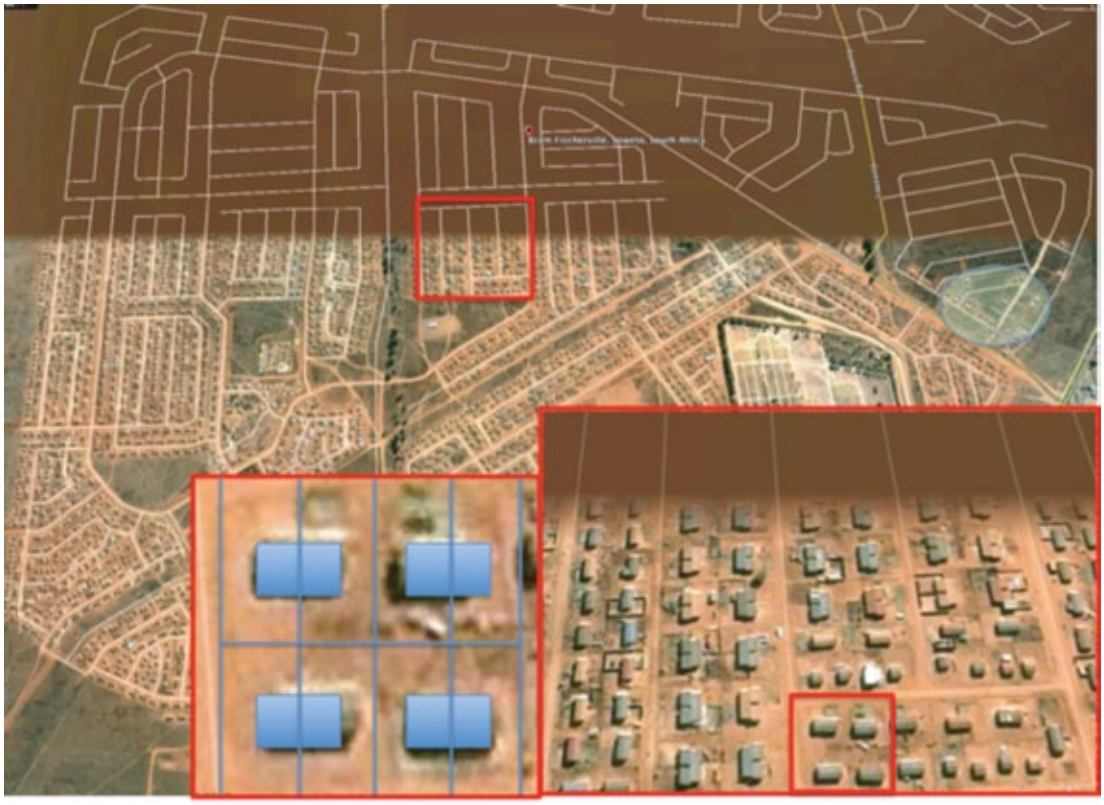
Relative to other subsidised areas, ***Bram Fischerville's more complex urban design and different subsidy unit configurations form important building blocks for its resilient densification that better copes with the visual and practical impacts of buildings, households and population intensification.*** Variety of layout, space and architecture has created a nuanced area able to morph in a variety of ways.

Renovations, extensions and, in a number of cases, complete redevelopment of residential spaces over the last decade have changed the urban form significantly. The introduction of extensive boundary walls in many areas, along with extended living space and many secondary structures (both formally and informally constructed) at times make it hard to even identify original subsidised structures. However, in others, the original structures remain, without even a new coat of paint or a fence, exactly as constructed over a decade ago. Some streets have a definite suburban feel, while others have an overriding sense of unkempt abandonment.

Backyard units take two main forms: formally constructed (brick and mortar) rooms or garages; or backyard 'shacks'. On average, there is one backyard unit per four houses (25% prevalence). However, this varies from none to as many as ten units on one property, and as discussed later in the paper, variation is significant across the different extensions of Bram Fischerville. Additional units are not limited to occupied rooms and shacks. Taverns, spazas (small convenience shops), salons, cell phone sales units and other small businesses thrive throughout the area, wherever demand is sufficient to support them.

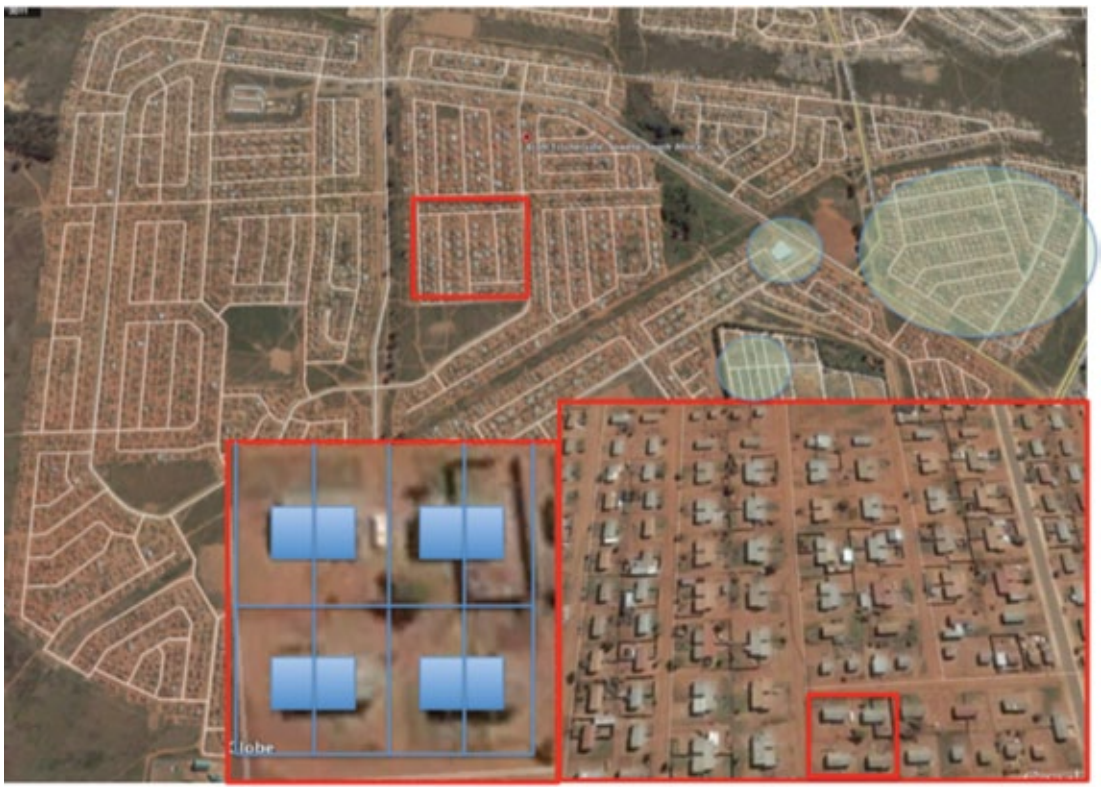
Figures 8, 9 and 10 show the development and consolidation of a portion of Bram Fischer Proper between 2001 and 2014. These time series snapshots illustrate the high levels of control exercised over backyard construction in the early years, and the rapid development of houses, walls and additional structures in the later period (2009 to 2014) as controls over development were relaxed.

FIGURE 8: Bram Fischerville: 2001



Photograph: © 2014 Google Earth, © 2014 Digital Globe (Overlay: Author)

FIGURE 9: Bram Fischerville: 2004

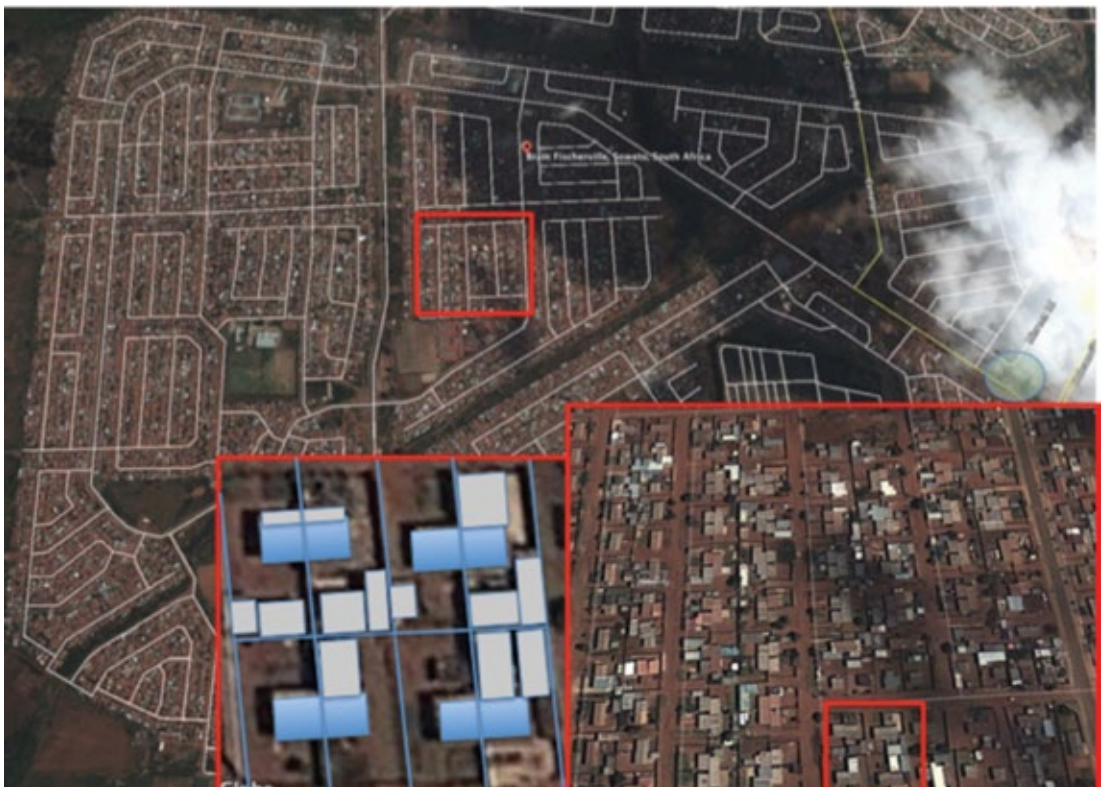


Photograph: © 2014 Google Earth, © 2014 Digital Globe (Overlay: Author)

FIGURE 10: Bram Fischerville: 2007

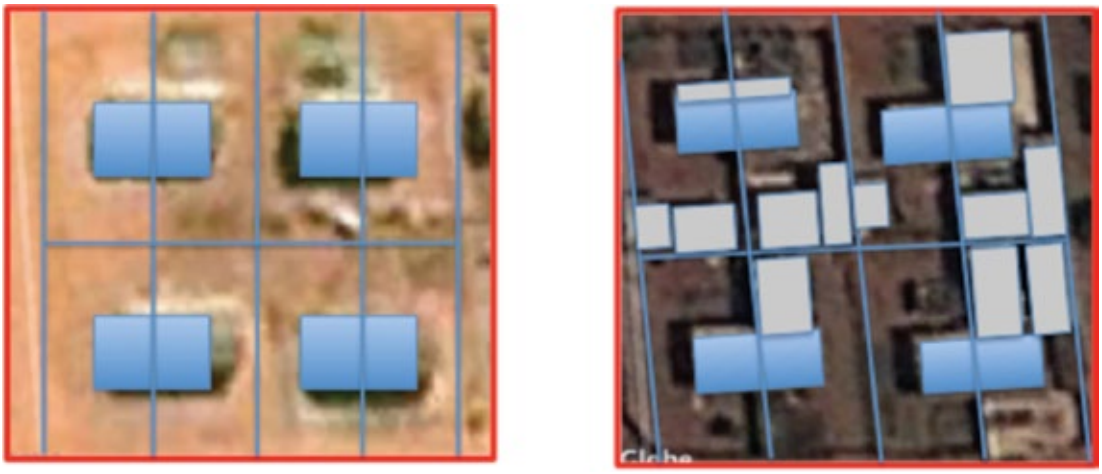
Photograph: © 2014 Google Earth, © 2014 Digital Globe (Overlay: Author)

FIGURE 11: Bram Fischerville: 2014



Photograph: © 2014 Google Earth, © 2014 Digital Globe (Overlay: Author)

FIGURE 12: Bram Fischerville Densification Detail: 2001 to 2014



Photograph: © 2014 Google Earth, © 2014 Digital Globe (Overlay: Author)

Demographics and Household Growth

The terms of reference for this research identified the period between the last three censuses as the focus period for this study. That is, 1996, 2001 and 2011 Census data is analysed in order to ascertain what changes occurred within each of the case study areas. With Bram Fischerville, this poses a problem since the major thrust of settlement development only began in 2001 and continued in phases until 2011 with some of the fastest densification occurring post-2011. Consequently, it was necessary to isolate the two key areas within Bram Fischerville where construction took place just before 2001, in order to obtain a ten-year time span for analysis. No significant development had occurred in Bram Fischerville by 1996, hence the data shown is solely for comparative rigour between the case studies.

FIGURE 13: Bram Fischerville Extensions

The number of households per housing type in each of the developed extensions of Bram Fischerville is portrayed in Figure 14. From the data available it is clear that only Bram Fischerville 'Proper' and Bram Fischerville Extension 1 (Ext 1) provide comparative data. Therefore, while overall demographics and household numbers are analysed for 2011, the time series analysis is limited to these two areas, and to the period from 2001 to 2011. In 1996 the population of Bram Fischerville was very small and by 2001, the two completed, occupied RDP extensions housed, in total, just over 5 000 households, roughly equally distributed between Bram Fischerville Proper and Ext 1 to the west. The major development and settlement of the area occurred between 2001 and 2011 and, by the 2011 census, around 22 000 households occupied formal houses in the designated study area.

Also notable is the fact that, in 2001, very few households occupied any other type of accommodation such as second dwellings or backyard rooms formal or informal. In addition, in Bram Fishersville Proper and Ext 1, there were still relatively few additional structures by 2001. The reason for this is that government's policy at the time did not allow backyard structures in RDP settlements, and the resulting stringent controls the City of Johannesburg Council placed on backyard units at that time.

> *"When it was developed, the ANC didn't tolerate Mekhukus[5]…now everyone builds shacks. There is no control. There are houses with more than ten"* Cllr George R

However, by 2011, 25% of all households in Bram Fischerville were 'secondary households' living in structures other than a formal house. Nine per cent of all households in the entire suburb resided in rooms, flatlets and formal backyard structures, and 16% of the households occupied backyard shacks. Given that much of the area was only constructed and occupied in the period between 2001 and 2011, this is significant densification over a period of less than a decade.

FIGURE 14: Households per Housing Type Per Extension: 1996, 2001 and 2011

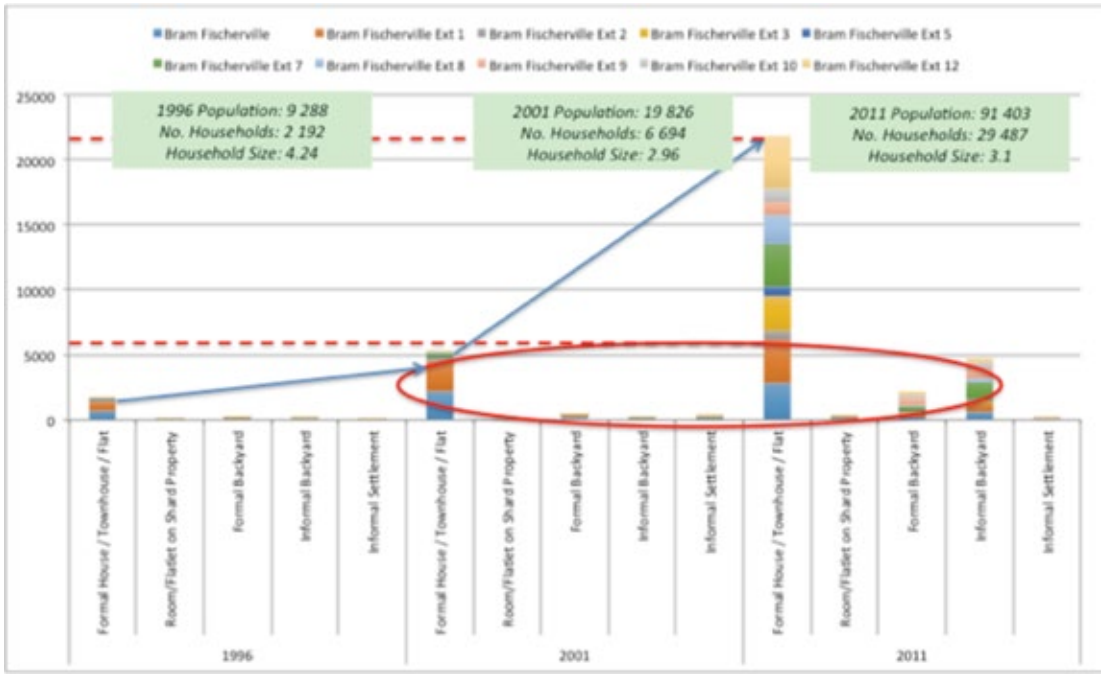
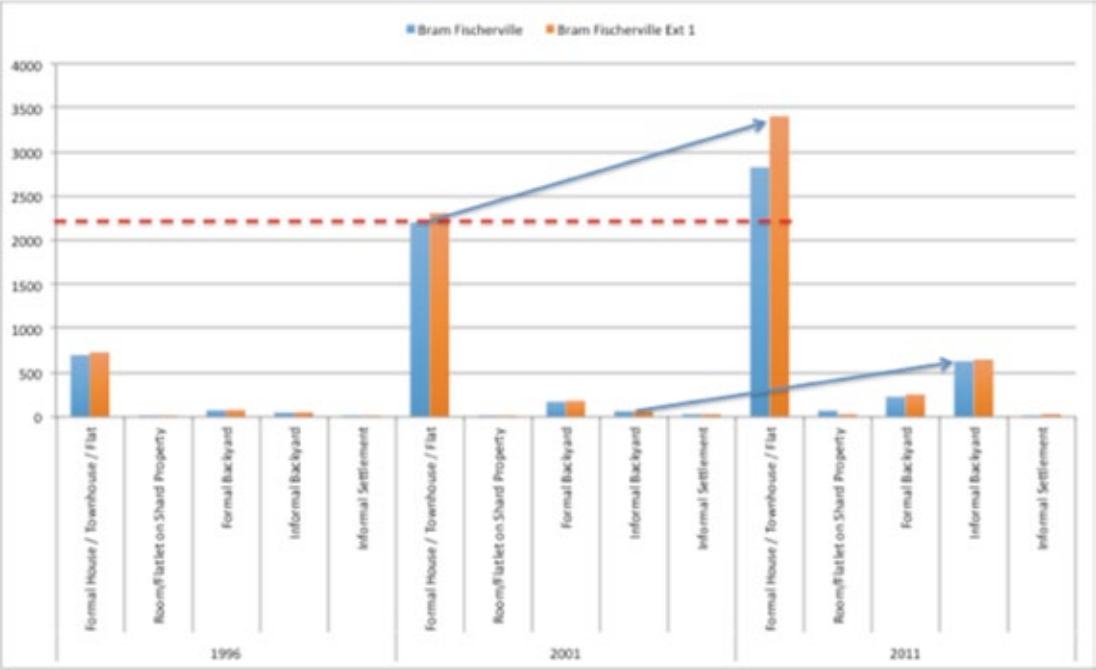


Figure 15 shows the growth in households per housing type in the two areas that were occupied in 2001 (Proper and Ext 1). Overall, these two extensions had a household growth rate from 5 078 households in 2001 to 8 119 households in 2011, a household growth of 60%. The data illustrates three notable trends. First, the growth in households within the formal RDP houses constructed. Between 2001 and 2011, the number of households grew 38%, while housing stock remained static. Second, the rapid growth in backyard shacks by 852%, from a very low level in 2001 due to political and town planning controls (134 shacks in total) to 1276

shacks by 2011. Third, the modest growth in formal backyarding structures from around 251 structures in 2001 to 580 units in 2011, a growth of 55%.

These growth rates clearly illustrate a second major defining feature of 'resilient density' within Bram Fischerville, namely, the ability of the area to absorb the rapid increase in households moving into the area through the adaptation of household dynamics and the physical urban fabric. This growth in the number of households living in the area represents accommodating 60% more households than the RDP settlement was initially designed to house, albeit that the average household size of these new households is lower than the average household sizes of primary housing beneficiaries[6]. The characteristics of this increased occupancy are discussed later in this paper.

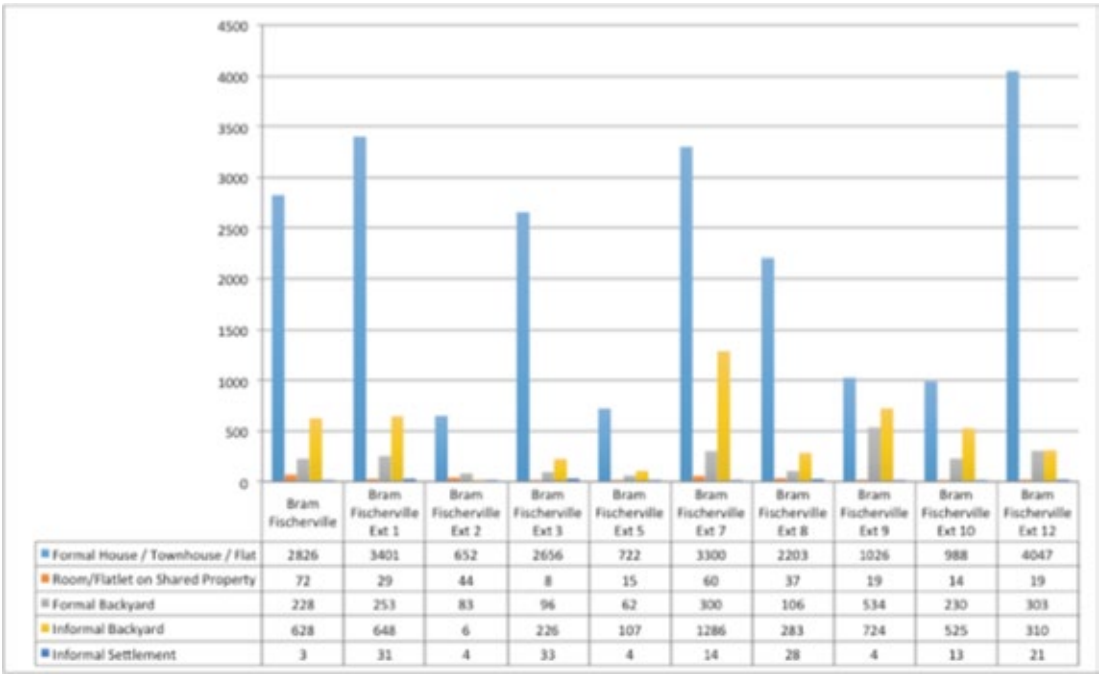
FIGURE 15: Household Growth in Bram Fischerville Proper and Extension 1: 1996, 2001 and 2011



These two figures (Figures 15 and 16) do not paint the full picture of the population and housing dynamics within Bram Fischerville, however. A closer analysis of housing types across the ten developed extensions is given in Figure 16 below. Considering that most of these extensions were only developed in the period since 2001, the high proportion of formal and informal backyard structures, as well as the significant variability in proportions of structures between areas is notable. Looking at the 100% graph in Figure 17, it is seen that the proportion of households living in backyard accommodation varies from 12% of all households in Extension 3 to 56% of all households in Extension 9, with the average being 25% of households across all areas. Furthermore, considering the proportion of secondary structures that are formal (flats and rooms) versus informal (shacks), the figures vary significantly again. Whereas on average one third of backyard structures are formally constructed and two thirds are informally constructed, this varies from a low of 22% formal in Extension 7 to 93% formal in Extension 2.

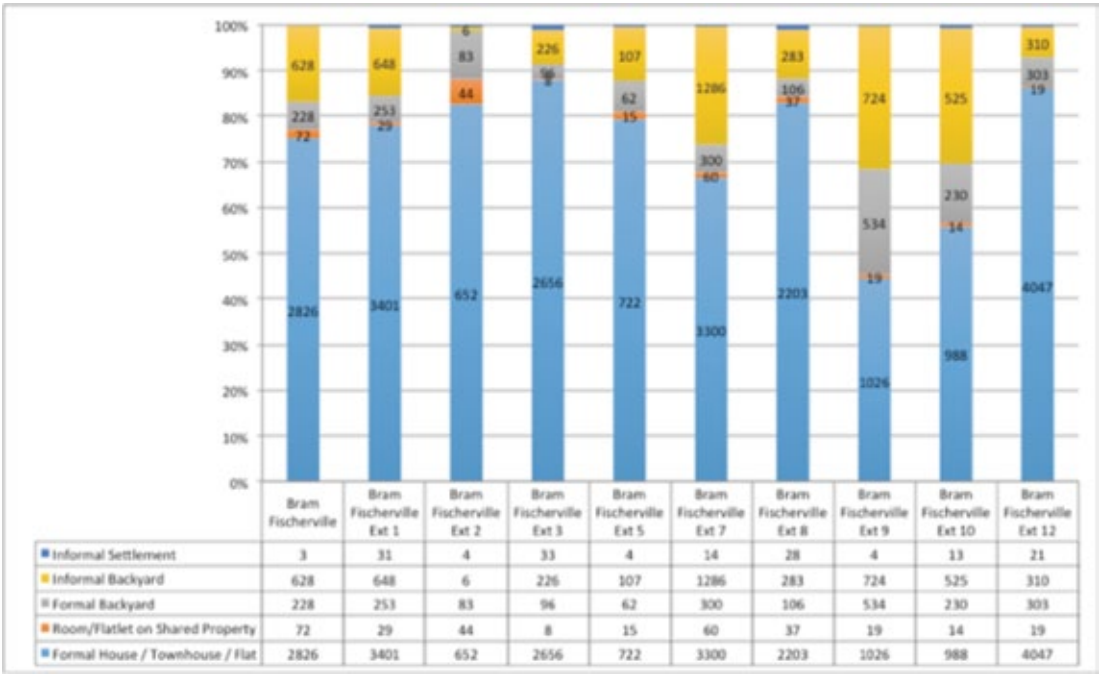
This illustrates a third defining feature of Bram Fischerville's resilient densification: the adaptation of different areas within the settlement to specific population and housing dynamics, resulting in a significant variation in accommodation density and accommodation types across the settlement.

FIGURE 16: Housing Type in Bram Fischerville Proper and Extension 1: 2011



	Bram Fischerville	Bram Fischerville Ext 1	Bram Fischerville Ext 2	Bram Fischerville Ext 3	Bram Fischerville Ext 5	Bram Fischerville Ext 7	Bram Fischerville Ext 8	Bram Fischerville Ext 9	Bram Fischerville Ext 10	Bram Fischerville Ext 12
Formal House / Townhouse / Flat	2826	3401	652	2656	722	3300	2203	1026	988	4047
Room/Flatlet on Shared Property	72	29	44	8	15	60	37	19	14	19
Formal Backyard	228	253	83	96	62	300	106	534	230	303
Informal Backyard	628	648	6	226	107	1286	283	724	525	310
Informal Settlement	3	31	4	33	4	14	28	4	13	21

FIGURE 17: Housing type as a percentage of total in Bram Fischerville Proper and Extension 1: 2011



	Bram Fischerville	Bram Fischerville Ext 1	Bram Fischerville Ext 2	Bram Fischerville Ext 3	Bram Fischerville Ext 5	Bram Fischerville Ext 7	Bram Fischerville Ext 8	Bram Fischerville Ext 9	Bram Fischerville Ext 10	Bram Fischerville Ext 12
Informal Settlement	3	31	4	33	4	14	28	4	13	21
Informal Backyard	628	648	6	226	107	1286	283	724	525	310
Formal Backyard	228	253	83	96	62	300	106	534	230	303
Room/Flatlet on Shared Property	72	29	44	8	15	60	37	19	14	19
Formal House / Townhouse / Flat	2826	3401	652	2656	722	3300	2203	1026	988	4047

Lenses of Analysis

Diversity

This section considers the diversity sub-themes of variety, vibrancy and housing choice.

Bram Fischerville's layout and building typology created a platform for a growth in urban variety that has developed over time. Greater legibility of the settlement, in comparison to more uniform subsidy housing layouts, along with variegated patterns of growth, offer significant variety within the settlement fifteen years after its initial development. There are still areas of uniform subsidised houses but simultaneously, some areas feel much more suburban, where it is sometimes even difficult to discern the original structures. Private, semi-private and public spaces delineated by walls, the planting of trees and other vegetation and new structures continue to develop. Along with this, busy access routes and built form complexity assist to break the original monotonous landscape.

Along with densification and intensification, a wider range of activities and land uses is evident. Commercial areas, spaza shops and public facilities create even greater complexity albeit that, in general, it is still predominantly a residential area, and real economic opportunities are severely limited.

> *"Everyone wants to live here now. There are problems, but it offers us everything we need for a family to grow"* Frans

Movement hierarchies channel urban energy into specific areas, yet these areas are not optimally structured to meet the needs of residents. On the one hand, trunk routes through and out of the settlement are still single lane. On the other hand local streets are over-designed for a pedestrian and public transport-dominated settlement.

As land use intensifies and density continues to increase, signs of vertical growth are emerging in what is still predominantly a horizontal, single storey suburb. Double storey developments, both on the main house and in backyards are an increasing feature of the Bram Fischerville urban landscape.

> *"Ja, people are starting to build up. The space is limited on these sites for a proper house"* Frans

With this variety comes a vibrancy that continues to increase. From a relatively bland start, with uniform plot sizes and very limited built form variety, the area now offers a much greater sense of a bustling neighbourhood than a standard subsidised development.

> *"When we moved in I cried every day. I got lost finding my house every time I came home. Every place looked the same… I was so disappointed. I hated this place"* Sonti

Private investment by households and new businesses has created a more vibrant community in many areas

as reflected in a more diversified urban form, differentiated and personalised houses and walls, landscaping and planting gardens, informal businesses, and entertainment venues all increase the complexity and vibrancy of the Bram Fischerville urban landscape.

Although still highly constrained, **housing choice** has improved. Some properties still have the original subsidised houses but many others have been improved or substantially redeveloped, some now up to an area of 200 m^2 in extent with high quality finishes. Secondary accommodation provides living space for 25% of all households in Bram Fischerville, but structures still tend to conform to a set typology, a backyard shack (either built by the tenant or provided by the landlord); a formally constructed room with access to shared ablutions; or a 'garage' converted for residential use. Many formal constructions have approved building plans, implying a generally sound level of safety and amenity in these units.

"Sometimes the inspectors come, they check, you just pay and then you can build"… Frans

Backyard shacks remain 'illegal' in the eyes of the City of Johannesburg, and do not meet current building regulations. However, these structures accommodate 16% of all households in Bram Fischerville, the most affordable rental option in the suburb.

Urban choice has also steadily improved during Bram Fischerville's sixteen-year life. Numerous schools have been opened (albeit that most are still in temporary facilities), a state of the art Early Childhood Development (ECD) facility has been established and a range of child care facilities meet the local demand in most areas. By virtue of its proximity to Meadowlands and Dobsonville, Bram Fischerville is within walking distance to various tertiary colleges and institutions. Furthermore, the growth of both formal and informal businesses offers a wide range of products and services in the area, including groceries, hardware and building supplies, and telecommunication, funeral, building and metalwork services. While formal retail facilities are limited (with only one brand name chain store – Spar – and a new service station operating in the area), many residents use nearby regional or neighbourhood shopping centres, such as Westgate and Dobsonville Mall. The formal-informal continuum is blurring, and options available to residents continue to grow.

Modularity

This section discusses the elements of modularity, namely intensity, efficiency and balance.

From its origins as a low density subsidised residential area, Bram Fischerville now shows zones of far greater **land use intensity.** The emerging urban centres of activity around the Spar complex and at other major road crossings, combine high intensity transport and pedestrian corridors with formal and informal commercial and retail spaces. Low intensity housing areas are also now adapting to increasing household numbers and population growth and change, showing many more characteristics of higher intensity zones: use of public spaces, pedestrian movement systems and opportunistic small-scale commerce such as spazas.

Clear evidence of greater **urban efficiency** exists across much of Bram Fischerville. Accommodation infill creates a higher level of efficient use of land and transport and non-residential facilities. Therefore, in the many residential areas there is sufficient demand for public transport giving rise to a regular circulation of taxis throughout the primary and secondary hierarchy of the road network with a five-minute walk, at most, from almost all the residences. The prevalence of local informal retail options also makes the 'bread and milk' shop a matter of a few-minute effort for most households.

While possibly not designed to operate at the level that they do, the intensity of the utilisation of the **infrastructure** is at a much higher level of operational efficiency than expected. Water reticulation (which seems to be coping) and sewer systems (which are under pressure), as well as the electrical network (which has good and bad areas) all service far higher population densities than originally envisaged[4].

The **balance** within Bram Fischerville has also changed significantly over the last decade and a half with regard to population density and areas of higher and lower land use intensity. There is a balancing between the location and distribution of large and small houses and a slow balancing of the mixed land uses is also under way, moving away from being a solely predominant residential area.

From a socio-demographic perspective densification has yielded important balancing within the area. The

maturation of the settlement has led to a greater balance of income groups, with evidence of some areas becoming less deprived. Elderly beneficiaries are now blended with second-generation younger homeowners. The predominantly South African demographic character is blended with migrants from the other parts of Southern Africa, Somalia and even Pakistan. Single people, couples and families are all prevalent dwellers.

Openness

This section considers scale, integration and connectivity and continuity, the sub-elements of openness.

A subsidised housing settlement of 22 000 houses could become monolithic and difficult to traverse. However, the urban design creates precincts that operate as a **scale** convenient for walking. Moreover, public transport services the suburb well. However, this human scale is broken by the fragmentation of the settlement (see Section 4) due to the unused, sterilised and neglected open spaces and jarring physical man-made and natural features; power lines, poorly managed wetlands, tailings dams and canalised watercourses. In addition, at its fringes, for example Extension 12, this scale becomes impersonal as the settlement here feels much more like an untended, static subsidised housing area.

Physical **integration** within Bram Fischerville still exists, even though there is diversity within the area. The area is moving from being a low to a mixed income one. This creates an integration of 'shack and mansion', and does not seem to limit the significant investment in real estate involving many properties.

> *"We are one, Bram Fischerville. You don't live in this or that extension; you are first a Bram Fischer resident"* Kgosimang

The physical division between the bonded housing area and the rest of Bram Fischerville is apparent. The bonded area is planned to focus inward, with few access points, and almost impenetrable suburban walls facing outwards on many sides. Possibly this is a subtle design message regarding the difficulties of integrating middle income and poor households, or perhaps it is just the inevitable development of suburbanisation by those protecting property values on bonded properties.

However, in the eyes of some respondents, Bram Fischerville only offers so much potential. As good as it is as a family neighbourhood, there are better out there.

> *"I dream of a house in the suburbs. I will sell this and put the money into one of those places when I can"* Dolly

Bram Fischerville attracts many international migrants and remains generally peaceful and integrated. Xenophobia was prevalent before, as it swept South Africa in 2008, but this was seen as externally agitated.

> *"There was xenophobia here. But it was them, the politicians. We just want peace and to live together easily"* Lungisi

Bram Fischerville's **connectivity** to its surrounds is a critical aspect of its resilience. An effective twenty-minute commute to central Johannesburg (18 km at a R12 taxi fare), and a walkable 4 km from Roodepoort (10 minutes and R10 by taxi), Bram Fischerville is also well linked to Soweto's infrastructure and facilities as outlined in Section 4. In addition, many respondents spoke of the quick connection to the new Rea Vaya[7] routes, although most used the direct taxi and bus services to central locations in Johannesburg, Roodepoort and Soweto.

> *"The bus and the taxi are right here. I take ten steps and get on"* Walter

A fundamental design flaw in its make-up is that Bram Fischerville seems to be a pedestrian and public transport neighbourhood designed for cars. While private car ownership is increasing, the majority of residents walk or take public transport. Yet, even on the major routes, there is a total lack of any pedestrianisation or formal pedestrian footpaths, and no taxi facilities, implying a disorganised mix of transport modes unevenly sharing the existing transport routes. A further anomaly is the almost total absence of bicycles in a neighbourhood excellent for cycling accessibility on a manageable scale. In all the time spent in the settlement, the author did not see a single bicycle on the streets.

> *"How do we get to the shops? We walk. Dobsonville Mall is twenty minutes from here."* Sonti

A slowly evolving **continuity** is occurring through Bram Fischerville, but it is not yet legible from a design and vista perspective. A City Parks programme to plant 200 000 trees in the Soweto area has gone some way in creating continuity along major access ways, with areas being differentiated by different species of tree. However, the various elements fragmenting the urban area discussed elsewhere (Section 7.1) limit this continuity severely, and tend to cut Bram Fischerville off from the context of its surrounds. To the north and west, that is a good thing, as the surrounding land uses have poor environmental quality and pose an environmental and security threat including, amongst others, dust, pollution and crime. The compartmentalised areas also create dissonance in this continuity.

Nestedness

The elements of Nestedness discussed in this section are complexity, coherence, accessibility, proximity, convenience and interaction.

The good **accessibility** and **convenience** of Bram Fischerville internally and externally is discussed elsewhere (Section 4). Most respondents endorse the amenities in the area (or in close proximity) to it to secure access to basic requirements for life within the settlement.

> *"We can find all that we need to live right here. We don't need to travel anywhere. Mall, shops, school, spaza, tavern"* Sonti

Retail, commercial and key social services are all considered as available nearby or inside the area. Walkability to a neighbourhood mall, a ten-minute commute to a regional mall, and a walk to a local informal retail outlet were often mentioned. Key gaps in the availability of urban amenities include public health care facilities and a police station.

> *"I am ten minutes' walk from the mall, five minutes from a shop. I take a taxi and a bus and I am in Jo'burg in 20 minutes"* Dolly

> *"All is here. We are just short of a police station and a clinic"* George

While it is linked to major economic nodes and employment areas, there is very little local employment, a problem raised by many respondents.

While Bram Fischerville remains a relatively low income, subsidised housing area, it has grown a strong **coherence** as it has developed. Differentiation, changing intensity and complexity add to a much-improved sense of place and belonging among the resident respondents. The original residents generally have a strong sense of community, and still socialise together.

> *"I want to be here. It is a good community. I love this place"* Jabulisile

The community has a high level of **interactivity**, which is inevitable in a densifying area that relies on walking and public transportation. While the block committees seem to be going through a less effective period, generally the community works together to internally resolve issues and conflicts.

> *"We came from the same areas, three, four, five of us. I still live with those people. We were the first to make this community"* Sonti

The community has grown strong cultural and social networks too. Recently, football leagues commenced. Many entertainment venues are well frequented, and most respondents commented on a vibrant spiritual and social life, with the exception of the absence of a Catholic church.

Some respondents mentioned the presence of various social pathologies in Bram Fischerville. Crime is an ever-present problem, but is considered to be much better than it was in the suburb's early days. Drugs are perceived to cause the majority of criminal incidents and are a serious problem amongst the youth. Block committees and local residents' groups tackle these issues, both within the law and outside of it.

> *"When there is crime, we open our windows and blow our whistles. Then everyone comes…we catch the criminal, we beat them up, then we call the police"* Jabulisilie

Increasingly dense living conditions seem to have other impacts as well, for example, noise and petty conflicts between residents. Generally, however, these are seen as manageable, and a tolerable by-product of the increased resilience with which they are associated.

> *"We too are products of apartheid. We are used to living like this … noise and being close together. It is how we are, and what we enjoy"* Kgosimang

Ultimately, Bram Fischerville has a strong place in the minds and hearts of many of its residents. For many it is the place where they obtained their first house; it is now a neighbourhood in which they are bringing up their families; and for many it is seen as the only place they will ever live. Half in jest, one respondent said:

> *"…even when I die the graveyard is right next door, so I will even be here after death! I will never move from this place"* Kgosimang

Reserves

This section discusses the concepts of equity, adaptability and opportunity.

It is difficult to apply the concept of **equity** to Bram Fischerville, as at its core is the inherent 'lottery' aspect of being selected for a subsidised house. However, taking into account the criteria for subsidisation, the original occupants of Bram Fischerville were settled there because of their level of deprivation and homelessness.

> *"We were all poor, many unemployed when we came here. It was a deprived community. We were just thankful for the opportunity of our first house"* George

The new wave of densification has created a much greater level of equity, in respect of Bram Fischerville being a place that accommodates many different groupings. The urban base has created platforms for re-consolidation of households as it offers a first line of residential opportunity for rural-urban in-migrants and international immigrants. Respondents echoed the idea of more equal access to the city, as well as the ethic of assisting others in need.

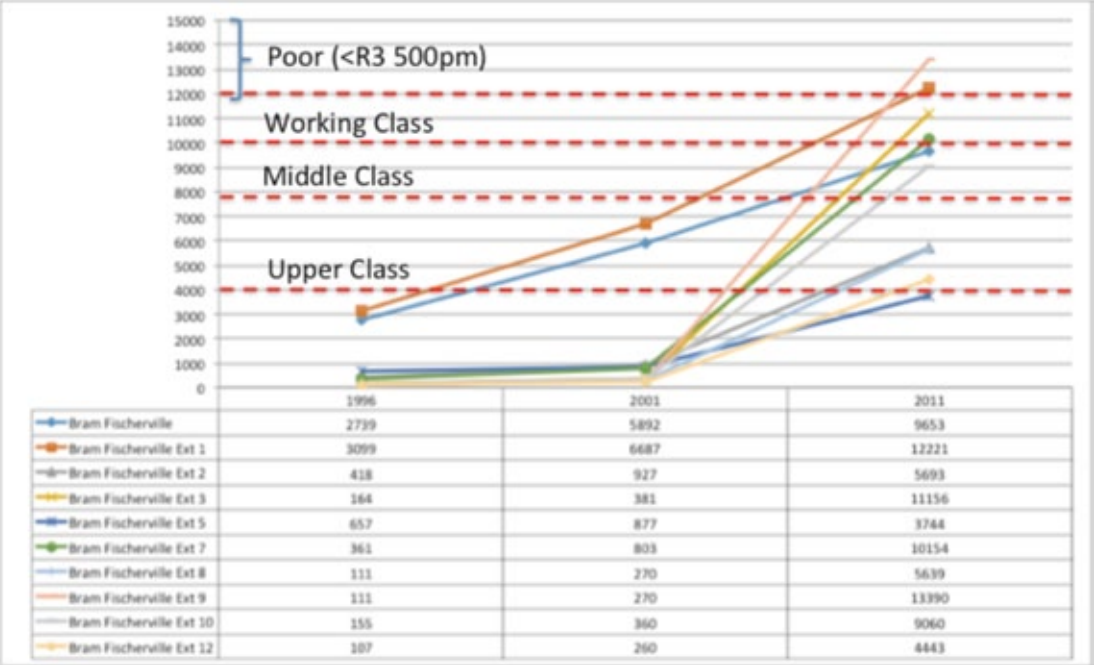
While Bram Fischerville has diverse accommodation sub-groupings, for the renter it is still a hard truth. While it is cheaper than many other accommodation options, and better than the alternative of living in an informal settlement, for a low-income earner it is still not cheap. Within the lower portion of the City of Johannesburg's housing ladder, Bram Fischerville's rung sits above many others of its residential areas.

The residential adaptability of urban residential spaces within Bram Fischerville to changing needs and pressures of the resident households is another critical feature of its resilient densification. Densification is by no means static. During the interviews, a variety of often rapidly changing circumstances were recalled that affected when and how households elected to use their housing assets. These were making place for rural to urban migrant family members; providing accommodation for family members to be closer to educational opportunities; responding to unemployment by obtaining rental income from backyard structures; accommodating growing families; re-consolidating extended families who were previously separated by a lack of housing opportunity; and developing small or survivalist businesses for income generation.

> *"We were not allowed to build Mekhukus before. But now there are many. Families get big, and the houses are small"* Frans

An underlying aspect is the design adaptability of the settlement itself. At first glance, Bram Fischerville has all the indications of the much-maligned post-apartheid subsidised urban settlement. It is fragmented, low density, sprawling, mono-functional and inherently inefficient as an urban space in its own right. At one household per stand, density is within the range of around the 4 000 to 6 000 people per square kilometre. Large properties and small houses, surrounded by over-designed public access ways and under-developed public spaces exacerbate this impression. However, a decade on, the very same inherent design inefficiencies have been spontaneously adapted to an entirely different urban and residential dynamic. A settlement of around 20 000 houses now accommodates over 29 000 households, and over 90 000 people.

FIGURE 18: Density of Bram Fischerville Extensions in people per km^2: 1996, 2001 and 2011



	1996	2001	2011
Bram Fischerville	2739	5892	9653
Bram Fischerville Ext 1	3099	6687	12221
Bram Fischerville Ext 2	418	927	5693
Bram Fischerville Ext 3	164	381	11156
Bram Fischerville Ext 5	657	877	3744
Bram Fischerville Ext 7	361	803	10154
Bram Fischerville Ext 8	111	270	5639
Bram Fischerville Ext 9	111	270	13390
Bram Fischerville Ext 10	155	360	9060
Bram Fischerville Ext 12	107	260	4443

As shown in Figure 18, densities have on average doubled to over 12 000 people per square km in some areas, with a common density range of between 8 000 and 12 000 people per square km, but with a high level of density variability. No longer a sprawling, low density township, Bram Fischerville should be correctly characterised, managed and developed as a medium-density residential area[8], especially given that the indications are that its densification is continuing apace.

> *"These RDPs give you space to put up other units."* Frans

Notwithstanding the design adaptability of Bram Fischerville's layout that accommodated spontaneous densification and household growth, it must be highlighted that this settlement, like most subsidised developments, was not designed with densification in mind. Therefore, this densification has taken place in spite of its design, rather than because of it. There are many design features that are sub-optimal in terms of future densification possibilities. Some examples include plot configuration; the central placement of the house on the stand; the lack of external access to services and ability to link new structures to infrastructure networks; the lack of consideration for primary development rights on the properties; and the lack of consideration or planning for vertical growth over time. This standard, low income, subsidised housing typology has undergone a radical transformation, with little to no influence from its planners, developers or urban managers.

> *"I am always called out to problems. Sewerage leaks, water pressure problems, electricity faults. Your car won't make it over lots of those dirt roads. We have flooding here. Not so much the water, but the sewerage can't cope."* Cllr George R

While there are indications that infrastructure networks are under strain in certain areas, it must also be noted that few of the area's 29 000 households do not have regular access to the basic urban necessities such as relatively secure tenure, private living space and the ability to access water, sanitation and energy supplies. In addition, as Bram Fischerville slowly evolves from township to suburb, all of its residents benefit from improvements in access to urban amenities including public transport, improved services and retail options and access to more public facilities for education, recreation and health care provision.

There is a constant tension between the built form and natural elements in Bram Fischerville. Floods and leaks, road wash-aways (especially on the aptly named Jukskei Road) and unkempt wetlands seem to be the sum total of the environment of the area. The city official interviewed mentioned the potential danger from acid mine drainage, however, its impact on this area was not clearly established.

Public parks in winter were barely hanging on to their greenery, and most open spaces were a rash of unkempt grass and weeds. Clearly, such a large urban area, much of it with a notable slope, with many unpaved roads and only storm water culverts, will continue to be prone to a fractious relationship with nature until the urban and the environmental aspects of the development are planned with better harmony and balance.

Bram Fischerville offers **accommodation opportunity** to new entrants to the area. Sharing, living for free, renting or even purchasing accommodation, are all options. This opportunity starts with the well-located and relatively well-serviced property assets bequeathed to its occupants through the subsidy housing programme. From here, opportunities exist for sharing with family members, renting space to erect a shack, or renting a room or garage. There are also full houses available for rental and a growing secondary property market.

> *"Density is not bad, because it gives people security"* Kgosimang

Without doubt, the overriding issue on every respondent's mind was access to **economic opportunity**. Bram Fischerville started as a poor community. By definition, housing beneficiaries were the unemployed or those with a household income below R3 500 per month. While there are strong indications that levels of deprivation and incomes are improving in many areas[9], low incomes and a high unemployment still define the settlement.

> *"Back there [Mozambique] they all tell you here you will have ten, fifteen cars a day [to repair]. But when you are here you find it is hard, and there are only a few…"* Sindiso

Every household interviewed indicated the critical role that employment and economic opportunity plays for them, their families and for the community in general. Many respondents were directly affected by unemployment. Five of the ten household heads were unemployed; many backyarders were battling to survive on a small informal employment income; and many family members had moved to Bram Fischerville due to economic difficulties at 'home' (meaning a rural area or another county).

Of the respondents in backyard shacks and rooms, many were work seekers and had been looking for a long time. One tenant in a house and one backyard tenant indicated that they were in the process of repatriating family members to their places of origin (Zimbabwe and Giyani respectively) due to the better support networks there.

> *"This month I am sending my children and wife back to Zimbabwe. I cannot have them here and hungry when I have no work. At least there [Bulawayo] they can find food from their family"* Lungisi

So pervasive is the impact of being unemployed, that one backyard resident who has been seeking work for three years, shapes her views of Bram Fischerville on this one point:

> *"There is nothing to like here. I just want a place I can hide my head."* Adele

Economic resilience is a common theme. Using the property asset provided by government as a base from which to earn a regular income is a critical survival tool. Either households allow family members to stay on their property for free or at a low rental, or households actively seek renters to live in backyard units, built formally or informally, by owners or renters.

> *"Other people with shacks in their yard, many are doing it not because they want to, but they are doing it to buy bread, to survive. Many are not working"* Jabulisile

Motivation for building or allowing the building of backyard accommodation for rental varies widely. This includes those seeking retirement certainty, to those needing a secondary income source, to those who see backyarding as a fully-fledged business opportunity.

> "*Many build rooms. It is a way of surviving with no work. We are 60 [years old]. Who will employ old men now? We have five years to pension, and that is not enough anyway. These two shacks give me some money to survive every month"* Walter

Rentals charged for backyard accommodation in Bram Fischerville are a strong indicator of its attractiveness as a place to stay. Rentals are higher than elsewhere in Soweto, and much higher than those asked in more distant areas such as Orange Farm. This demonstrates the additional resilience built into a well-located urban location: two formal rooms for rent constructed on a Bram Fischerville RDP settlement stand derive the equivalent of a state old age pension, in perpetuity, with inflation-linked increases.

> *"A shack costs R350, a room R800 to R1 000, a house to R1 500. This place is expensive. It is cheaper in Soweto but this place is better"* Sindiso

It is clear that rental income is a major source of revenue in Bram Fischerville, a critical aspect of the resilience of the area, and solely related to the opportunities created through densification. Much of this income is spent directly on services and goods within the boundaries of the settlement. In effect, this rental stream also represents a highly efficient transfer of capital from income earners (including 'illegal' foreigners) falling outside of the formal economy and taxation net in South Africa, directly to households who are often the most in need – the unemployed and those with low incomes.

So, while Bram Fischerville has offered owners and backyard sharers and renters opportunities for economic resilience through living for free or for very little, and through earning a secure rental income stream, economic conditions are seen to define the growth of the settlement. Thus, the future development of the area will most likely be closely related to the growth – or lack of growth – of its economic prospects.

Concluding Comments

In this concluding section, key issues from this case study are extracted as conversation points. Many of these will require further corroboration and quantitative assessment, but the intent is to provide a platform for a better understanding of the resilience created from the densification of Bram Fischerville over the past decade and a half.

It is important to commence with the potential pitfalls of qualitative assessments. The relatively small number of respondents can lead to a statistically inaccurate view of complex urban issues and their social consequences. It is therefore recommended that further and more rigorous quantitative research be done concerning the resilience outcomes of Bram Fischerville's densification.

Qualitative research portrays the views of residents within a specific situation, and not in relation to a wider universe of thought. It is possible that the respondents in this case study of Bram Fischerville offer a perspective of already lowered expectations given their relative privilege versus that of those from other more deprived areas, and given their past, more deprived histories. The views included here must therefore be tested against normative frameworks of good planning, urbanism, resilience and densification, rather than being taken solely at face value.

The research in Bram Fischerville raises the question of whether the densification of the area could be considered as 'strategic densification' from the City of Johannesburg's perspective, in the same way that the Corridors of Freedom are seen as strategic densification. If this is the case, then the question that arises is how the City's on-going investment patterns will actively facilitate and support the process, as seen in the Corridors of Freedom investment programme. Bram Fischerville's current adapted densities are around double the new RDP densities and rival medium-density settlement layouts, and this is without pre-planning or guidance.

Bram Fischerville also raises some counter-intuitive questions. Most importantly, in an area such as this, which is generally considered in planning and policy frameworks as a low density, poorly located subsidy settlement associated with the apartheid-type settlement of Soweto, the question that arises is actually whether it is, in fact, an important platform for relatively well-located, higher density urbanism within the City of Johannesburg. What may have been a poor location within the framework of a two-million person metropolitan area is now potentially a highly strategic and good location within a ten-million person metropolitan framework.

Viewing Bram Fischerville from a resilient density perspective highlights the need to question conventional human settlement logic, as well as emerging paradigms. Specifically, does this settlement represent a true form of 'inclusionary housing' at the bottom of the housing pyramid? Can the absorptive capacity of such a subsidised area change authorities' viewpoint on large property sizes and low density settlements as platforms

for a multi-decade long process of densification and urban opportunity? And if so, how does this viewpoint change the way that such future settlements are located, designed and constructed, with full knowledge of their ability to densify and create increased levels of urban resilience?

Observing the personal stories of how the framework of Bram Fischerville (its location, built form and the process of densification) has created opportunities for personal, household and settlement resilience, should this be tested against the prevailing medium-density human settlement paradigms, such as social housing and walk-up apartment buildings? While these typologies start with higher density, do they in fact result in similar densities to those achievable through multi-generational densification in a place like Bram Fischerville, and do they offer the same level of resilient densification that provides such wide opportunity for population diversity, incomes and affordability, with such high levels of private investment following public investment. In short, densification for resilience requires space for growth and adaptation, and this is far less possible within the constraints of medium-density, highly controlled developments.

The Bram Fischer case study also illustrates the lack of consideration that is currently being given to the potential for densification and resilience within our prevailing subsidised housing models. Derided as inherently inefficient, this case study highlights that, if designed properly, lower density 'townships' could create a solid framework for future medium-density areas. This case study raises the need to interrogate the location of subsidised housing, township layouts and housing typologies, as well as urban control and management practices of these areas, once occupied. Importantly, this must be considered with a longer-term view that would be able to accommodate adaptations, densification, and survivalist practices. Good layout, urban design and architecture can facilitate and support more effective and resilient densification. Sustainable, resilient densification requires initial investment in robust infrastructure frameworks (redundancy for robustness), sufficient and quality urban facilities with on-going maintenance and upgrading. Public investment is critical for resilient, thriving and tolerable densification.

The case study also identifies the need to distinguish between thriving, resilient, tolerated and intolerable densities. Undesirable consequences of densification may offset resilience gains at 'a tipping point' if not planned for including crime, drugs, social disorder and environmental degradation. Individual areas must find their own tolerance levels at which the benefits of densification and the resilience of an area aren't negated by less desirable effects of high density living in areas not appropriately designed to accommodate this. Moreover, appropriate densification for each area can be influenced by appropriate public investment and control.

Resilience built on densification is potentially proportional to location. The costs and benefits of good location are quickly realised in local economies (through demand and supply trade-offs), but are not yet adequately included in formal settlement location and subsidy criteria. This proportionate relationship indicates the need to consider the benefits of using better-located land for such settlements, given the benefits that may accrue to many households over time as densification increases.

Considering the impacts of densification in Bram Fischerville calls into question the current spatial standards applied in this and similar areas. Property sizes may not be the problem, but emphasis should rather fall on public space and transport availability and access hierarchies. How can these be redesigned to foster better use of space to foster resilience?

This case study shows that density, and even densification typologies (backyard shacks or rooms) in areas like Bram Fischerville can be influenced - and even controlled. However, too much control can stifle the 'resilience quotient' of an area, and its ability to spontaneously densify over time. A balance must be struck between control and adaption, in a way that a desirable outcome is reached. Considering the difference between the relatively controlled densification in Bram Fischerville, and the uncontrolled densification in an area like Diepsloot, the need to maintain a level of control is clear.

Densification of an existing area like Bram Fischerville has social (re-forming families), survivalist (rental income) and economic (demand for goods and services) outcomes within the settlement. There must be a re-assessment of the needs for services and facilities, along with increasing populations with changing demographic dynamics, and these needs should be met if orderly, useful and resilient densification is to result. Resilient density implies inherent adaptability and change. Dynamism and adaptation creates this resilience, through the constant social, economic and spatial re-formation of the neighbourhood.

The critical role that accommodation sharing and rental plays in the resilience of low-income areas must be recognised and planned for. It is probable that such secondary accommodation markets are at least as valuable as social transfers into such areas. More importantly, this market is created through private investment, and directly meets local supply and demand patterns in an area, creates economic safety nets and stimulates local economies within and outside of the residential sector through increased local demand for goods and services.

The Bram Fischerville case study also highlights the need for a finer-grained understanding of densification. The significant, as yet poorly understood, differences in patterns and types of densification across Bram Fischerville's extensions raises a caution. Heavy-handed or uniform approaches to influencing these micro-markets may have as yet unknown consequences.

Finally, the journey from 'township' to 'neighbourhood' and, from being a low density area to a resilient, higher density area requires a long-term view. Resilient components are not always pretty, and imply a level of informality and entropy. But, in the context of a hundred-year view of city growth, the first sixteen years of Bram Fischerville's metamorphosis, especially without positive reinforcement, must be considered as just the start of its journey to efficient urbanism.

The Future

Bram Fischerville has key characteristics of a human settlement moving towards greater resilience and sustainability. However, the City of Johannesburg should consider a number of key areas for future intervention (Table 2) if these nascent characteristics are to be facilitated to shape the settlement's future.

TABLE 2: Strategic Intervention Areas for Bram Fischerville's Future Resilient Densification

Urban Structure	Re-plan and develop core areas and transport routes to meet needs of a 90 000 person settlement; widen single lane trunk routes, introduce taxi ranks and lay-bys, identify and encourage community centres of higher intensity, mixed uses.
Prepare for Corridor of Freedom	Should the Soweto Corridor of Freedom terminate at Bram Fischerville, this termination point should be planned into the corridor, not as the end point; greater intensity investment, higher density residential development.
Transport Infrastructure Access	Open up Bram Fischerville through strategic development of transport routes to the north, west and south to better integrate the settlement with Soweto and Roodepoort; prepare for the arrival of Rea Vaya to Bram Fischerville and Gautrain.
Infill Residential Development	Identify surrounding vacant land parcels for future higher density infill development, (both subsidised and unsubsidised in nature) specifically along major roads; re-route or bury power lines to limit fragmentation by servitudes cutting through the area.
Urban / Nature Balance	Continue the process of investing in public spaces and tree planting, as well as strategically intervening in existing wetland areas to create rainfall buffers and green space.
Internal Road Network	Bram Fischerville is a medium-density settlement that requires paved road infrastructure to better suit its population densities and soil conditions; a programme to upgrade dirt roads is critical.
Urban Centre Intensification	Invest in the reconfiguration of Bram Fischerville's urban centre and radiating routes through transport-orientated development investments

	and higher density infill; plan and encourage existing greater intensity activities.
Intensification of Existing Residential Development	Programmes to provide primary rights to, and facilitate proper development of houses and secondary residential structures are required; this can lead to a framework for Bram Fischerville's future growth and resilient densification.
Core Public Investments	Bram Fischerville requires investments in permanent school facilities, a local police station and public healthcare facilities; these investments will further the opportunity offered by the settlement.
Urban Infrastructure Management	Regular, quality delivery of urban services and infrastructure maintenance will limit the negative consequences of higher population densities; refuse removal and public space cleanliness are key focus areas, along with sewer infrastructure maintenance.

It is fitting to end with a quote below, which summarises the sentiment of many of the respondents in relation to Bram Fischerville:

> *"This place will be a home for me, for my kids, and then for my grandchildren. Our family has a place now."* Kgosimang

Notes

1 Reconstruction and Development Programme
2 Alexandra township to the north-east of Johannesburg.
3 Diepkloof is a township on the eastern side of Soweto.
4 Note: This map was drafted from anecdotal interview evidence. It does not purport to be a fully accurate picture of the four phases of development.
5 A colloquialism for 'shacks'
6 The constraints of this study implied it was not possible to analyse the household characteristics in detail. However, the smaller household sizes of backyard residents is well documented. As a 'rule of thumb', Gardner (2012) suggests that, on average, one third of backyard households comprise single member households, one third comprise two member households and the remaining third comprise households with three or more members. Considering the average household size across Bram Fischerville of just over 3 people in 2001 and 2011, and the known average household size in the newly-settled Bram Fischerville Proper and Ext 1 in 2001 of 4,2 households, it can be inferred that the average size of additional households moving into the area were fewer than three members per household.
7 Rea Vaya is Johannesburg's developing Bus Rapid Transit System (BRT)
8 In comparison, the City of Johannesburg has a target 'medium density' range for the Louis Botha Corridor of Freedom of around 9 000 people per square kilometre, a benchmark that Bram Fischerville exceeded some time ago.
9 An analysis of the City of Johannesburg's Deprivation Index for the sub-areas in Bram Fischerville indicate changes to overall levels of vulnerability and deprivation, with some areas showing upward mobility towards middle income status. However, more study of income and employment data would be required to make definitive comments.

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4 Hillbrow

Hayley Gewer and Margot Rubin

Introduction

Hillbrow is a research site that typifies much of the urban change and transformation characteristic of Johannesburg's inner city and its surrounding suburbs in recent decades. Given that this piece forms part of a larger project, which has engaged with both the questions of resilience and density, these debates will not be repeated here. Rather, the report will focus on findings from qualitative interviews conducted and secondary sources to provide a narrative of change. This report offers an account and analysis of the nature of densification that has taken place in the suburb relating this change to ideas of urban resilience. However, it is important to note that the resilience of Hillbrow and its community should be understood to be less about their ability "to adapt or transform in response to unfamiliar or unknown shocks" (Carpenter, et al., 2012, p. 3251) and more about the ability to continually adapt to improve living conditions and mitigate adversity. Many of the issues that face poorer people in transitional and precarious situations are neither cataclysmic (e.g. earthquakes or natural disasters) nor necessarily unexpected; rather they are the continual challenges of the everyday such as illness, unemployment, institutional violence and xenophobia.

Hillbrow was chosen for this report as a typology of densification that resulted from increased occupation without a significant change in built form, with very few new buildings or structures within the suburb. Census statistics show a steady rise in population in Hillbrow over time and residents comment on being aware that more and more people are moving into the area. While there are reports that Hillbrow's population peaked in the mid-2000s (CoJ, 2006a:5) and then declined, the overall trajectory since the mid-1970s has been one of densification (Morris, 1999; StatsSA, 2011). This issue is discussed in more detail later on.

When reflecting on the information gathered during the interviews, densification in Hillbrow seems to have contributed to the resilience of this community, constructing a situation that allows poorer people to survive and in some cases to thrive. Densification has its own kind of momentum and logic in Hillbrow, whereby more people have resulted in more income-generating opportunities and more intense land use. Similarly, the increased density has meant that there is significant choice around housing and accommodation options, ranging from staying free of charge right up to relatively expensive, but generally shared, accommodation. The density also fosters the emergence of myriad organisations, formal and informal networks and opens up the possibility for the majority of people to find some kind of economic niche. The diversity and density in the area is also accommodated by support networks, such as family, friends, kin networks, faith-based organisations and even communal security organisations like community policing forums.

While Hillbrow in many ways continues to be a transitional area or 'arrival city' for a number of South African and cross-border migrants (Winkler, 2006) there are indications that it is transforming into more of a permanent community. The crime rate in the suburb is declining; the prevalence of single person households is evolving into the prevalence of family units; and land use has changed from the dominant presence of nightclubs and

bars to smaller service-related and retail intensive establishments. The intensity of land use has meant that there is a strong clustering of activities, increased vibrancy and a large range of goods and services within a relatively small area, meaning that that almost everything residents need on a daily basis is available within walking distance. Most respondents report that they walk to church, their children walk to school, they walk to shops and only need public transport, which was easy to get to, for work and for accessing the large suburban shopping malls. This walkability cuts down on household transport costs and has a recursive effect in the sense that it attracts more people to the area, contributing to the on-going intensification.

The relationship between density and resilience is, to a large extent, made possible by the flexibility of land use and the evident limited implementation of official land use controls. This means that households and business can circumvent official regulations fairly easily, sub-divide and share spaces more freely, thereby adding a significant degree of spontaneity and proactivity. Thus households and businesses can, and do, use spaces in unplanned and unexpected ways. Flats may become coffee shops, salons, schools and crèches; garages may be used as shebeens; and parks become sites for business meetings (both legitimate and extra-legal).

However, while densification results in many positive changes, there are accompanying negative implications. The first is a concern around competition and exploitation. The high demand for accommodation and jobs has in some cases, created intense competition, pushing up prices and forcing some residents to leave, whilst pushing down quality of the services and items provided. Infrastructure and the urban environment have also faced degradation over the years due to poor urban management and an influx rate that the municipal authorities and formal private sector have been hard-pressed to adequately cater for.

Following this brief summation of the key findings, more depth and evidence of the research conducted is discussed below and offers a complex, although not exhaustive, view of Hillbrow and the relationship that exists between densification and resilience, the key theme of this report. This chapter is divided into six sections. The first is a brief account of the method used and the challenges that the researchers experienced as well as the limitations of this work. The second section focuses on the background and context of the suburb, offering a summary of its colourful history, the nature of change over time and recent local government interventions. Next the report looks at key thematic areas, namely, land use; services and infrastructure; identity and transport; and accessibility. Each thematic area is discussed and analysed through the lenses of the resilience enablers, as outlined in the terms of reference for this work, being: nestedness, modularity, diversity, openness and reserves. Last, we specify our conclusions and offer some thoughts as to what surfaces from the case study.

A brief word on the method applied

As this case study is one in a series around the question of density and resilience, a study method that can be duplicated in other contexts was needed. As such, a straightforward set of qualitative interviews using a standardised discussion guideline (Annexure 1) was used in conjunction with the collection and use of secondary sources and an analysis of policy and programmatic documents from the City of Johannesburg. The discussion guideline links directly to the key themes suggested in the terms of reference for the work. The questionnaire was tested with researchers working on other case studies for this project and in the field after which minor changes were made before going into the field in earnest.

Respondents were identified in two ways. Both authors accessed potential respondents by calling on their network of contacts, developed through their own research (e.g. Gewer, 2013) and through engaging with student contacts who worked and lived in Hillbrow. Once an appropriate respondent base had been established, the snowballing method was used. In the end, twelve people were interviewed (Table 1) seven women and five men, with the majority (6) coming from Zimbabwe, three from South Africa and one each from Kenya, Uganda and Zambia. No special emphasis was put on identifying respondents from particular countries, however a mix of nationalities was sought. It must also be noted that the respondent group is not necessarily representative of the demographics of Hillbrow, as no specific emphasis was placed on this.

Table 1: List of respondents

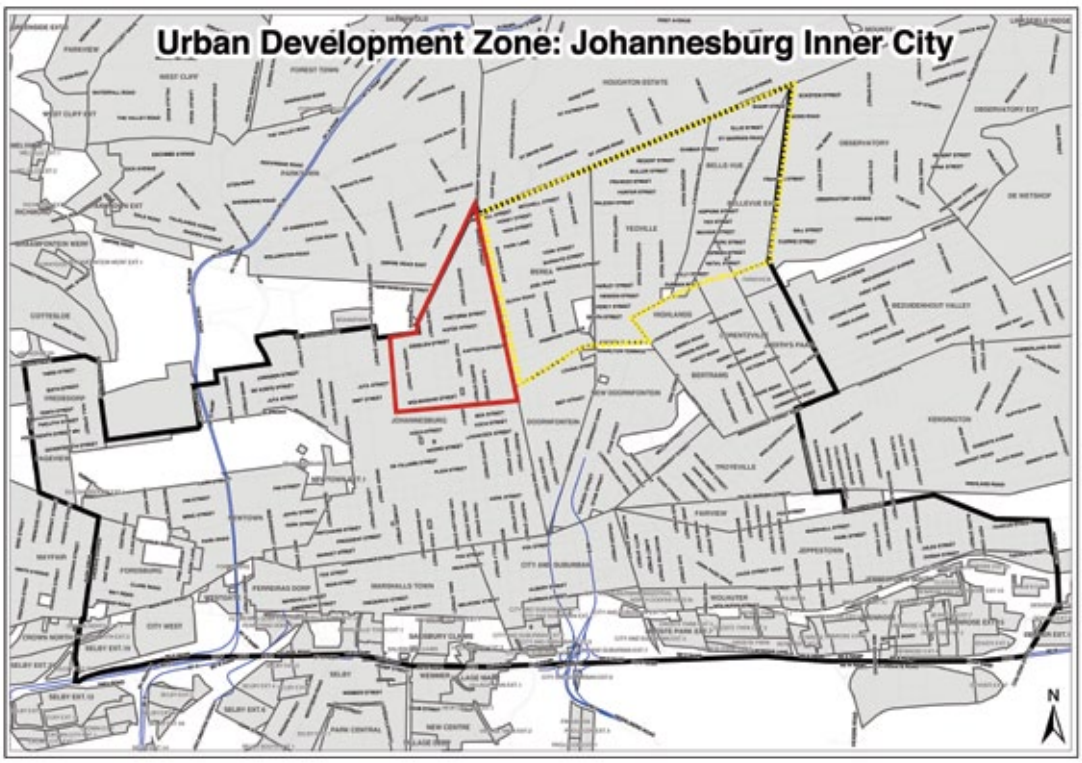
Name	Year arrived in Hillbrow	Gender	Employment	Nationality
Pam	Circa 1984	Female	Retiree	South African
MacClean	1990	Male	Street trader/security guard/photographer	South African
Danny	1994	Male	Theatre facilitator	South African
Edith	1994	Female	Entrepreneur	Zimbabwean
David	1994	Male	Cleaner	Zimbabwean
Bongani	1995	Male	Entrepreneur/cultural activist	Zimbabwean
Rachel	1996	Female	Domestic worker (employed part-time)	Zimbabwean
Stella	2004	Female	Child-minder	Kenyan
Thandi	2008	Female	Domestic worker	Zimbabwean
Sihle	2009	Female	Domestic worker	Zimbabwean
Mama Arafat	2010	Female	Unemployed	Ugandan
Jimmy	2011	Male	Student	Zambian

Interviews took place in people's homes, coffee shops and restaurants, wherever people were comfortable. Each respondent was remunerated for their time. An attempt was made to get an equal temporal spread of when people first arrived in Hillbrow: from the early 1990s to the time of the research. However it was difficult to find people who had arrived in the early 2000s. The interviews were brief and offer a snapshot of people's thoughts and perceptions, rather than providing any kind of sustained engagement. As authors we had originally intended to ask people to demonstrate changes they had experienced on a set of maps that we had compiled but encountered resistance during the first set of interviews and so abandoned the idea. The final choice of method only indicates individual perceptions of trends and is not large enough to be generalisable.

The context: history, change and status quo

Emerging from the slopes of ridge-land adjacent to the northern edge of the Johannesburg Central Business District (CBD), the inner city neighbourhood of Hillbrow bears a formidable reputation. Since its conception, the neighbourhood, both physically and socially, has been in constant transformation and concurrent mythologisation (Winkler, 2006; Gewer, 2013). The suburb is within the Johannesburg CBD Urban Development Zone and is bounded by a number of strategic roads that facilitate movement in and out of the City. To the north lies Louis Botha Avenue, to the east is Joe Slovo Drive, to the south is Smit and Saratoga Avenue and to the west is a combination of Rissik, Joubert and Clarendon Place (CoJ, 2010; see Figure 1).

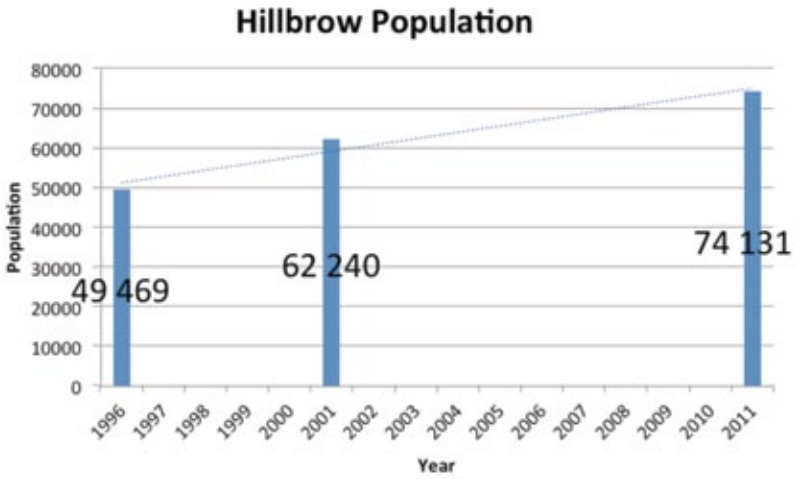
FIGURE 1: Location and boundaries of Hillbrow



Hillbrow (red solid outline) and neighbouring Berea and Yeoville (yellow dotted line) in the Johannesburg context and within the delineated Urban Development Zone as set up in the 2006 Growth and Development Strategy. (Source: http://www.joburg.org.za/udz/map.pdf)

The history of the neighbourhood has been well documented and has long been associated with the absorption of new entrants into the city (Morris, 1999; Beavon, 2004; Murray, 2011). This is evident from its first proclamation in 1895 to its heyday as 'the Manhattan of Africa' (Murray, 2011) when European migrants settled in the high-rise apartments in the 1950s and 1960s, making up a concentrated mix of cosmopolitan and fashionable newcomers with aspirations of modernist urbanity (Beavon, 2004). One of the longest standing residents interviewed remembers, how *"It [Hillbrow] used to be a mixture, all types. We used to have Germans, Hollanders, Italians, French, Portuguese … and even up to the [19]90s"* (Pam). The rapid 'greying' of Hillbrow in defiance of the Group Areas Act in the late 1970s/early 1980s (Morris, 1999) was quickly followed by the physical decline of the neighbourhood — the result of a neglectful local authority; greedy, unscrupulous, and often racist landlords; and the redlining of the neighbourhood by financial institutions. The physical decline was accompanied by over-crowding, poor maintenance, stress on the built environment and providing an opening for criminal activities and social pathologies.

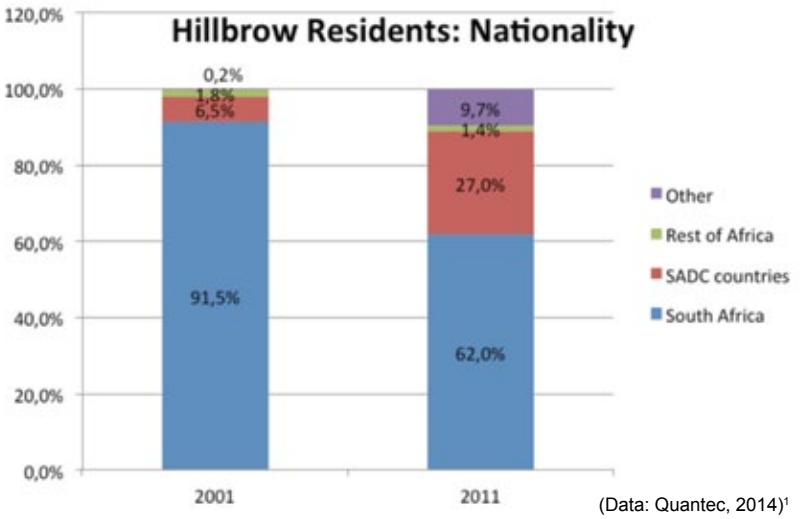
FIGURE 2: Population Change in Hillbrow: 1996 to 2011



(Source: Quantec, 2014)

The demographic change in the area was swift. In 1985, only 10% of Hillbrow/Berea's residents were black Africans. Within ten years, black Africans constituted over 80% of the residents of the area (City of Johannesburg, 2006a). From the late 1990s, domestic migration was met with the migration of people from wider Africa (predominantly from Nigeria and the Democratic Republic of the Congo) in search of work and business opportunities (Kihato 2010; Landau, 2010). More recently Hillbrow has become strongly associated with the Zimbabwean diaspora, and there is a perception that fewer South Africans are moving to Hillbrow than before, and that some are moving out due to rising living costs. MacClean, for example, notes: "*… And people who come from rural areas of South Africa are few here. Most of the South Africans from rural areas go to the townships"*. Census data confirms this. The proportion of Hillbrow's residents originating from the rest of Africa has increased from 8.3% in 2001, to 28.4% in 2011; an increase in real terms by some 15 000 people (Quantec, 2014). While South African's still make up 62% of Hillbrow's population, the number of South Africans living in Hillbrow declined from 56 947 in 2001, to 44 754 in 2011 (Quantec, 2014).

FIGURE 3: Percentage distribution of Nationality in Hillbrow[1]

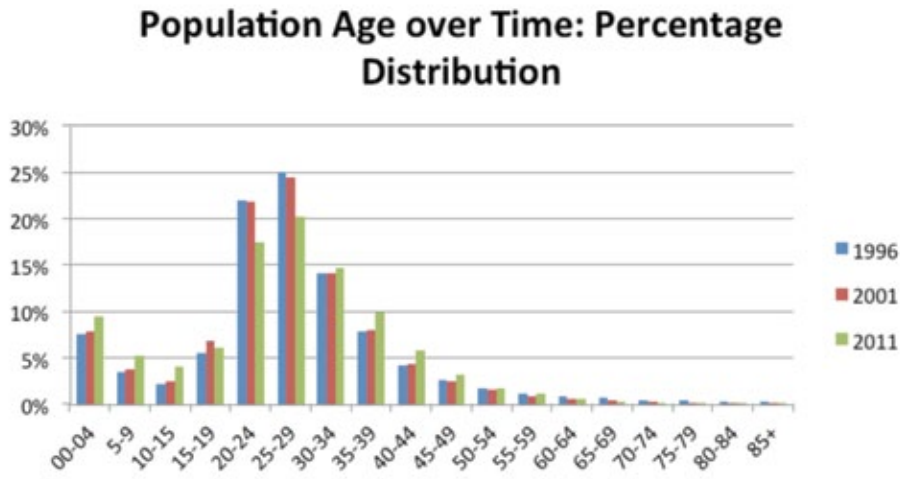


(Data: Quantec, 2014)[1]

> *Ya, its Zim [Zimbabwe], Mozambique. But majority are from Zim. I think it's more to do with the political situation down there in Zim… Then we have Mozambicans, although of course Hillbrow specifically is for the Zimbabweans… Nigerians of course… South Africans ya, but a few of them [despite census data suggesting otherwise]. Ya, in comparison to the Zimbabweans… Hillbrow is foreign land because of its… its exorbitant you know… charges in everything like accommodation and so on and so forth… South Africans… Can't afford that…They don't want to pay through their nose. They would rather be emikhukhwini [shacks]… Stay free there, townships and so forth…* (Bongani).

Longer-term respondents have noted that there has also been a change in household composition, shifting from single person households, to family units. Thandi describes this trend in saying *"[B]efore there used to be a lot of single people that maybe were couples. But it's not like that anymore. There are a lot of people bringing their children with them when they move here whereas before they would leave them at home with their extended families"*. Census figures show increases in the percentage of children (aged 0-15) living in Hillbrow, and an older adult population, with percentage decreases in the age groups 15-29, and percentage increases in age groups 30-54 (Figure 4). The ratio of men to women has also been moving towards parity. While in 1996, the population was 55% male and 45% female (with very similar numbers in 2001), 2011 was almost equal, at 51% and 49% respectively (Quantec, 2014).

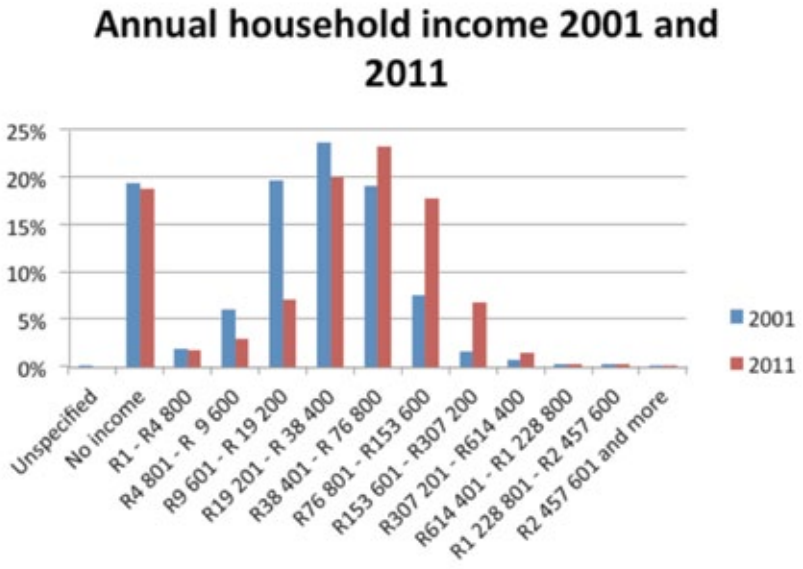
FIGURE 4: Changes in age cohorts, 1996, 2001 and 2011



(Source: Quantec, 2014)[1]

While household incomes in Hillbrow have increased slightly since 2001, it still remains a low income neighbourhood. In 2001, the most common (mode), income bracket was R19 201-R38 400 per annum at 24% of households, while in 2011 this shifted one bracket up, to R38 401-R76 800, at 23.22% of households. This is marginally higher than the mode income bracket of the City of Johannesburg, of R19 201-R38 400 per annum (17%). Significantly, there has been very little change in the percentage of households who report that they are not earning any income. In 2001, 19.4% of households reported not having any income, while in 2011 18.8% did. This is marginally higher than the city-wide percentage of 16.6%. (Quantec, 2014).

FIGURE 5: Annual household income in Hillbrow for 2001 and 2011, percentage distribution



(Source: Quantec, 2014)[1]

The historical evolution of Hillbrow has created a very specific built form that has remained relatively unchanged since the 1970s (Silverman and Zack, 2008). The area is overwhelmingly used for residential purposes and most respondents cited that they moved to the area because of residential opportunities. High and medium rise buildings connect through a rigid and uniform grid structure, covering an area size of only 1.08 km^2 (Figure 1). High population density has always been a defining characteristic of the area (see Table 2). A 1992 Human Sciences Research Council (HSRC)[2] study put the figure at 2.3 people per residential unit while the current figure (from the census, 2011) seems to be closer to 6.3 people per unit (Stats SA, 2011). The total population stands (as per the 2011 census) at around 74 131 people making the population density 68 639km^2 or 686 people per hectare, which is a figure that seems to have come down since the mid-2000s (Table 2). Formally the number of units per building has also not changed but informally reconstituted spaces allow for more and different uses. Interviewees reported that sub-letting is high so a single room can be divided into spaces that can accommodate up to 4-6 people. There is also no lack of choice around accommodation and the area provides for everything from living on the streets, to sharing a bed, a room or a flat, to renting entire flats.

TABLE 2: Changing densities over time (Source, CoJ, 2006 and Census, 2011)

	1983	2001	2006	2011
Net Residential Density (PPH)[3]	319.5	459.26	828.7	686.3
Floor space rate (m²/person)[4]	56.7	36.9	21.9	?
Building density, Floor Area Ratio (FAR)	4	4	4	4[5]
Total population	34 500	49 600	89 500[6]	74 131[7]

Hillbrow remains primarily a residential neighbourhood with a concentration of business and commerce along the two east-west running high streets that bisect the neighbourhood. However, commercial activities are growing and becoming more prominent in the area. Governance takes place through a "complex lattice of relationships" (Silverman and Zack 2007: 9) between a range of urban actors — the City of Johannesburg being only one actor within the complex inner city urban space. Because of the City's perceived and real inefficiencies, private property owners have to some extent taken on the role of local government and are currently effectively managing the area. An absence of coherent land management and governance structures and processes, means that spaces and opportunities are created for informal and sometimes illegal urban practices. Residents, traders, property owners, slumlords, drug-dealers, shoppers, tenants and sub-tenants also engage in the process of urban management, in both the public and private realms and in the blurred and overlapping spaces between these realms (ibid.).

Policies and plans: Inner City Regeneration and Hillbrow

Hillbrow has been a site of the changing fashions of policy development and approaches in the City of Johannesburg (Figure 6). In the late 1990s and early 2000s much energy was given to participatory approaches and partnerships between the local community, the City, civic organisations and NGOs (Winkler, 2006). In the pre-2000 period, this approach identified a range of key issues (2000/2001 Participatory Planning Process report quoted in CoJ, 2006a: 5), many of which are still prevalent, such as:

- High levels of unemployment and poverty, evidenced by homelessness, street children and prostitution
- High incidence of HIV/Aids
- An urban environment characterised by litter, pollution and lack of maintenance of public facilities such as street lights and toilets
- Many neglected buildings, high rentals, disputes between landlords/tenants and overcrowding
- High crime rates that include police corruption, drug trading, violence and a general lack of safety
- High levels of child abuse and neglect.

However, the participatory regeneration approach was later abandoned in favour of two new policy and programme interventions in the area. The first was the inclusion (up until the mid-2000s) of Hillbrow in more general inner city regeneration schemes, where it was noted that, despite Hillbrow and Berea's important spatial, as well as economic position within the inner city of Johannesburg, "Hillbrow/Berea is not included in any of the current Local and Provincial Government regeneration plans…" (CoJ, 2006: 7). Winkler (2006: 230) notes that the priority issue in this regeneration process was unfortunately "economically driven and building oriented". The City's focus on investor-led regeneration and a zero-tolerance approach to by-laws was in keeping with their articulated, and heavily critiqued, notion of Johannesburg becoming a 'world class African city'. This project has has been in place since the early 2000s and the Jo'burg 2030 Strategy had largely replaced earlier projects and phases. This included the Hillbrow/Berea Regeneration Initiative and the 2000/2001 participatory process, which had community consultation and engagement as their focus (Winkler, 2006; CoJ, 2006). The investor-led regeneration focus continued in the 2003 Inner City Regeneration Strategy, which was intended "to raise and sustain private investment in the inner city, leading to a rise in property values" (Winkler, 2006: 136) through improved urban management and infrastructure, strict enforcement of by-laws, management and discouraging "economic 'sinkholes'" (ibid.). The thinking underpinning this approach was that abandoned, overcrowded or poorly maintained properties should be dealt with as they affected the value of entire city blocks negatively which, in turn, discouraged investment (CoJ, n.d.). Hillbrow was clearly seen as a 'sinkhole' in the Inner City Regeneration Strategy and in need of intervention within this model, indicated by the fact that many of the buildings in the Bad Buildings Programme (CoJ, 2009a) were located in the suburb.

However, simultaneously to the general plans that were being developed there was also a set of ad hoc interventions such as the Hillbrow Health Precinct Development in 2004 that was devised in response to the perceptions of high rates of HIV infections in the area but it also had wider goals. The project's 2006 brief stated that "the precinct was conceptualized as an innovative HIV-themed urban regeneration project, the main focus of which was to strengthen existing primary care services for all aspects of HIV, including the establishment of new and novel HIV prevention and treatment services" (RHRU, 2006 cited in Sachs, 2010: 20).

It was only in 2006/7 that the area received specific policy and planning attention, through the Hillbrow/Berea Intervention Framework, which was closely aligned to the Inner City Regeneration Initiative. It describes the area as comprising "high density, mixed-use residential neighbourhoods, which provides access to urban opportunities for residents, workers and visitors, absorbs new entrants to the city and supports marginalized citizens" (CoJ, 2006: vii). A number of intervention programmes were identified, including: ensuring adequate, well-functioning infrastructure and mixed use high density residential neighbourhoods as well as enhancing social absorption capacity. The plan was to initiate the intervention framework through short-term catalytic projects and put the foundations in place over a ten-month period with R7 980 million budgeted, most of which was set aside for professional fees and technical assistance. Although difficult to confirm, it would seem that Hillbrow/Berea Intervention Framework did not complete many of its intended interventions.

FIGURE 6: Policies, programmes and interventions in CoJ, Inner City and Hillbrow (Black: City-wide programmes/policies; red: inner city programmes or interventions; blue: Hillbrow specific interventions)

The next phase of programmes in Hillbrow came off the back of the Inner City Regeneration Charter (CoJ, 2007), which then spawned Johannesburg Development Agency's Public Environment Upgrade in Hillbrow (JDA, 2008) that focused on parks, pavements, lighting, public art, street furniture and restoring Governor's House and the Hillbrow Recreation Centre. The CoJ had set aside R171 million for these upgrades for Hillbrow, Berea and Yeoville and work was supposed to have commenced in January 2008. By 2011 the public art had been completed and the rest of the projects are on-going within Hillbrow and Berea.

The latest plan on record comes from the CoJ's Spatial Development Framework (SDF) (CoJ, 2008) and the Regional SDF for Hillbrow and Berea (CoJ, 2010), which echoes many of the concerns expressed in the participatory plan of over a decade ago. It notes that:

"This area compromises an agglomeration of institutional land uses predominantly health services/facilities and associated laboratories to the west of the area. Commercial activity (legal and illegal) and high density residential land uses characterise a major part of this area. These neighbourhoods are experiencing change

and serious degradation due to a transition in occupants to those with low or no income, absentee landlords, illegal sub-letting and overcrowding. This trend is accompanied by social, safety and security problems" (CoJ, 2010: 98).

The Regional Spatial Development Framework (ibid.) names four objectives for the area, including Objective 2, which is the same as the 2006 vision articulated in the Hillbrow/Berea Regeneration Initiatives, along with enhancing the Hillbrow Health Precinct and regeneration of the built environment. Many of the intended interventions in the area refer to improving accommodation, increasing the number of residential options for very low-income earners, as well as formalising street trading and by-law enforcement.

The following sections (5-8) present findings in four thematic areas. These thematic areas include: land use and land use management; services; connectivity and accessibility and identity. Where possible and appropriate, analysis is presented through the lens of density and the resilience enablers outlined in the terms of reference for this work, namely nestedness, modularity, diversity, openness and reserves.

FIGURE 7: Public art murals as part of lane sanitation programme (Trinity Session, 2011)

Land uses and land use management: unexpected but not unregulated

From the interviews it is clear that the many and varied activities taking place in Hillbrow mean there is certainly no lack of choice and that land use is intense and diverse. One of the respondents, Thandi, mentions that "… in Hillbrow everything is available it's like a small town" and Edith notes the availability of "facilities that you need as a human being… for day-to-day life". Although the formal zoning scheme is still officially in place, it has little to no bearing on current land use and land management within its boundaries. Informal trading takes place on the narrow pavements in front of the blocks of flats, on corners and at the entrance to the service lanes between buildings. Efforts made to organise street traders to operate in a central market in the 1990s were unsuccessful (Silverman and Zack 2007). While street trading is officially regulated by Informal Trading By-laws (CoJ, 2009b), in practice it is the property owner's attitude that determines whether trading takes place or not (Silverman and Zack 2007). The practice divides property owners because some argue that trading congests pedestrian routes, traders compete with formal retail operators and the amount of street litter that needs collecting is increased, and traders pay neither rent nor rates and taxes. However, others argue that the street traders do provide affordable goods and services to local residents, and income to those unable to access formal jobs.

A large number of religious institutions are also found in the area and hold services and events in flats, houses and, in some cases shops. Shebeens, laundries, spaza shops, hairdressing services, informal crèches and restaurants also operate from any available space in these buildings. The intensity of land use cannot be under-estimated and there is a clear sense that this is escalating year on year, with spaces being sub-divided and sub-let and new spaces re-territorialised for unexpected uses and in unexpected ways (Simone, 2006). Whilst these practices are important survival tactics, they can overextend infrastructure beyond capacity. In order to afford the rental prices, sub-letting and sharing is commonplace and people from all over Africa share rooms and mix land uses.

Commercial activities: streets, shops and sharing

There is a sense that there is no shortage of suppliers for residents' daily needs, and the general trend is that people buy their daily goods and groceries from the small shops and the chain stores that have moved back into the area, as explained by Danny below. Interestingly when it comes to clothes, there is some mistrust of local shops in terms of quality, price and choice. Consequently, residents say that they shop in the Johannesburg CBD or the suburban shopping malls for these items.

There's a lot but of shops, those small ones you know for the…. Nigerians and the Congolese and these other ones. They sell the basic things usually things we use on a daily basis, things like mielie [maize] meal, sugar, salt yes those things. Yes and some sell clothes, but mostly it's the grocer shops". (Sihle)

They [the chain stores] are now coming back… There was a time when, around 2001, 2002, 2003 crime was so high…. A lot of shops moved away from Hillbrow... But now, compare now, at the present moment they are all coming back, they're all back now. We've got Cambridge, we've got almost everything. There's Checkers, two Checkers' around here..." (Danny)

"… just like when I buy food I go out to Shoprite and stuff, but when we have to buy clothes or something big, we have to get out of Hillbrow maybe go to town or to the mall at Eastgate [because] like I told you I spoke about the substandard, it's the quality… maybe clothes, shoes and school wear for kids we have to go to town."(Rachel)

Respondents also spoke about the fact that shops are being sub-divided and space is being shared. MacClean emphasises that "Yes! There are more shops now due to the subdivisions. There are different business activities in order to accommodate a greater number of businesses". Apparently within a single space "you can have a whole lot of things like a laundromat here and hairdressing there, and there's these movies that they sell… in one building but different shops, small little shops each owned by different people" (Pam). Traders seem to be doing this to keep costs down, although Sihle argues that it is because "Each and every one of them wants to be his or her own boss".

FIGURE 8: Various commercial activities in Hillbrow

(Source: Gewer, 2013)

According to respondents one can trade and do business almost anywhere and at any time in Hillbrow because so many people live in the area. There is a sense that density provides opportunity. MacClean notes that "Yes! It is better here [than when he first arrived] because there are many people and one can do business even during the night". Mama Arafat agrees stating "I like being here because transport is cheaper, there are a lot of opportunities, if you have money you can start a business, it's a busy place, highly populated, so if you put tomatoes on the street within two hours they will be finished". Most of the respondents talked about how busy the streets are and how, by being resourceful, they are able to create opportunities for themselves. A particular example is Mama Arafat who, within a short time (since 2010), opened a kitchen, then a tea shop and finally a market stall in Hillbrow where she would also sell cigarettes. She says "We were making pap, beef, braai [barbecue], Tanzanian food called pillau, chapat and rotti… And someone wanted the shop to keep his TVs and stuff while I do something small in front for survival. I then planned to use that front of the store as a tea shop". After this Mama Arafat sub-let a stall at the Quartz Street market and after two weeks she "… was able to provide for… [her]… baby and pay rent". According to Mama Arafat "By just selling sweets and cigarettes in six months we made more than R12 000". The story is indicative of the flexibility and entrepreneurial talent that many of the residents display. Importantly for this report, it is also illustrates the fact that there are relatively good livelihoods to be made within the suburb and these provide people with an improved quality of life.

The general consensus among the respondents is that street trading is increasing but there is also a concern about what is being sold and an involuting market: "It's like they are selling the same things… most of them. It's like everything is becoming more every year" (Sihle). Similarly, respondents also note that there has been an increase in street hairdressers. However, a further aspect of the dense and intense land use is the increasing number of spaces that are being used for commerce aside from the streets; spaces that are neither designed nor designated for commercial purposes. Examples are parks, parking garages, communal spaces in buildings and flats, as well as publicly owned theatres and recreation centres. These newly re-territorialised spaces are being used as meeting places, spaces in which to do deals, sell goods, run crèches, schools and even function as a churches or a sites for spiritual solace.

> *You know these flats, way back, used to have some parking bays, you know these basements. But now these flats are resorting to making business out of those parking bays. You find they are closing in and they are putting some shops... The majority of them are hairdressers; you know the salons and so forth... while we have some that have been turned into restaurants.* (Bongani)
>
> *The other thing that happening within the flats to me is these private businesses who are saying we have got a prophet, who now only goes to church a little bit but runs his prophesying business, within the building.* (Danny).
>
> *They use the community centre. So people use the Hillbrow Theatre as well… They use the theatre for business. We have got Hillbrow recreation centre, we have got other buildings here. Let me see, I will call other buildings because there are buildings around here, the caretakers who operate that building who are given that building. Who keep opportunities for businesses and people to make meetings within that building* (Danny).

The use of land is neither random nor chaotic and various people are in charge of both formal and informal activities practised at these sites. In many cases, caretakers and building managers engage in the process of hiring these spaces out. Moreover, regulation and control is clearly beginning to extend beyond the boundaries of the buildings and onto the streets and the entire situation appears to be better organised, managed and monitored than it was in the past.

> *"… like prostitution, yes, it's kind of controlled, because it has been legalised in a way. So it's controlled, people know where they will get services when they want those services. So in a way it is controlled it is kind of professionalised in a way".* (Bongani)
>
> *"I'm saying the difference between the old days and now. Now it's more monitored, they monitor… Pretoria Street where there are people selling you'll find that even the government marked that place, placed in sort of a shed for people to sell within".* (Danny)

There is, however, a concern that services and goods in Hillbrow have become more expensive and this affects the affordability of living in the suburb negatively. Accommodation is a particular case in point and is now discussed more fully.

Accommodation: myriad options and increasing prices

Most respondents contend that people come to Hillbrow confident that they will be able to access some form of accommodation from the extensive choice in the suburb (Table 3). From a wide range of options something suitable is bound to crop up. No matter the income level, there is always an option for accommodation. These options span a wide range, from sleeping rough on the streets to formally renting an entire flat from a landlord or from a social housing institution. Respondents also mention the flexibility of accommodation for new arrivals to Hillbrow: "you would just stay here today if it's not conducive you leave tomorrow…" (Bongani). Previously most residents used word of mouth to find accommodation. Currently people use the noticeboards across the suburb. According to Bongani, some existing tenants even wait at noticeboards to find people to share their rented space through sub-letting.

> *When I first moved here things were a bit cheaper, like you remember like I said I am from Zimbabwe, I could be able to rent or sub-let into somebody's flat and be able to afford the rent and stuff but now it's a bit expensive…. [back] then, it was easier to live in Hillbrow. Food was cheaper, most of the stuff was cheaper but now it's expensive hey… but now you find that you can't stretch your money to fill all your expenses, so if you've got a room you let somebody live there.* (Rachel)

Longer-term residents note that, over time, the availability and nature of accommodation has changed. While many respondents back up census results that show the suburb is generally densifying with continued population increase, there is also the possibility (as mentioned earlier in the report) that density and population peaked in the mid-2000s, and has decreased since. Two explanations for this could be put forward. First there could be an error in the data available, with the CoJ (2006a) number of 89 500 people being an over-estimation. Second, the decline in density since 2006 could be related to the introduction of tighter urban management (predominantly through the implementation of the eKhaya Neighbourhood Project of 2004[8]) and of the presence of more social housing companies. The accompanying tightening of controls on room-sharing may have decreased densities in the buildings concerned. Interestingly, the introduction of stricter controls has reportedly increased rental prices in Hillbrow. With the demand to live in Hillbrow as high as ever, higher prices could increase densities in less controlled buildings as a way for residents to mitigate increases. Either way, further investigation into the trend of densification or de-densification since 2006 is needed to provide a satisfactory explanation.

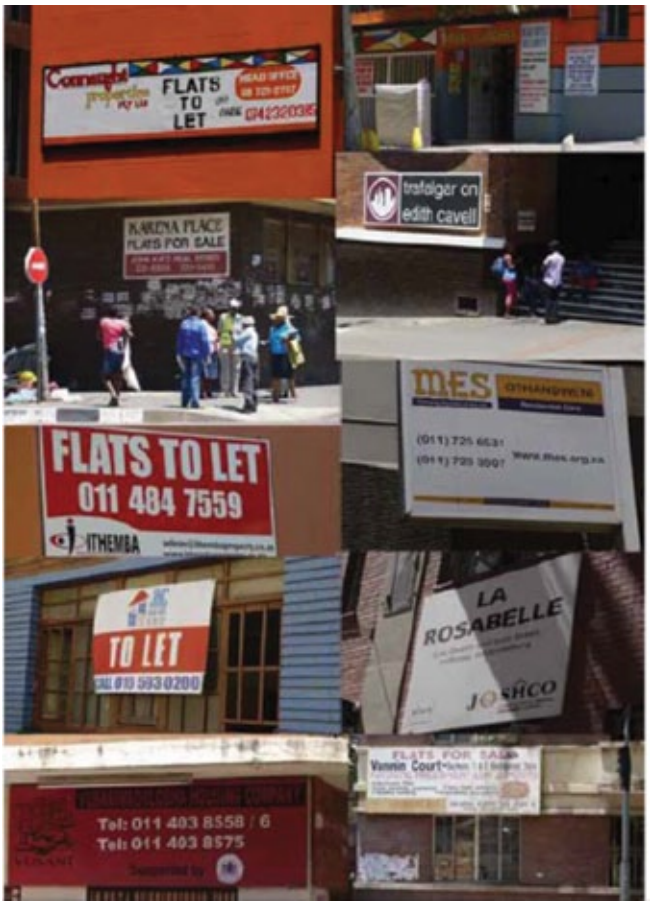
Whatever the effects of tighter urban management on densification have been, many of the respondents note that a general improvement in many of the buildings in Hillbrow is evident. This is due to private landlords and companies renovating buildings. Aside from improving the quality of accommodation and the general appearance of the area, there is also the perception that landlords "[through] renovating… the buildings eliminated the criminals. Because once a building is renovated, it's got security" (Edith). Thus the combination of the Ekyaha Precinct and the private sector investment in properties is seen to have resulted in an improved sense of safety and security for Hillbrow's residents.

Increases in rental prices received mixed responses from interviewees, with many acknowledging that high rentals lead to increased sharing. Interestingly, some interviewees alluded to the futility of complaining about rising rental prices, knowing that the demand for housing is so great that they will simply be told to move on because their place can easily be filled again. Some foreign nationals even felt that the increase in prices is deliberate, adding that as foreigners they have less power to negotiate.

> *They deliberately make things expensive to us. Why, it's because they know that there is nothing we can do. In a way the government could be trying to accommodate us. Make us feel at home but we are not home enough… because whoever owns anything knows that there is money in Jo'burg hence Hillbrow, where, because there are foreigners, so we don't have 100 % rights because we are foreigners.* (Bongani)

Land use in Hillbrow seems to be intensifying and becoming more complex as there are more activities, in terms of volume and variety, taking place. The area also seems to be operating for longer hours and in more places than before in order to accommodate the growing complexity and needs for these activities. New spaces become used in unexpected ways and for unexpected purposes. However, with increased densification and intensification there appears to be more control and better management of what happens on the streets and in buildings through the stricter application of different forms of urban management. There is no doubt that increased diversity and opportunity, as a response to densification, allows for greater resilience as people have the chance to move between different kinds of spaces and engage in chosen activities in order to make a living and ensure a livelihood.

FIGURE 9: Advertisements for accommodation



(Source: Gewer, 2013)

TABLE 3: Accommodation options and costs in Hillbrow

Site	Sleeping rough: parks, streets, empty buildings	Sharing a bed	Room sharing – sleeping on the floor	Room sharing	Room Sharing (Illegal/social housing/Ekhaya)	Flat sharing: staying with kin	Flat sharing	Flat not sharing (formal)
Cost	No cost	Uncertain	R500 per month	R2 000 per room per month	R10 per night	No cost /limited cost	R4 000-R7 000 and more for the whole flat	1-bedroom R2 500 2-bedroom -R4 000 all per month
Description	That means times are very tough here. I don't think there is enough accommodation… because now already there are plenty of street kids (Stella)	They can put in three beds and you could find that three people are sharing a bed (Sihle)	Some people have just got a sponge [foam rubber mattress] and it's R500. Yes because some people sub-let and they have a sponge and you don't have a bed so when you wake up you just roll up the sponge and shove it under someone's bed then it's just R500 (Pam)	In a room you might find there are two or three families… Yes, one room, because someone is got a bed here [sic], the other one there, the other one there, so that they at least contribute towards the rental (Bongani)	[At Ekhaya people pay] the security guard R10 they can sleep over. I visit you, we go down at six o'clock I say 'no I'm deciding not to go'. 'Here's R10, buy cold drink' (Danny)	For starters they would stay first stay with their respective family members, friends then at a later stage they would then find their own places to kind of like you know …. You know… establish… Ya, themselves, ya exactly. (Edith)	No some in this flat, some they share Mostly they share (Edith)	In order to qualify: payslip or bank statement, one can always get a place to stay in Hillbrow (MacClean)

(Source: Fieldwork interviews)

Services: educating, medicating and recreating

Social Services and amenities: stepping into the breach

The increase in residential and commercial land use raises questions as to whether there has been a commensurate increase in services, so that the area works efficiently and that there is a balance between the population and service provision. Overall, there is a clear sense that all facilities have increased in number because of the increased population and, where the state has not been able to provide facilities, the private sector has stepped into the breach, albeit at a price. The provision of schools and crèches typifies the general situation in Hillbrow as it demonstrates the overarching concerns with private sector provision which, according to respondents, tends to focus more on money-making than providing good quality services

> *These high schools which are in buildings, there are also primary schools which are in buildings, buildings where you are having steps. When you climb the steps, here it's broken. … Health and safety; that concerns me much* (Rachel).
>
> *… people just want to make money. I can open up my own pre-school if I want and start looking after kids, but the thing is that place won't be 100% perfect like a normal pre-school. You can hear things like a child died there at a pre-school… Yes, everyone just wants to do business.* (Danny)

Respondents report that there are a number of medical facilities in the suburb with private practitioners practising both conventional and traditional medicine. Despite a general sense of satisfaction with the services offered in the public institutions, there is a constant refrain over the length of the queues, which is really due to the large numbers of people needing treatment. "… [I]f you go there [to the government hospitals], you make sure you wake up early, early, like four o clock and you will spend the whole day in the queue… free hospitals… you find that there are too many, too many people" (Jimmy).

Sentiments expressed about parks are mixed with some people saying that they and their children use some of the parks in the area to play on the equipment or take part in soccer leagues. However, a number of fears are associated with the parks, there are reports of people being mugged there, with one reason given being that "they are far from the police" (Bongani). Like many other people, Sihle is suspicious of the parks, although not because of crime: "I don't know, I just have that thing that in parks there are lice. Those street kids that stay there they don't bath…. I don't stay there I just go past". There is also a prevailing concern that the parks are being used for a range of other purposes because of the increasing number of people living in the suburb.

> *But you find lots of people [in the parks]; a lot of adults some even sleeping in the park. You find that children can't even play in the park 'cause there are older people living in the park, even the people hanging around even some funny characters you can't even trust. Some don't work so they spend all their time in the park. Hillbrow is just overcrowded, it's like much, much even overcrowded now* (Rachel)

Similarly, opinions about the number of other recreation facilities in the area vary. Some of the longer standing residents point out that "there are less [nightclubs and bars] even now. There used to be many, like you know Pretoria Street used to be a night club street, but now there are less than before" (Rachel), whilst others sense that the figure is going up. There are few cinemas in Hillbrow, just one theatre and no facilities for musicians and performers. It is also felt that children could do with more sporting facilities such as pools, tennis and netball courts and that only one recreation centre, one police station and one library cannot serve the burgeoning population adequately. Mistrust was also expressed over the provision of public services, which may have something to do with the legal status of some residents and many legal and illegal migrants face harassment from some people in positions of authority in the inner city in which Hillbrow is located.

> *I don't think they are adequate libraries. There is only one library here in Hillbrow. Just near Shoprite [supermarket chain]. No, my son was using that library… he was saying it's okay but the books are not enough* (Edith)
>
> *People are scared to go to the police station, even if it's their right. That's what I know. So going to the library as well, some people are comfortable with that. Some are not quite sure. They say 'what happens when I go sit in there and the police just come running? They ask for an ID… no, no, no. So those people you find, half of the people in the library they're all carrying IDs, because somebody is scared* (Bongani)

From these descriptions of social amenities, there certainly is no lack of choice of services and goods for Hillbrow residents and there does seem to be a strong correlation between increasing population numbers and a growing number of activities and choices. However, what is also apparent is that there is concern around the quality of these goods and services, the cost of some privately provided social services, and some discomfort about using publicly provided amenities.

Infrastructure and basic service provision

Earlier work by Silverman and Zack (2007) places on record that infrastructural investment, and maintenance is largely ignored in Hillbrow and that some of the buildings (at their time of writing in 2007) had malfunctioning or completely non-functioning sanitation pumps and lifts, as well as neither a supply of water nor electricity. The lack of these services has had a detrimental effect on both the tenants and the neighbouring buildings that are affected by overflowing sewerage and blocked drains. This section discusses the amenities within buildings and in the general area and asks whether this is still the case.

Overall there is a sense that both the electricity and the water supply have improved but that the general infrastructure has deteriorated. Most respondents report that, in their own homes, they have sufficient access to water and electricity, with power and water supply seldom going off. In only one case did an issue arise and it was around water as the landlord used its provision as a tactic to force residents to pay their rent. Most of the respondents also mentioned that they have metered water and electricity. However, there was disagreement as to the usefulness of meters with some people saying that: "… mostly in Hillbrow we now have prepaid electricity. Prepaid electricity I think it is… more easier than fixed electricity and the prepaid electricity is even cheaper because… you pay electricity according to how you use it" (Edith). On the other hand, Sihle

said: “Electricity is okay, we don’t have much problems with electricity, it’s just that the bills are too much but in terms of cut-offs no, electricity is always there”[9].

Despite a general sense of satisfaction with the services in people’s flats there is mixed reaction to what is happening in the wider area. Interestingly the opinions of improvement or deterioration could not be correlated with the respondents’ length of stay in Hillbrow. People who had been living in the area for similar periods expressed opposing views. Table 4 below illustrates the different views and accounts about services and infrastructure in the suburb.

FIGURE 10: Infrastructural weaknesses

(Source: Gewer, 2013)

TABLE 4: Opposing views and experiences of service provision in Hillbrow

Deterioration	Improvement
General environment and Infrastructure	
MacClean: The services are now worse than before… More flats were clean and now there are fewer clean flats. Now some roads have potholes and more street-lights are now damaged. The parks are now dirty and not maintained at all.	Bongani: Ya, it has changed because you know along way when I came the infrastructure, houses used to be so much dilapidated… So, you know people have improved their buildings. So, infrastructure has improved. The call was made to Johannesburg CBD entirely not only Hillbrow but the entire CBD.
Refuse	
Edith: No refuse collection is I think that one has to be improved. Ya, its bad now because sometimes you see a lot of garbage outside and these Pikitup[10] people are always on strike. I don't know why. If they are on strike you find that we go for two weeks the garbage outside would be a heap. And it's very unhealthy for the people.	Bongani: it has improved, yes it has improved according to me… its clean you know these places are clean someone, they are clean.
Housing	
Sihle: I can't say there has been much development, the only thing I can see is just one or two, three flats been renovated. Yes, just a few flats being renovated that's all you can see, but on the governmental side not much.	Pam: With the buildings, at one stage they all just went down and it was terrible. People were scared to even walk around. But nowadays it's improving with all the projects like the Ekhaya and the change that's coming.
Roads	
Pam: Well let's face it the robots [traffic lights] don't always work. Yes [there was a time when thy worked all the time] but it was a long time ago. Let me tell you, if this one here on the corner works, then that one there on the other doesn't. I swear you would think they take the parts from that robot and fix the other one and after some time they take from the other one and come put them back here.	Edith: Yes, the roads have improved like they are... they are maintaining roads like I think... daily basis. Sometimes you'll find that... if the roads have potholes, the following day you'll find people fixing potholes. Yes. There... it's like... things they get older and older, like the roads get older and older, being used but they are maintaining the roads.

1 Johannesburg's refuse removal comany

The one area where there seems to be consensus concerns problems with water pipes and water often running through the streets of Hillbrow. There is some uncertainty about where it comes from but the malfunction seems to be a constant feature of Hillbrow life.

There are differing opinions as to why the area faces decline: some respondents attribute the deterioration and lack of services to the increasing population and consequent stress on the existing systems. Others blame a lack of maintenance "… due to the un-repairing or the pipes… getting too old" (Edith) and corruption (MacClean) in the City Council. Some criticism is also levelled at Pikitup (Johannesburg's refuse removal company), with some saying their services are satisfactory when they are present and working but that very often they are on strike, which affects service delivery. Others blame the lack of provision on a level of institutional xenophobia arguing that "… the government is like rejecting Hillbrow, I don't know maybe because we are foreigners" (Edith).

> *Yes there is refuse collection, of course, 'cause we are crowded and you can always see dirt in the street, but they do clean the streets quite fine. Of course it's worse now [than it was when she first arrived]; there are a lot of people. I feel there are a lot of people [now] than there were back then* (Rachel)
>
> *They [the pipes] are getting old because the water is always flowing everywhere. No it was better [in 1994] because maybe there was not much more population like now. Because the population increased when they, like in Zimbabwe the population coming in to South Africa increased due to the economic instability* (Edith)

However, for those who feel there is an improvement, two sets of reasons are offered. The one is a larger presence of the state and improved institutional systems and tendering procedures. The other refers to increased pressure from tenants for better living conditions, for example: "… people themselves, I think they expect more now. Well they aren't prepared to take these old dilapidated buildings anymore" (Pam).

Thus the question of how efficient and balanced the area is with regard to service provision is a complex one. Both the public and private sectors provide services and amenities, but public provision, according to respondents, seems to be moving beyond its threshold, and private provision is seen as expensive and not always worth it. Thus most services are available and accessible but there are trade-offs that need to be made when using any of them, namely, price versus quality; and time spent in queues versus cost of privately provided services. So, while on the one hand increasing density has been matched with increased service provision, the quality of the service provision is questionable and this may affect the resilience of the area. Furthermore, limited investment in the public environment arguably reduces resilience, as infrastructure is ageing and public and private spaces are deteriorating.

Connectivity and accessibility: walkers, walkers everywhere

> *I walk everywhere, I'm free in Hillbrow* (Danny).
>
> *Always, when I was even younger and fitter I could even walk to Braamfontein because it's not that far. Mind you, I can still slow walk from here to town, but then I can't walk home. I have to catch a bus, not a taxi. No, no, no. Those are not for me. I go on a bus. I've been six times in those taxis and it's been six times too many* (Pam).

Given Hillbrow's geographical location, the area provides easy and fast access to both the CBD and the surrounding neighbourhoods: it is this sense of centrality that makes Hillbrow a desirable and popular neighbourhood for new settlers seeking to opportunities and economic security in the city.

Walkability

Due to its location and the sheer concentration of activities, goods and services, people living in Hillbrow are able to walk most places in order to undertake their day-to-day activities. All of the respondents report that they walk to shops, schools, healthcare facilities, places of worship, and, if close enough, to work. Close proximity and saving on public transport costs are given as the main reason for people walking everywhere. (See also: Venter & Badenhorst, 2014).

> *Yes, when I go to work that's when I use a taxi, but most of the time I just walk* (Sihle).
>
> *Ya, you see... it's better for you to stay in a central place… so if you come to Hillbrow you see the transport is easier, the shops are closer… the clinics, everything you can walk. Some people can even walk to work…they walk; they are all over, like I said Hillbrow is like small town. If I want food I can simply walk downstairs and just across the road I can buy food and then go up, I don't have to catch a taxi or anything. Everything is central in Hillbrow* (Thandi).
>
> *…it's so accessible. You know transport-wise and that's where lots of things are happening* (Bongani).

For those who have lived in Hillbrow for a longer time, this pattern of walking everywhere has changed with increasing densification. Interviewees report that, in the past, people had to walk longer distances because

some amenities were situated further away. However, an increase in the number and concentration of amenities (transport, shops, churches, private schools) within Hillbrow itself to cater for an increasing number of people means that distances to facilities have decreased. Edith notes: "... before? No it's like people used to walk to churches if you want to find a church to worship you would walk a long distance or you would have to board a taxi… I used to worship in Brethren so I had to board two taxis to come to a Brethren church, like in Sandton… but now is a Brethren church just outside here" with Pam adding: "…in those days there were trains and buses and buses used to go past King Ransom and up Klein Street and they didn't come up this way like they do now" (Pam).

This locational centrality therefore creates easy navigation and accessibility and strong connectivity to other parts of the inner city. Walkability allows for more intensive engagement and negotiation in public spaces enabling people to develop increasing networks of interaction and opportunity. Walkability also implies a manageable scale for operating — whereby people are able to find most of what they need on a daily basis within a close radius of their home, cutting down on costs and time.

Local and trans-local connectivity

Hillbrow is situated very close to main transport systems serviced by road and rail links from locations such as Park Station, Johannesburg's main railway station, the MTN taxi rank and the Rea Vaya Bus Rapid Transit system that improve connectivity between the suburb's neighbourhood and places further away. Hillbrow residents who work outside of the inner city but within walking distance and those who prefer to shop in malls outside Hillbrow find themselves well positioned in relation to public transport when distances are too far to walk "... it's easier for me to get a taxi to work. You just board one taxi unlike staying in other places which are far. You have to use two taxis" (Edith); "… well, because it was central and you can get anywhere from Hillbrow. You can get to Eastgate, Westgate and wherever and get back easily" (Pam).

Given the low income of many of Hillbrow's residents, for those who work in other parts of Johannesburg, the cost of taking taxis and other forms of public transport can be prohibitive. As such, some prefer to walk long distances. Rachel for example says: "… yes, normally I walk from taking my child to school on the other side of town, we just walk from there 'cause I can't afford it [public transport]". The suburb's proximity to many major public transport networks however adds to its attractiveness as a place to stay. Thandi says "…for example when you are staying in Hillbrow some people…like in a central place, you have to catch one taxi to work. So if I go to a quieter place and come work here this side I have to catch two taxis which I can't afford". Sihle adds "the other thing Hillbrow is just near everything. The taxis, the shops… everything is just around here. If I want to go to town I can walk if I want to, but if I stayed in Tembisa, I'll have to find something like how much…R30 to and fro".

From the taxi ranks and trains from Park Station, various transport modes run frequently to other parts of the City, creating a well-integrated network around the city centre, simultaneously strengthening links between Hillbrow and the rest of Johannesburg. This is particularly useful for those seeking employment, given that Hillbrow provides limited space for formal employment. Many residents work as gardeners, domestic workers or labourers in the suburbs some distance away from Hillbrow and easy, albeit costly, access to public transport is a definite benefit.

> … I chose to come to Hillbrow because since am doing business… So like in Hillbrow, there are many people ... there are business people carrying goods from Jo'burg to Zimbabwe. Some are carrying goods from Jo'burg to Malawi, so it's like there is business... we interact easily. Even when sending things… sending goods to Zim… to give these transport people, it's just me taking my goods outside to the transport people… my brother's son who is sleeping here, he does that, he is a Malayisha [loader] he is trailing goods from Zimbabwe to Jo'burg, Jo'burg to Zimbabwe (Edith)

These various transport modes also run frequently to other South African provinces and neighbouring African states such as Zimbabwe, Mozambique and others, solidifying connections between the local, national and trans-national spaces endorsing linkages at local, national and international scales. These different levels of connectivity have increased significantly over time, becoming more strongly entrenched with the continuous flow of more people into the area, particularly foreign nationals from other parts of the continent. As already indicated, newcomers (whether national or foreign national) settle around and within the CBD because of proximity to potential economic opportunities and social connections and many end up staying in Hillbrow or in the neighbouring residential areas of Berea or Yeoville. Indeed most of those interviewed have either themselves previously lived or have friends and family who live in Berea or Yeoville. Thus the trans-local connectivity between these three neighbourhoods provides corridors of economic and social support and opportunity.

In Hillbrow, there is a strong relationship between the area's physical and social connectivity and issues around accessibility, opportunity and choice. While the neighbourhood itself has always been connected to other neighbouring suburbs and areas in Johannesburg, this has intensified with densification providing even more choice and opportunity. Being such a small area, Hillbrow's accessibility to most places both within the area and to surrounding areas is significant. Many respondents mentioned how they are able to access almost everything they require for their daily needs within a very small precinct around their place of residence thus cutting down on transport costs and time. Residents also feel it is simple and easy to move between Hillbrow and its surrounds, neighbouring suburbs, the Johannesburg CBD and the wider city.

Identity: a formidable place that people keep coming back to

Hillbrow, as a physical place and a space of imaginary, evokes a strong sense of identity both historically and as experienced today. The reasons for this are numerous and varied, but perhaps the most persuasive is that Hillbrow provides an entry point for newcomers to the city and, as such, is perceived as a space for opportunity, engagement and possibility. It is also a highly contested, emotive and dense space that brings to the fore many challenges with regard to inner city livelihoods and survival.

A formidable reputation

The ominous reputation attached to the area has emerged predominantly from strong media attention that continues to focus mostly on the negative practices and processes of urban life "… well there's always so much to talk about of Hillbrow isn't there? Sometimes it's good and most of the time it's not so good. Hillbrow is always in the news" (Pam). This reputation travels beyond the immediate locality with many settlers from outside of Johannesburg and South Africa knowing much about Hillbrow before they arrive. "I was afraid of that place when I came there, because you hear stories when you are back home, about South Africa, there's Hillbrow and things like these are happening if you go on the street they can take your cell phone, they can do this" (Thandi).

A home away from home

Being situated in the centre of Johannesburg, next to the CBD, Hillbrow is perceived to be in the heartland of Africa. As Bongani states "I am an African and am where Africans are". Many responses indicated that the cosmopolitan mix of people living in Hillbrow brings a sense of comfort and community for all Africans, whether local or foreign nationals. Because Hillbrow is populated by foreign nationals coming from other African countries, particularly Zimbabweans and Nigerians, points of contact are already established for new arrivals "Well I think these days with people that are from Nigeria or Zimbabwe, they come here because they've got friends or family here you see, so they either move or they stay" (Pam). Many who have settled in Hillbrow are from Zimbabwe, thus there is a strong sense of a home for an ex-patriot community and the notion that Hillbrow has largely been appropriated by the Zimbabwean community "…although of course Hillbrow specifically is for the Zimbabweans" (Bongni); "… so in here in Hillbrow, it's like we are still in Zimbabwe" (Edith).

This strong Hillbrow identity remains with people even after they move out and people return to the area to gain a sense of home and solace. Danny argues that even if he left "… undeniably I'll always find myself in

Hillbrow, for socialising, because Hillbrow is my home". Keeping links with Hillbrow and its social networks is identified as an important set of connections for expatriates who had left the area.

> *Because you, you find people move out of Hillbrow like you know some make good money they go buy houses, some will go to locations because of low prices, and various reasons but come weekend they will still come back and enjoy themselves here… We have has some who come back with money and buy some properties around, they just tell you I can afford going to stay in Sandton but I'd rather be here in Hillbrow* (Bongani)

Through all interviews, it became apparent that this intense sense of connectedness and identity was not waning. Hillbrow's identity continues to be durable and in fact seems to be strengthening as a result of the perceived opportunities the area presents for national and transnational business opportunities "yes... growing in identity. I say people recognise Hillbrow, they know Hillbrow, because there are a lot of opportunities that we are making, a lot of projects that are running out there" (Danny).

Ownership and belonging

As summarised in Table 5 present day Hillbrow evokes a sense of belonging and community, which differs from how the area was perceived in the 1990s. At that time it was reported that a sense of community did not exist and that people living in the area were only interested in looking after themselves and their own interests. This seems to be partially because Hillbrow was seen as a temporary way-station in people's lives. Today Hillbrow is populated by families who have brought their children to live with them that has given rise to more of a community feeling within the area as people now tend to take more time to get to know each other and build friendships and relationships. The underlying reasons for the change do seem to be demographic but they also seem to be related to the perception that Hillbrow is less 'wild' and has lower crime rates than was the case previously. Moreover it is now a home for the provision of goods and services, a characteristic respondents associated with stable suburbs.

TABLE 5: Changing perceptions of Hillbrow over time

	Hillbrow then	Hillbrow now
Danny	Not like before. There was a time, let me look back around '95, '96. Where each individual if somebody was here to work or to find something else and make himself move out. Or know how to feed his family somewhere where he left it.	Mostly to say we have now turned in a community… We have tended to know one another. Somebody can tell, ah this one is not from Hillbrow. We know one another now…. Because Hillbrow is a future. Hillbrow has a future. Especially to the way it has changed. That is, like I say, it's now a community. It's now a real community. What [was] happening now in Soweto it's happening in Hillbrow.
Bongani	Then rentals used to be better off, when I first arrived here and when I arrived I was told even before then rentals were affordable like people used to stay here. It was a… a white community.	You know why it's happening like that. It's because of the crime rate has dropped; it has just gone down in comparison to then. Now it's, the area is user friendly. Some are ya, you know people have just fallen in love with it in a way.

Rachel	Hillbrow was wild you know it was wild, but you know I was 26 and I've got a stable background like I told you, so I know that I mustn't just mix quiet a lot so I used to keep to myself even home, have a few friends go to church and stuff. So I was able to adapt during then, I was quite ok. Hillbrow was wild you know, you remember those years after independence?	We do, you've got to love the place. Especially you have your memories, you have your years back, 'cause when you sit alone, you always sit alone and think aah you've got your years, you've got your memories behind you. Even the place, you can't just chuck away the place and live in that box.

What was initially thought of as a temporary stay for many people in search of economic opportunities, has turned out to be longer-term residence and the emergence of a new sense of citizenship and home. This is noted by Edith "because some people since they came they stay in Hillbrow never move to another place... So now you can say you are now a citizen of Hillbrow" and Sihle "some people they say, - this is my home – yes, some people say that. You know what when I'm in Hillbrow I feel like I'm home, it's my second home..." Thus long-term residents have built their own history with the suburb, one that resonates with personal memories and emotional ties, all of which have helped to build a sense of community and stability.

The sense of community means that, despite Hillbrow seeming to be a complex patchwork of people, structures and processes to a visitor, a strong understanding of social coherence and belonging exists. It is reportedly easy to identify new people in the neighbourhood whilst long-term residents are seen as deeply embedded physically and socially. Many of the residents discuss experiences which demonstrate that they belong to the community, are easily recognised and helped by other residents.

Outsiders "sticking" out	Insiders helped along
… you can always see a newcomer, they just stick out like a sore thumb ... Well because they are always so nervous and always looking around. You can always see them because they're new. But after a month or so they settle down and they don't act like that anymore, but as I said you can always tell somebody new (Pam).	*We go now outside, as we explore we see somebody we ask somebody 'do you know this guy'? Will tell you 'I know him'. Where does he stay? He'll tell you. People know one another, people know, people can tell. You know I'm once as well diabetic, where I sometimes get dizzy on the streets sometime. But most I once fell there by Pretoria Street… And when I woke up I was here because some people who picked me up, took me straight to Hillbrow Theatre. Saying they knew this guy* (Danny).

A cosmopolitan mix

Given the diverse, cosmopolitan mix in the area, the opportunity to interact with people from all over the continent presents itself in different spaces. However, distinctions are made between people with whom one does business, people with whom one worships and people with whom one socialises. Interaction between locals and foreign nationals happens in taverns, nightclubs, restaurants, church halls and sports venues (predominantly to play soccer). Places of worship emerge as the place where people mix most, providing some residents with a sense of belonging and enablement.

Business	There are times when they [people from different countries] are forced to kind of meet when they need some services because people will know that if I want a PC I go to that nation, if I want whatever but when it time for relaxing, people are chilling they would rather be with people that they know (Bongani). Where a Nigerian is working on a computer works with Zimbabwean guys. So that combination to say, because of the opportunities they want to take these things they combine (Danny).
Worship	Even churches, 'cos' I go to this church not my original church from home its some Nigerian church. I love it there, I love worshipping with them. Normally it's different people (Rachel). And churches, there are now more churches. People interact mostly in churches, with each other (Edith).
Social	Yes, there's mixing in business. Social is there but not 100%, not 100%, maybe fifty-five, or sixty (Danny). To drink they would be knowing that okay that place caters for such a nationality, that place for such a nationality, so people who go obviously would rather be with people they know than with the other foreign nationalities ... It has always been like this, people will always want to play it safe. No one would want to find themselves in a foreign nation. (Bongani)
Sport	…. soccer dominates. You know go to our park there behind soccer, there are foreign groups playing against one another. Zimbabweans form a group of teams Nigerians form a group of teams, Congo guys form a group of teams. Then, what they do, they bet. They bet like we playing R200-R200 against one another... So it [mixing] happens a lot in the park, where you are saying they divide themselves according to countries (Danny).
Living/accommodation	There is mixing. Mixing is 100% in now. So what I'm saying is people staying close. Zimbabwe is on their own, Nigeria is on their own. South Africans on their own. You know, I can identify to you by Vanin Court is more Zulu's. But now go inside Vanin Court, there are Shona people from Zimbabwe who are staying there now. So that gives us the idea that people are mixing (Danny). I've lived with Zimbabweans and Nigerians all nations from different places. People come into Hillbrow because they are able to mingle to be able to live with each other despite not being from the same tribe or country (Rachel). Normally they will come in families, start mingling as you start mingling you start to trust the next person if they say they have got accommodation they are able to live, you get used to them 'cause normally it's mixed from different countries you find them living together (Rachel).

The pattern seems to be that people of different nationalities are comfortable with working and living together "… you will be teaching each other how you live where you come from, I want to know your place so you will be telling me this and that and me I will be teaching you that about my place" (Thandi). However, when it comes to socialising with people from different parts of Africa the respondents intimate that people generally do prefer to mix with others from the same country. These networks of people from the same country provide strong and enabling support. Edith describes her own experience in this way: "… when I came to South Africa I just started to stay in Hillbrow. Where there were many people from Zimbabwe so it was easy for me to interact with people, even talking to people from same place. It was easy for me ... so it's comfortable for us here, we interact easily" (Edith).

Despite the interaction and mixing, in certain circumstances many of the respondents had experiences of xenophobic sentiments and actions, largely from South Africans rather than from other African nationals. Job security The issue of secure employment is given as the main reason for these tendencies resulting in foreign nationals being made to feel like outcasts.

> *The thing is that now people are silent about it, but if you meet other people you can still feel that spirit of animosity against foreigners. It might be calm but some of them still have that thing within themselves, so it's not like people should now relax and say everything is fine, no. Anything can happen at any time, they are not happy. Some of the locals are not happy at all because they say foreigners are taking their jobs and on the other hand some of them are lazy they always wait on the government to fight for them. For example someone can ask a local do washing for them and then they'll pay them, they won't do it* (Sihle)

Hillbrow is a cosmopolitan suburb, home to a number of foreign and local migrants and seems to be on the journey to becoming a stable and highly socially cohesive environment that provide more stable relationships and support for the residents generally. In turn, this would ensure that people become less vulnerable and more resilient. However, the process of community-building and social cohesion is still quite fragile as different groups continue to prefer to socialise within their own ethnic or national group. Xenophobic tendencies and simmering resentments against foreigners need to be addressed in order to maintain more a more stable environment and society.

Conclusion

Hillbrow is a suburb that is going through a phase of transition that is significantly related to the processes of densification it is experiencing. Unlike other areas and suburbs within Johannesburg, densification is taking place internally as the external built form largely stays the same. Over time units have been sub-divided and sub-let and unlikely spaces have been re-territorialised for residential purposes, with these processes seemingly peaking in the mid-1990s. Subsequently, and with the investment of the private sector in social and more formally managed housing, many residential spaces have, in fact, de-densified and, in doing so, have pushed up the prices of accommodation. However, Hillbrow still offers a variety of residential options and huge flexibility on what is on offer. Thus newly settled migrants can often find spaces with friends or relatives who not only provide sleeping space but also introduce the newcomer to the complex networks of social and economic relations and rules that govern the area. The diversity and choice available to residents, coupled with strong local and international networks, also allow many households and individuals to be less vulnerable and better able to withstand the vagaries and risks of urban life.

Furthermore, a paradox for resilience prevails due to the largely socially determined nature of land use management within the area where the state is only seen in uneven ways and by-laws that are applied in an ad hoc and often arbitrary fashion. On the one hand, the situation offers flexibility, adds enormous vibrancy, diversification of activities and increased complexity through the concentrations of informally regulated activities. As such, and in its best incarnation, various forms of entrepreneurship are allowed to flourish. However, on the other hand, such unregulated activities mean that there are various concerns including health and safety. Illegal and dangerous activities can take place in inappropriate spaces and pose as a danger to residents and workers in the area. Such activities can also limit the ability of residents to enjoy the full use of public spaces and can commodify the use of such spaces. Thus the unregulated densification and concentration of land use brings with it mixed consequences for resilience, promoting economic opportunity but possibly increasing risk and the quality of life for some residents.

The concentration of residential and commercial choices means that residents are able to find what they need within walkable distances and that there is generally a good balance between demand for services, facilities and goods and their supply. Although there is no question that as supply is expanding in both range and volume to meet the new demand, prices are increasing, making Hillbrow an increasingly expensive suburb in which to live. This may possibly, in the longer term, affect poorer households' ability to live in the area.

The high density of people, especially migrants, also seems to be offering households a wide variety of social support and a clear sense of a place to call home. These are newly evolving senses of identity and localised citizenship that are, at least in part, influenced by more families living in the area. Hillbrow is seen less as a transitional space as people stay and build lives within the suburb. The process thus

becomes iterative or self-sustaining as longer-term households feel that they are part of a community and new migrants find solace, refuge and support, choosing to stay for longer periods, which in turn helps to construct deeper social networks and more stable and socially cohesive communities. The processes are also being influenced by improvements in the urban environment and this encourages a sense of ownership and community engagements, such as community policing forums and the Ekhaya precinct. However, as mentioned, this is still a relatively new and fragile process that could easily be destroyed by forces such as crime and xenophobia.

Hillbrow's built form, its location with excellent links to the rest of the city, and its flexibility have made the area highly desirable for many new entrants as well as longer-term residents and users. In doing so, the space has densified significantly which has, in turn, promoted and in many ways intensified many of these patterns and functions. Although densification has resulted in some undesirable outcomes, it has offered residents myriad forms of resilience, giving choice, vibrancy and balance to the suburb. The suburb has also been under the auspices of socially determined land management which, whilst providing flexibility and support to poorer households, can also be held responsible for decreasing resilience as certain sites become dangerous, misused or home to criminal activities. Thus the relationship in Hillbrow between densification and resilience is a complex and at times paradoxical one. At times it offers residents and users unique and innovative ways of dealing with shocks and stress, but at others, can exacerbate and even create new shocks and stresses.

Notes

1 SADC: Southern African Development Community
2 Quoted in the New Housing Company, 1993 (circa): Proposal for the provision of Social Housing Units in Johannesburg Inner City, University of the Witwatersrand, Historical Papers.
3 Densities obtained by taking total population for the area from CoJ, 2006 statistics and dividing by the 108 ha, which is the size given for the suburb.
4 CoJ, 2006a: 5
5 We found no indication that this had changed
6 CoJ, 2006a: 5. It is unclear what the figures presented in this document are based on and, when compared to census data, could be incorrect.
7 Census 2011
8 http://www.jhc.co.za/community/ekhaya_neighbourbood_programme
9 Interviews were conducted before the nation-wide electricity load shedding of 2014/15.
10 Johannesburg's refuse removal comany

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5

Houghton Estate

Caroline Richardson and Alexandra Parker

Introduction and Background

Houghton Estate is one of Johannesburg's older suburbs with large residential blocks and wide tree-lined avenues. Houghton Estate is low density, even for Johannesburg, a city that has not been shy to continuously expand horizontally. However, in recent years the suburb has begun to see a number of changes with regard to densification, partly brought about through the repeal of apartheid legislation but also through changes in modern lifestyles.

This report sets out to explore these developmental and built fabric changes and examines how people in Houghton are responding to these shifts. The first part of the report begins by giving a brief history of the area and describes the current conditions and character of the neighbourhood. The second part of the report details the qualitative study conducted in the area in two sections. The first provides a summary of the main issues raised in interviews with residents, workers, visitors and key informants in Houghton Estate. The second section provides an analysis of both the built environment and participants' responses to change in terms of a framework of resilience.

History of Houghton Estate

Prior to 1888, the Houghton Estate area as we know it today, was farmland. Mining magnate, Barney Barnato owned 2 100 acres of Houghton which he sold in 1888 (Unknown Author, 2010) to the Houghton Syndicate that later became the Houghton Estate Gold Mining Company (The Heritage Portal, 2013b). The residential township was established in 1902 when the area was purchased by Johannesburg Consolidated Investment (JCI) Company (Unknown Author, 2010). The oldest house in the area was built in 1902. The 130m deep mining shafts were finally filled in after the First World War (Unknown Author, 2010).

Houghton's development formed part of the burgeoning suburban development that followed the South African War (1899-1902). In the period between 1901 to 1906, the extent of Johannesburg's suburbia increased by a factor of 2,2 over that which had existed at the outbreak of the war in 1889 (Beavon, 2004) . The slum yards of the inner city contributed to developers opening up new suburbs north of Johannesburg for the city's affluent intent on family living, but it was also as a result of greater stability following the war.

Houghton consisted of large stands (60m by 60m) with individual properties at times incorporating adjacent stands making some individual properties well over an acre (4 000m^2) in size. This was, according to Beavon (2004), nine to eighteen times larger than the 'popular' smaller stands in the majority of the existing eastern and western suburbs at the time. Both the location - nearly 10km from the city centre - and the size of residential stands made the cost of entry into these areas prohibitive and amongst the highest in Johannesburg.

The advent of electric trams in 1906 (as opposed to horse-drawn trams that limited access to higher lying areas) and the establishment of two northern lines with terminals in Norwood and Parktown North, made the economic hub of downtown Johannesburg more accessible to the northern suburbs. This appears to have assisted the sale of properties in these areas. Improved mobility and accessibility between northern suburbs, which would have included Houghton, and Johannesburg's central business district (CBD) was further enhanced by the rapid increase in private motor vehicle ownership following the First World War (1914-1918).

While most of Houghton's residential areas consisted of park-like stands with large free- standing mansions, the massive building boom from 1933 to 1939 also saw an increase in the development of apartments incorporating the southern edge of Houghton towards Louis Botha Avenue. This development was largely due to South Africa's retraction from the gold standard (Beavon, 2004), paradoxically at the time of the Great Depression. Overall however, residential densities in Houghton remained low.

Wealthy suburbs such as Houghton were reserved for whites and this practice was entrenched with apartheid legislation, particularly through the Group Areas Act (No 41 of 1950), forcing physical separation between races. Further legislation, such as the Population Registration Act No (30 0f 1950) and various pass paws, restricted black residents' freedom of movement. As in all areas of Johannesburg, black workers in Houghton were subjected to the indignity of the "dompas"[1] system.

With the transition to democracy and the repeal of the Group Areas Act in 1991, Houghton's racial demographics started to shift as a number of black and Indian families moved into the area in the early 1990s – a notable example being that of former President, Nelson Mandela, who had a home in Houghton. However, actual numbers of black buyers in Houghton between 1993 and 2000 are small, representing only 1,5% of property sales (Beavon, 2004).

Changes in Density and Land Use

From a historical perspective, changes in residential densities and land use patterns in Houghton have evolved in line with shifts in Johannesburg's city planning policies over time. Restrictions towards residential densities can be said to have ''softened" since the 1990s in line with the need for new residential accommodation in suburbs. This trend offers scope for infill development. Densification has been permitted and even promoted as evidenced by the visible number of cluster, subdivision and infill developments in Houghton over the past 15 years. Key statistics from the quantitative analysis done for this paper bear this out. The number of households in Houghton has increased from 2 655 in 1996 to 3 074 in 2011, which represents a 14% increase over a fifteen-year period (Quantec, 2015).

In terms of land use shifts, activity spines have increasingly evolved from residential to commercial land use activities. This is evident along Eleventh Street and the length of Central, West and Oxford Streets, in particular. The interface between residential and commercial land uses appears to be most noticeable from the impact on traffic congestion and in localised areas, infrastructure, as will be discussed further on in the report.

Current Urban Fabric and Land Use

Houghton Estate is largely residential in terms of its land use and the original stand sizes were generous with an average area close to 4 000m^2. This is fairly consistent across the whole area with the exception of stands along Louis Botha Avenue. Here the stands are smaller, averaging 1 000 m^2 but were sold in groups of four generating larger properties with the result that many properties in this section are bordered by streets on two sides.

Due to the large stand sizes, blocks and the regular street grid are also quite large. The natural topography divides the area of Houghton into two parts. Upper Houghton is located along one of Johannesburg's ridges and Lower Houghton on either side of the Melrose Stream and its valley, where the Killarney Country Club and golf course lie, running parallel to the M1 Motorway. A very small corner, occupying the south-western edge of Houghton Estate, is zoned for business and retail activity as part of the Parktown regional node.

Borders

Houghton Estate is split across two administrative regions. A large northern section is in Region E, sub-area 25. A smaller southern section is in Region F, sub-area 2. Consequently the area also spans two wards: Ward 73 and Ward 67 respectively. To the south of Houghton Estate are the suburbs of Hillbrow, Yeoville and Bellevue. Fellside, Norwood and Oaklands flank the area on the east and to the west lie Parktown, Killarney and Saxonwold with Melrose Estate and Abbotsford to the north.

FIGURE 1: Map of Houghton Estate and surrounds.

FIGURE 2: Older block of flats near Louis Botha Avenue (Parker, 2014)

Community Facilities and Amenities

Houghton does not have many community facilities or amenities. This may in part be because of the area's low density.

Recreation Including Parks

Houghton has only one public park, The Wilds, donated to the city in 1924 by the JCI, located at the end of the Houghton ridge and is divided by Joe Slovo Drive (formerly Houghton Drive). There are two golf courses in Houghton: the Killarney Country Club and golf course on the suburbs western edge, and Houghton Golf Course on the eastern edge of the suburb. These are private sports facilities with restricted access to the public.

There is a private sports facility and gym, called Old Edwardians, located between 9th and 11th Avenues. It was begun as an old boys' club for alumni of King Edward VII School (KES). The edge of Houghton Estate includes the Victory Theatre on Louis Botha Avenue which now faces closure.

Religious Facilities

There is one Christian church in Houghton, the Bethesda Methodist Church, in St John's Road. There is one synagogue or shul, the West Street Shul in West Street, established in 1976 (Unknown Author, 2014). There are two mosques: Masjid Ul Furqaan in Second Avenue and Jaam'e Masjid in West Street. These are the only places of worship within the area. The mosques were constructed more recently than the church or shul and could be attributed to changes in densification in Houghton Estate, reflecting the changing demographics of the area since 1991. Although non-denominational, and not a religious facility, there is a Transcendental Meditation Centre on Third Street.

Schools

There are several schools in the area and although speculative, this may be one of the major attractions for people choosing to locate in the area. Houghton Primary School is a government primary school located in First Avenue and established in 1946. King Edward VII School is a government school for boys from pre-school to high school and was established in St Patrick Road in 1911. St John's College is a near neighbour of King Edward VII School and is a private school for boys from pre-school to high school. Two other schools are situated on the borders of Houghton Estate: Roedean School for Girls is a private school for girls from pre-school to high school and is adjacent to The Wilds; and Sacred Heart College is a private co-educational primary and high school, located on the southernmost edge of the suburb.

FIGURE 3: King Edward VII School illustrating some of the heritage buildings in the area

Photography by Alexandra Parker

Roads, Transportation and Traffic

Houghton Estate includes several arterial and main roads. The M1 Highway bisects it into east and west. Parallel to the highway, forming the eastern edge of the area is Oxford Road, a significant mobility spine. West Street becomes Central Avenue and also runs adjacent and parallel to the highway on the western side. Louis Botha Avenue forms the southern boundary to the area, another important mobility spine. Perpendicular to, and forming bridges across and ramps onto the highway, are the linking mobility spines of Eleventh Avenue and Riviera Road to the south and Glenhove Road to the north. Joe Slovo Drive coming off the highway goes through The Wilds (travelling southwards) and connects the area to Yeoville, Hillbrow and the eastern parts of the inner city beyond Louis Botha Avenue. All of these roads have high volumes of traffic and are prone to congestion. In the Regional Spatial Development Framework (RSDF) for Region E (City of Johannesburg, 2010a), the M1 Highway and Louis Botha Avenue are identified as traffic hotspots.

Public transport is limited within the area. There are no taxi ranks in Houghton Estate. The Gautrain Station in Rosebank services the north-western corner of Houghton Estate and the Gautrain bus (Route B5) travels north down West and Central Streets.

Services: Water, Electricity and Waste Removal

According to the RSDF for Region E, Houghton is not under any strain regarding the demand for electricity and there is capacity for sewerage removal. In a section of the area along Louis Botha Avenue, there is an existing programme to upgrade the water reservoir facilities and for the whole area in Region E, there is an existing programme to upgrade bulk water distribution. The section of Houghton Estate in Region F has reached 75-100% capacity in terms of electricity provision. A few properties in the south-eastern corner of Houghton Estate are in a larger area that has a sewer capacity deficit. The area of Houghton Estate in Region F is also in an existing water reservoir upgrade programme and existing bulk water distribution upgrade programme. (City of Johannesburg, 2010a).

Types of Densification and Change

The Region E RSDF identifies some very small and scattered pockets of Houghton Estate as high density. A small portion of Houghton on the west side of Houghton Drive is considered part of the Parktown regional node. Three types or drivers of densification in the suburb are discussed below.

Office 'Creep'

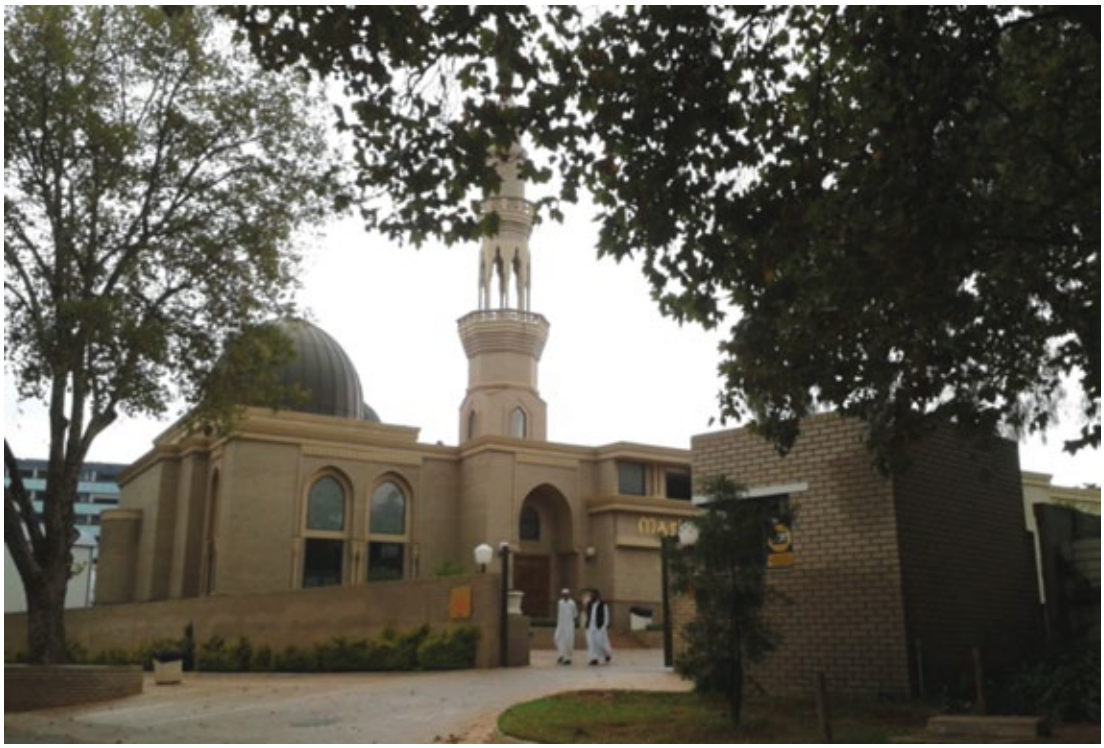
Office and retail developments have existed along Louis Botha Avenue on the edge of Houghton Estate for several decades, but recently commercial activities have extended into the suburb. These developments consist of the construction of new office buildings mostly along West and Central Streets and Oxford Road. However, most of the commercial activities are actually found in existing residential buildings through a formal change of use or re-zoning in line with Johannesburg's city planning frameworks, while some operate illegally. These businesses are more widespread and can be found along many of the busy roads including St John's Road, Joe Slovo Drive, West/Central Streets and Eleventh Avenue.

Muslim Residents and Facilities

With the opening up of Houghton Estate to people of all races, the area has seen the introduction of a number of Muslim residents and amenities that contribute to the diversity of the area. This affects changes to the spatial and built form of the area in Johannesburg in two ways[2]. First, there is the construction of Islamic places of worship, schools and other community centres. This may initially take the form of appropriating existing structures within the neighbourhood before specific buildings are constructed. Very often, these are also clustered creating a larger spatial impact (Dinath, Patel and Seedat, 2014). Second, many traditional Muslim families live together as extended families promoting the construction of secondary dwellings on existing single-family houses and properties thereby increasing density.

Because worship in a mosque is practiced on a daily basis, proximity to Muslim facilities is highly desirable and further contributes to the clustering of Muslim residents and increased densities. In addition, both changes in residential and community facilities promote the provision of secondary businesses and amenities such as those of halaal butcheries and eateries.

FIGURE 4: Masjid Ul Furqaan in Second Avenue (Parker, 2014)



Townhouse/Cluster Developments

Townhouse or cluster developments have sprung up across the area in recent years. Developments such as Houghton Village in St John's Road, the Royal Houghton and The Houghton Apartments along the Houghton Golf Course and many other smaller developments have been built.

FIGURE 5: Example of one of the many recent townhouse complex developments (Parker, 2014)

Current and Future Developments

Regional Spatial Development Framework (RSDF) Region E[3]

Louis Botha Avenue has been identified as a focus area for increasing densities to 50-70 dwelling units per hectare (du/ha) for properties adjacent to the street while properties beyond have proposals for 30-50 du/ha. High-density residential development (30-50 du/ha) will be along the mobility roads. Non-residential land uses will be allowed on the west side of West Street/ Central Street. Acceptable densities vary in Houghton: 40 du/ha adjacent to 11th Avenue; 20 du/ha on the northern extension of 1st Avenue; 10 du/ha on the southern extension of 1st Avenue; 10 du/ha adjacent to Houghton Drive; 8 du/ha in the residential core of Houghton Estate including those erven not affected by other density guidelines pertaining to Houghton Estate.

Regional Spatial Development Framework (RSDF) Region F[4]

The Region F RSDF for 2010-2011 limited developments that increase densification because of pressures on the existing infrastructure and its limited capacity. The RSDF allows for the possible expansion of schools within the area. The ridge area is protected from large developments and small subdivisions.

Rose Road Commercial Development[5]

Rose Road is a residential road along the top of the Houghton ridge extending from the edge of The Wilds to Munro Drive. The proposed development (dating back to the end of 2012) is to construct new office buildings as part of a single development on six properties adjacent to The Wilds. There have been several objections to the proposed development. The Johannesburg Heritage Foundation has objected on grounds related to the protection of The Wilds and the Houghton ridge. Residents have formed the St Patrick Road Action Group whose concerns focus on the issues of traffic and preserving the heritage and residential nature of the area as well as protecting established trees and green open space. The matter was ongoing at the time of writing.

Corridor of Freedom - Louis Botha Avenue[6]

Louis Botha Avenue is the focus of one of the City of Johannesburg's Corridors of Freedom projects. The project aims to upgrade infrastructure along this important mobility spine and increase amenities, services and densities along the route. The development includes the introduction of a Bus Rapid Transit (BRT) route. Houghton Estate will have two bus stations within its borders - one at the intersection of Louis Botha Avenue

and Grafton Road, which is just west of Pine Street, and a second station at St Peter's Road. The BRT system is is currently being implemented. Some water infrastructure will also be upgraded in the area during this period. Upgrading sewer infrastructure is scheduled for after 2021. It is anticipated that social housing will be provided as part of residential densification.

The development project recognises existing and potentially significant heritage sites and emphasises that issues of heritage in both architecture and natural resources should be considered carefully which could inhibit densification in some areas. The target density for properties that are not declared heritage sites is 45 du/ha.

Qualitative Study

Method

Three key aspects or characteristics particular to Houghton have been identified. These are the issues of heritage; the presence of several public and private schools; and the increasing presence of Muslim residents and workers reflected in the two recent mosques built in Houghton Estate. With these aspects in mind, interviews were conducted with at least one individual who could address each of these concerns in addition to the more general interviews with residents and workers of the suburb.

Interview Summary

This section discusses the general findings and summarises the main issues raised in the qualitative interviews.

Ward Councillor

Cllr. Marcelle Ravid (Ward 73)

> *And the Houghton school for example was predominantly Muslim, the whole demographics of the area has changed. And what they do is very interesting because they buy estates and they may not subdivide but they… ask for RES 3[7] then build let's say six homes but all the homes are for their families.*

She continues…

> *So one of the things in the RSDF in the precinct plan… [that] the Houghton residents proposed was, for example ,to allow businesses, they agreed that on Central Street and West Street, all the properties on the highway they wouldn't object to business but they didn't want it to start on the east side... they wanted to keep the east side residential. It's a very busy way so I know there is a recent application on Central on the east side for institutional, for example. So there are a lot of illegal businesses on the east side. The corners, you know you wouldn't mind say the corner of 11th and Central where there it's very busy so they have allowed business in those corner properties. But otherwise the Residents Association will put in an objection.*

Cllr. Ravid is the ward councillor for Ward 73 which is effectively the area known as Lower Houghton. She has been ward councillor for the past 13 years and estimates that, in that time, over a hundred properties have been sub-divided. In addition, she estimates that the number of cars on the roads in the area has quadrupled and that traffic is a major problem in the area. She also feels that the old infrastructure and a

lack of maintenance have resulted in a deterioration of service provision of electricity and water in particular. In terms of other changes in the area, she has seen a noticeable change in demographics, in particular the increase in the number of Muslim residents. She also draws attention increasing commercial development, especially along arterial roads and that the Lower Houghton Residents' Association is trying to control or restrict this development to certain parts of the suburb, not always successfully. Finally, she comments on heritage and prestige being important characteristics of the area, but highlights the fact that occasionally heritage properties can be problematic when owners neglect protected houses in order to push for permission to demolish them. When abandoned and unoccupied these properties cause challenging situations for people in their immediate neighbourhood.

Houghton Residents

'A' (Upper Houghton Residents' Association representative; also works from home)

> *You just have to go over to the end of the road, which you probably already know, and the minute you hit Louis Botha you've got high density blocks of flats. It's not just about, does one do the same on this side? It's a case of how do you move the traffic? How do you get water and electricity? All those sorts of things. So I don't know in these sorts of studies how one has a look at it and says, 'what is enough?' Maybe enough is having everything high density, I don't know. But to me it seems like these corridors, these lungs of trees and a bit of breathing and it's such a short small area and you've got this huge big area, which is so much higher density.*

Interviewee 'A' continues…

> *And certainly schools like St John's and KES, which dominate in the area, I think there is a lot to be said. I think there's great education that's coming from it. One's a government school, one's a private school, so obviously it's elitist to some degree. But you what I think that in South Africa it's great that one has some of these great schools, great areas. Are you going to render it all to dust?*

And 'A' goes on to say…

> *You come to stay up here because you like heritage and you like the fabric of what's going on. It's close enough, I think Killarney is close enough. And that's another thing of course, you've got the high density Killarney, you've got the high density of Yeoville and the corridor of Louis Botha. We are surrounded by some pretty high density areas.*

'A' bought his house in Houghton sixteen years ago and is a member of the Upper Houghton Residents' Association. He chose to live in the area because of its heritage. The residents' association identifies heritage and education as the key features of Upper Houghton. He works from home himself and shares that many of his neighbours do too. He feels that there are strong differences between Upper and Lower Houghton and that the differences are because of different forms of development. 'A' is aware of a strong sense of community in the area and many people know their neighbours. 'A' suggests that the prosperity of the area is linked to the prosperity of its schools that are, as it were, major 'anchor tenants' of it although intimating that the schools are also guilty of being inward-looking and not always considerate of their neighbours.

'J' a (Lower Houghton a resident)

> *But I normally try to avoid crossing the highway because it's very awkward, there are only a few places where you can actually cross the highway easily.*

Interviewee 'J' continues…

> *People mostly drive; so even when I do go walking with the dog then it would be common not to encounter any other pedestrians on the street, especially in the middle of the day. Obviously, in the morning and evenings there are a lot of domestics staff walking up and down and especially in this street 14th Avenue going down to the Killarney Club; some of their staff would walk up.*

Resident 'J' goes on…

> *It's very little interaction. There used to be more interaction when we moved in because there used to be more young children in the streets. They would organise things like on Halloween they would get together and they would walk around in a group but even then there was crime. A mother is*

walking at the back; somebody robbed them of her cell phone. So that stopped. So there's very little interaction.

…

Well, definitely lots of trees have been chopped down – lots. I would say just in this tiny little area at least fifty to a hundred trees in the last couple of years. That's a huge amount of trees. And it would be huge established oak trees and, even with the Gautrain, lots of trees were chopped down. They said they would be replanted but I haven't seen that amount of trees being replaced.

'J' has lived in the western part of Lower Houghton for the last fourteen years and moved to the area to be closer to Roedean School. She emphasises the fact that she is somewhat isolated from the rest of Houghton and, in fact, is not in the Houghton area on the other side of the highway very often. She also mentions the existence of social isolation stating that neighbour interaction in her area or street has declined over the years that she has been living there. She also recalls numerous instances of crime and its impact, and the ever-increasing need for security. She is concerned about the effect of recent developments and densification on heritage and is even more concerned about the loss of trees. She feels strongly that the trees were an integral part of the area's heritage and character.

Workers in Houghton

'F' (representing a business located in the study area)

It's very central, because I suppose with the highway at your doorstep if you want to get into Sandton, you're right there if you want to go into Braamfontein you're right there if you want to go into Rosebank you're right there so it's really, really central.

Respondent 'F continues …

I will give you my idea why there is a demand for densification in Houghton. First, I think the older generation which is my age and over, so let's say 50s, 60s and 70s who have traditionally had houses in the area don't want to move out of the area. This is where we've lived our whole lives but we don't want them to live in 600 square metre house on a 2 000 square metre stand. At the moment my children are still all at home but in the next 3-4 years they will have moved out, and I won't [need] a 600 square metre home. So I want a 200 square metre apartment or townhouse or a cluster house, whatever it is you want to find something that is not the huge homes that everyone is used to. For me that is a reason for densification, in other words I don't want to move out to North Riding to live in a home of 200 square metres.

'F' has worked in Houghton Estate for six months but was also involved in the development of residential apartments and townhouses at the Houghton Golf Club. 'F' felt that two main drivers worked in tandem in Houghton: the cost of owning and maintaining large houses and properties combined with changing lifestyles. This led to an increase in subdividing and building on smaller stands hence intensification of density patterns. Associated with this form of development three problems arose in the suburb: traffic congestion, a situation exacerbated by a lack of public transport; a lack of facilities and amenities in the area that had to begin catering for the increasing numbers of people with different needs and demographic characteristics; and inadequate service provision, in particular, electricity.

Male Shop-worker

This respondent has worked in the shop attached to a petrol station in Houghton Estate the past five months. He senses an air of exclusivity and elitism in the area, although he did not want to express it in this way. He feels that public facilities and amenities are lacking the area and states that lower income people cannot be accommodated in the area. Houghton Estate thus lacks 'vertical integration' across income categories. He felt that the suburban nature of Houghton was shifting more and more towards commercial and business use.

Female Shop worker

This woman has worked at this service station for three years and emphasized that she only works in the area. She expresses the fact that she finds buying groceries in the Houghton area unaffordable in strong terms and highlights experience of exclusivity. She also laments the lack of public transport and points to the fact that everyone drives a car.

Visitors to Houghton

'T' (Member of the Old Ed's gym)

> *The gym is there, I guess it also depends on what income bracket you're in, and I don't think poor people will come there easily. Maybe also for the status, I mean Mandela's house is there. So the area is associated with privilege I guess.*

'T' uses the gym at Old Eds and the petrol station nearby and has been visiting the area since 2012. 'T' specifies that Houghton Estate is associated with privilege and exclusivity and that in some way the residence of the former South African President, the late Nelson Mandela, has contributed to this image. She expresses a strong to desire to be able to live in one of the new luxury townhouse complexes. 'T' emphasises that she feels safe in the area, at the garage and through the presence of private security vehicles. Significantly, she refers to her observation that there is very little interaction between people in the area, especially at the gym.

Heritage Issue

Flo Bird (Johannesburg Heritage Foundation)

> *You are still totally dependent on a car. It remains an elitist thing. There is no street vibrancy in Houghton at all. In fact the exciting thing about Mandela's house was that while he was ill there were all these people clustered around there, there were some vendors, photographers. All of a sudden Houghton came alive. The rest of it is dead.*

As a participant in this research, the interviewee continues …

> *There are those two Americans who moved into that house in 6… They used to call it the Cullinan House because it's got those tiles from the view… 6 Ash Road, I think it's called. Very beautiful Robert Howden House and I think it was declared [a heritage building]. And they told us that they had bought the house because it was a heritage house, quite specifically.*

Flo Bird has been involved in heritage in Johannesburg for over twenty years and has recently been part of discussions around the Rose Road development in Upper Houghton. In her interview, she outlined a brief history of the densification in Houghton and identified some of the issues surrounding it. She stresses that the heritage of Houghton belongs to all of Johannesburg while also highlighting some of the issues that heritage properties raise. She identifies heritage as a significant element of attraction in Houghton with the reputation and contribution of the schools in the area as being equally important. One of her main points was to highlight the natural landscape of the ridge and the topography of the suburb that generate impressive views to and from the area.

Schools

'R' (Local resident and educator at St John's College; lives and works in the area)

> *Am not sure what activities people would engage in but I guess few factors, crime is a thing, an influential one so you don't really see people walking around the neighbourhood. Um…you don't see people exercising running or whatever they tend to go to the gym to do that. ...I mean I used to go running around here but I don't do that anymore. I don't, and I used to go cycling around here now I don't really feel safe to do that. Not so much because of the crime but just someone will take me out. I think people, more traffic people are driving faster.*

The respondent continues…

> *Ah you know I think that as long as they're [townhouses]… kept as relatively upmarket… that's the feeling of most people in the area. The Houghton Residents' Association are very concerned with heritage, so they really want to try and stop that kind of development in this particular part of Houghton.*

'R' has been a teacher at St John's College for sixteen years and has lived in the area for seven years. He also serves as the school's representative on the Upper Houghton Residents' Association. 'R' identifies two main areas of change the suburb: first, demographically, noting an increase in the number of Muslim residents and second, worsening crime levels. He describes how the school, through its security measures and the way

in which it is embedded in the neighbourhood has created a type of gated community. He also emphasises the sense of social community associated with this. He stresses that the school is unlikely to relocate despite spatial constraints for growth because of the heritage buildings and image associated with the existing school grounds. He acknowledges that the school contributes to traffic congestion in its immediate vicinity but also points out that there has been an increase in the demand from Johannesburg parents for weekly boarding as a response to traffic congestion in Johannesburg in general.

Muslim Interests

'M' (Involved in the mosque project; lives and works in the area)

> *Well the schools are very great my daughter still attends and my son is finished he graduated. The Islamic community is finding a big plus because there are two mosques because mosques become a pivotal issue for them and I think in some way it is a very harmonious community with Islamic, Christian and Jewish communities living together and respecting each other. It's completely acceptable and we understand other communities, in that view it is harmonious. There are health facilities, hospitals and medical facilities and I think from that point of view, it is ideal.*

The interviewee elaborates…

> *I think because there are two mosques here it gives a perception that there are a lot of Muslims here which is not true. Well because of the location because it is so close to the highway people find it easy to access it. Even on the weekend visitors coming into the city see it and find it easy to access. I think in terms of the local community, we cannot fill up the two mosques. But what it has done is that it has created impetus for people who can afford to, to move into the area. And young people, particularly young professionals who see their children getting a good education at a very safe cultural and religious environment they can feel quite safe about moving into the area. And I think this affects all the other remaining areas around.*

'M' has lived and worked in Houghton Estate for the past sixteen years and was also involved in the construction of the mosque. 'M' discusses the history of Muslim presence in Houghton, and notes that Muslim residents may have contributed to its increasing density. He highlights that the residents in the area have various cultural backgrounds and suggests that this has caused tension in some cases although it has mostly represented harmony. He also speaks of the conflicting views of 'old money' and 'new money'. He emphasises that the practice of walking is important to both Muslim and Jewish residents and how this is constrained by the poor condition of the sidewalks. He runs his business from a house in Houghton with consent use from the City Council, and draws attention to the fact that there may be more businesses operating in certain parts of Houghton Estate without visible or physical changes to the built environment.

General Points of Commonality raised in the Interviews

The image of Houghton Estate came up frequently as an aspect of its attraction for residents. The words used were prestige, upmarket and detached.

Although it is not possible to extrapolate from the small qualitative sample used, that three of the respondents live *and* work in the area gave valuable insight. This suggests that there may be more people simultaneously living and working in the area than is perceived both from within and from the outside of Houghton Estate. One respondent emphasised this in his interview.

The Houghton Estate suburb is quite fractured and divided by main arterial roads and highways and by the ridge, which is reflected in the interviews. The division between Lower and Upper Houghton was very strong but often the edges, such as the sliver of Houghton Estate on the southern side of Louis Botha Avenue or the section of Lower Houghton to the west of the M1 Highway, are neither considered nor readily contained within an interviewee's construct of the area.

The Resilience of Houghton Estate's Urban Form

This section presents findings and analysis on Houghton Estate under the various resilience themes detailed in the terms of reference for this work. These are diversity, modularity, nestedness and reserves.

Diversity: Variety, Vibrancy and Choice

The introduction (Part 1 of this chapter) to Houghton Estate demonstrates that the area has very little variety in its built fabric, land use or economic activities. It is predominantly a residential area with the presence of a number of good schools. It has very few community services or local amenities. Properties are expensive and in demand and consequently the area is inhabited largely by very wealthy people. This means that, while the area began diversifying racially before 1990, the variety of people in the area is largely limited to those of upper-income status

The two employees at the petrol station are aware of the lack of facilities and amenities in the area and highlight the fact that most facilities that do exist in the area are not affordable. Most of the other respondents seem to not be affected by the lack of choice or variety in Houghton Estate. These respondents have access to private vehicles and cite the central location of Houghton Estate with regard to using facilities and amenities in adjacent neighbourhoods as an acceptable alternative. For most residents or workers in the area, the lack of variety or choice was not an issue.

Most participants did not necessarily recognise the presence of cultural diversity among the residents of Houghton Estate. Although they noticed that many newcomers to the area are Muslims they did not express positive or negative opinions about this change. Respondent 'M' mentioned the variety of religious and cultural beliefs in the area as a changing phenomenon and also refers to some notions of cultural conflicts between those with 'old money' and those with 'new money'. While respondents did not object to the changes of race or culture, a few alluded to retaining a certain type of wealth class of residents. Townhouse developments are welcomed as long as they have an 'upmarket' character.

Modularity: Intensity, Efficiency, Balance, Scale and Integration and Openness: Connectivity and Continuity

Land uses other than residential are concentrated in certain areas. Commercial developments, including a few retail elements are restricted to along the main arteries and are situated on the fringes of Houghton Estate. The schools are mostly located towards the southern boundaries of the suburb while the private recreational

spaces lie towards the northern part of Houghton Estate. Perceived levels of social interaction varied between participants. Upper Houghton seems to have a high level of social interaction that is largely associated with the activities of the Residents' Association and the sense of community in the St John's College precinct. Social interaction in Lower Houghton links to the activities of walking and various religious institutions, but very little social interaction takes place along the western edge of lower Houghton.

Houghton Estate is seemingly not very efficient. Nearly all respondents cited an increase in the volume of traffic and traffic congestion and emphasised the lack of public transport. Traffic congestion around the schools is high and this factor, along with the overall traffic situation in Johannesburg generally, has increased the demand for boarding facilities at St John's College. Johannesburg parents are placing their children at the school as weekly boarders to avoid negotiating daily traffic in the city. Many cited electricity outages as the only real issue around services but some commented on the fact that the area has old infrastructure that requires maintenance. The reliance on private cars and the lack of local amenities has also had an impact on social efficiency. Most people only interact with the suburb physically through using their private vehicles and one resident commented that she knows her neighbours' cars more than she knows their faces.

The scale of Houghton Estate is not conducive to walking. The street grid is large, with large properties and high walls. Main roads and the highway are significant barriers within the suburb. In addition, the topography also hinders movement through the area – particularly the ridge being a significant physical barrier. Conversely, the main roads and the highway are the main reason that the area so central and therefore desirable because virtually the entire City of Johannesburg is readily accessible from Houghton Estate.

There is very little integration within Houghton. Social interaction is limited to small pockets of the suburb. There is very limited public space. A worker at the petrol station relayed the fact that local teenagers gather at the station in the evenings to socialise, which is symptomatic of the lack of facilities and public space in Houghton Estate. The petrol station does seem to be a bit of a hub where people meet to have coffee, go for a run together or share school trips.

Some borders of the suburb are more integrated with surrounding neighbourhoods than others. Lower Houghton blends almost seamlessly with Saxonwold, Melrose, Orchards and Mountain View where the houses and properties are of similar styles, sizes and affluence. Where the area meets Norwood or Killarney, the physical differences became apparent in the changes in scale yet both these neighbourhoods provide valuable services to the residents of Houghton Estate. The border with Yeoville and Bellevue is most striking through the changing levels of scale, urban form, wealth and income. It is here that the lack of integration is most apparent.

Nestedness: Complexity, Coherence, Accessibility, Proximity and Convenience

Houghton Estate has a very strong identity that is well formed. Its image of prestige is seen as established through the elements of wealth, heritage and age. It is strongly associated with education through the quality schools located within its borders and immediately neighbouring it. The Upper Houghton Residents' Association has actively cultivated this image. Recently erected signage around the neighbourhood identifies the characteristics of heritage and education. This identity is espoused by those who would like to keep the area 'upmarket' but it is also experienced in a negative way by lower income workers who feel excluded by virtue of its lack of affordable amenities and facilities. One worker specifically refers to evidence of the lack of vertical economic integration within Houghton Estate and this strongly implies the suburb's sense of exclusivity. The strong image of Houghton Estate has not generated a united community. Rather, the area comprises several smaller communities that do not necessarily communicate with each other.

The schools in Houghton Estate contribute to its image and also play an important role in the area's interaction with the city. The reputation of the schools, together with the association of Houghton Estate with them, reveals one of the ways that the suburb interacts with the city at large, and is one of the ways in which it contributes to the city. The two public schools are intended to service the immediate geographic catchment area but both schools, to varying degrees, support learners from around the city. Houghton Primary School has very few learners from Houghton Estate because it is thought that most children of the area attend private schools. Subsequently, learners come from all over the city. The situation at King Edward VII School is similar

although the reputation and quality of education at this school still attract learners residing in the suburb. The three private schools in the area attract learners from around the city and even further afield.

Some of the changes that have occurred in the area may be able to promote changes in levels of interaction and may have introduced more variety into the neighbourhood. The increase in commercial land use, either through changes in built form or through consent-use, have introduced a variety of workers to the area. The construction of two mosques has aslo brought variety in function and a shift in demographics. The mosques also provide a space where residents and workers interact. The Gautrain bus and the proximity of the Rosebank Gautrain station has introduced some public transport access to Houghton Estate but the users of this service are largely middle- to upper-class. This therefore has not benefitted people of lower incomes and has not encouraged social interaction.

Reserves: Equity, Adaptability and Opportunity

Houghton Estate is not a neighbourhood noted for equity although some of the recent developments may help to improve this situation. The addition of mosques have attracted Islam adherents some of whom have become residents, which has led to more religious and cultural diversity in the area and is driving a specific form of densification through the practice of extended family living on a single property. Commercial development is introducing more diversity in the labour force through a growing demand for office and retail workers, driving a need for public transport services. Higher density developments in the form of townhouses are allowing some degree of economic diversity by providing housing that is cheaper than most of the current houses. However, these properties are generally purchased as opposed to being part of the rental market, and are only affordable for middle- and upper-income people. The area will therefore remain exclusive.

Houghton Estate has demonstrated some capacity to change as the built environment has evolved. Residents are generally welcoming these changes and see the developments as positive for their area. However, some notable limitations limit the adaptability of the suburb. The schools are significant occupants within the neighbourhood, providing fixed open spaces, and limiting development in some aspects. Many of the houses in Houghton Estate are protected in terms of the Heritage Resources Act (No. 25 of 1999) because they are over sixty years old. While in some cases, protected houses are now used as commercial office space through consent use, this could restrict the potential for commercial or higher density residential redevelopment in the future.

The study area therefore does have opportunities and all participants (workers, residents, visitors) feel that they have a positive future in Houghton Estate.

Conclusion

Houghton Estate has not experienced dramatic change in its hundred years of existence as a residential suburb. It began as a wealthy, low-density residential neighbourhood and remains so today. Some pockets have seen the introduction of higher density residential buildings, such as the blocks of flats along Louis Botha Avenue built in the 1930s, or the townhouse developments constructed within the last 15-20 years around the Houghton Golf Course and along major roads. Despite this, Houghton Estate remains largely low density and overwhelmingly residential.

Some roads and routes of the suburb have become major thoroughfares, referred to as mobility spines, increasing vehicular traffic in the area, and the construction of the M1 Highway in the 1970s severed the suburb in two. Along these noisy roads the nature of land use has shifted more towards commercial and other non-residential use with some businesses operating from existing residential houses and in other cases resulting in the construction of larger office blocks or buildings used for religious purposes.

There are three types of densification creating subtle and more visible change within Houghton. The commercial development as referred is the more visible feature yet the construction of townhouse complexes too is also reasonably visible. These two types of densification are also reflected in two current proposals for the area: first, that of the commercial property development in Rose Road; and second, the increased residential densification that is intended to accompany the Corridor of Freedom project along Louis Botha Avenue. A recent trend has been the presence of extended Muslim families living in the large homes in the area resulting in a more subtle form of densification, although the presence of the two mosques is a highly visible change.

The qualitative interviews with various people who interact with Houghton Estate bring the suburb's association with prestige, and the dominance of people in the middle to upper-income groups, to the fore. Two respondents from lower income groups identified this as exclusivity in a negative way, and highlighted the lack of amenities for all in the area. For most respondents the changes in densification are not seen as problematic and in fact, most respondents felt very positive about the changes and the future for the area. The interviews demonstrate that Houghton Estate is quite fragmented, both in the way that respondents conceive the neighbourhood, as well as how the quite varied individual experiences within its setting are reflected.

The diversity within Houghton Estate is limited to differences in religious institutions and beliefs but in many other aspects is very homogenous as a predominantly upper-income residential suburb with few public amenities. There is a lack of public space and very little social integration or interaction. The area has constructed a strong identity around the images of prestige, heritage and education, although these images are more visible presently in Upper Houghton. The Houghton Estate respondents express openness and willingness to accepting change. Adaption is evident but the existing built fabric, educational institutions and heritage buildings may limit the suburb's capacity to further change and adapt.

Notes

1 Non-white South Africans were required to carry a pass, also known as a dompas, in urban areas stating their employment and permission to be in a 'white' area. The abolition of the pass laws were the object of the ANC's Defiance Campaign of the 1950s and the laws were eventually repealed in the 1980s.

2 Based on research examining spatial changes in Islamic communities in Johannesburg by Dinath, Patel and Seedat (2014).

3 City of Johannesburg, 2010a

4 City of Johannesburg, 2010b

5 Information has been gathered from the forum for the development on The Heritage Portal: (Heritage Portal, 2013b)

6 Information has been taken from the Louis Botha Avenue Development Corridor draft report dated 30 November 2013.

7 Residential 3 zoning allows 80% building coverage and a number of secondary land use rights (City of Johannesburg, 2011: 32)

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'T'. (2014) Houghton Estate Gym user. Personal communication conducted in Johannesburg on 7 April 2014.

'A'. (2014) Houghton Estate resident. Personal communication conducted in Johannesburg on 21 February 2014.

'J'. (2014) Houghton Estate resident. Personal communication conducted in Johannesburg on 26 March 2014.

'M'. (2014) Houghton Estate resident. Personal communication conducted in Johannesburg on 27 February 2014.

'F'. (2014) Houghton Estate worker. Personal communication conducted in Johannesburg on 21 February 2014.

Ravid, M. (2014) Ward councillor. Personal communication conducted in Johannesburg on 10 February 2014.

'R' (2014) School representative and Houghton Estate resident. Personal communication conducted in Johannesburg on 26 February 2014.

6 North Riding

Hayley Gewer and Dylan Weakley

Introduction

Between 1996 and 2011, the population of North Riding and Bellairs Park[1], to the north-west in the City of Johannesburg, increased almost eightfold. This increase took place through private developers converting numerous agricultural smallholdings into large townhouse developments. As with most city transformations, a mixture of positive and negative outcomes, for both the residents and the wider City, has accompanied the growth and densification of North Riding. Based on interviews with residents, statistical data and secondary sources, this paper investigates these outcomes.

On a positive note, the research shows that North Riding provides housing opportunities for a growing middle class and, importantly in the context of South Africa, a growing black middle class. It is well located to the north of the City of Johannesburg with regard to jobs, and in relation to the highway network, which connects it to the wider city. It tends to show a good return on investment for property buyers, with relatively lower purchase prices, and relatively higher rental prices. Residents say that it provides a safe environment with access to many required amenities, most notably retail shops and restaurants. At the same time however, the fact that infrastructural development has not kept up with the scale of residential development is problematic. In particular, not only is the road network highly congested and not well maintained, but so too are water, electricity and refuse removal services. Development has taken a decidedly one-dimensional form, with little variety or land use mix, with seemingly limited scope for adaptation. There is limited access to public schools and public health care, with the private alternatives often proving costly. Access to open public space is very restricted, and residents report an absence of community cohesion and interaction.

The paper starts by describing the research method used, detailing the qualitative interview approach and the data used in the quantitative analysis. It then offers a brief historical background to North Riding, giving evidence of the growth and densification that has taken place. The qualitative and quantitative findings reveal significant demographic change in the suburb. The paper then presents findings from the qualitative research done in which interviewees' perceptions of how the area has changed over time, and their current views on both positive and negative aspects of how it now functions were gathered.

Research Method and Sampling

Along with the desktop research that drew data mainly from the Statistics SA censuses of 1996, 2001 and 2011, and some secondary sources, the major research method used for this work is qualitative. Similar to the other three case studies presented in this volume, residents' perceptions of densification in North Riding were obtained through interviews. Interviews took place mainly in people's homes and lasted roughly one hour. As in the Hillbrow study, a designed and piloted set of interview questions guided the discussion. The questions

Photographs by Hayley Gewer

link to the key themes around resilience and densification as suggested in the terms of reference, and the respondents' answers provide brief insight into people's thoughts and ideas on the issue.

Finding respondents prepared to be interviewed for the North Riding case study proved more difficult than initially expected. In contrast to the willingness and openness the interviewer (Hayley Gewer) experienced when interviewing people living in Hillbrow for the same booklet, the residents of North Riding were reluctant, expectant and suspicious. A work colleague living in North Riding introduced the researcher to a few people living in the same complex. This was her initial contact with residents in the area. Despite formal introductions, an atmosphere of resistance and suspicion clouded these first interviews.

More respondents became known through the snowballing process. While this method normally allows for ease of access to other possible contacts in an area, in this case it was is seemingly closed and inaccessible. Moreover, it did present limitations in terms of the demographic and geographic make-up of the overall sample group. Most residents appeared to know very few people living in their own complex and almost none in others. Consequently, contacts tended to be within the same complex, and most people simply only mixed with people in their own racial and age groups. Because the initial respondents were white, many subsequent referrals were too.

When asked about other potential people to interview, most respondents were reluctant to assist, and the researcher had to work hard to find people to interview from other demographic groups (race, age, income level) to get a wider range of people's perceptions of the area. It was only after six interviews that the researcher was able to contact black African respondents, and even then, found it difficult to find more than three prepared to be interviewed. In the end, nine people were interviewed (Table 1), four women and five men[2].

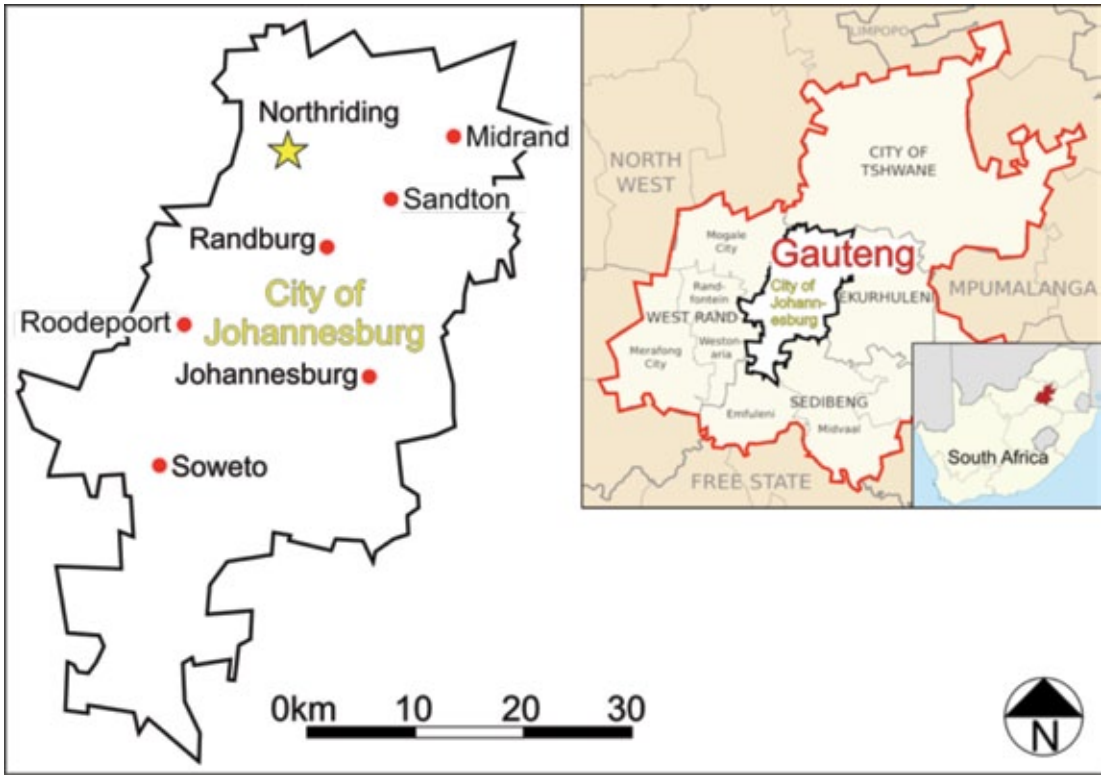
While a range of respondents was sought in terms of length of stay in the area, it was only possible to interview two people who had lived in North Riding for longer than fifteen years. Both of these people were employed in the area (Willie is a gardener in a complex and Fiona runs a local crèche). It soon became apparent that staying time in North Riding averaged around 7-10 years, presenting a further limitation to the study in trying to understand physical and social change over an extended period. This, however, also relates to the fact that North Riding's population saw its real 'boom' after 2011, as becomes evident in the section that follows.

Name	Year arrived in North Riding	Gender
Fiona	1991	Female
Willie	1999	Male
Ralph	2001	Male
Michael	2001	Male
Quinton	2003	Male
Marc	2004	Male
Karen	2005	Female
May	2006	Female
Louise	2009	Female

North Riding: Context and Background

North Riding (also sometimes spelled Northriding) is a mainly residential suburb towards the north-western fringes of the City of Johannesburg Metropolitan Municipality (CoJ), and some 10km north-west of the Sandton Central Business District (CBD) (Figure 1).

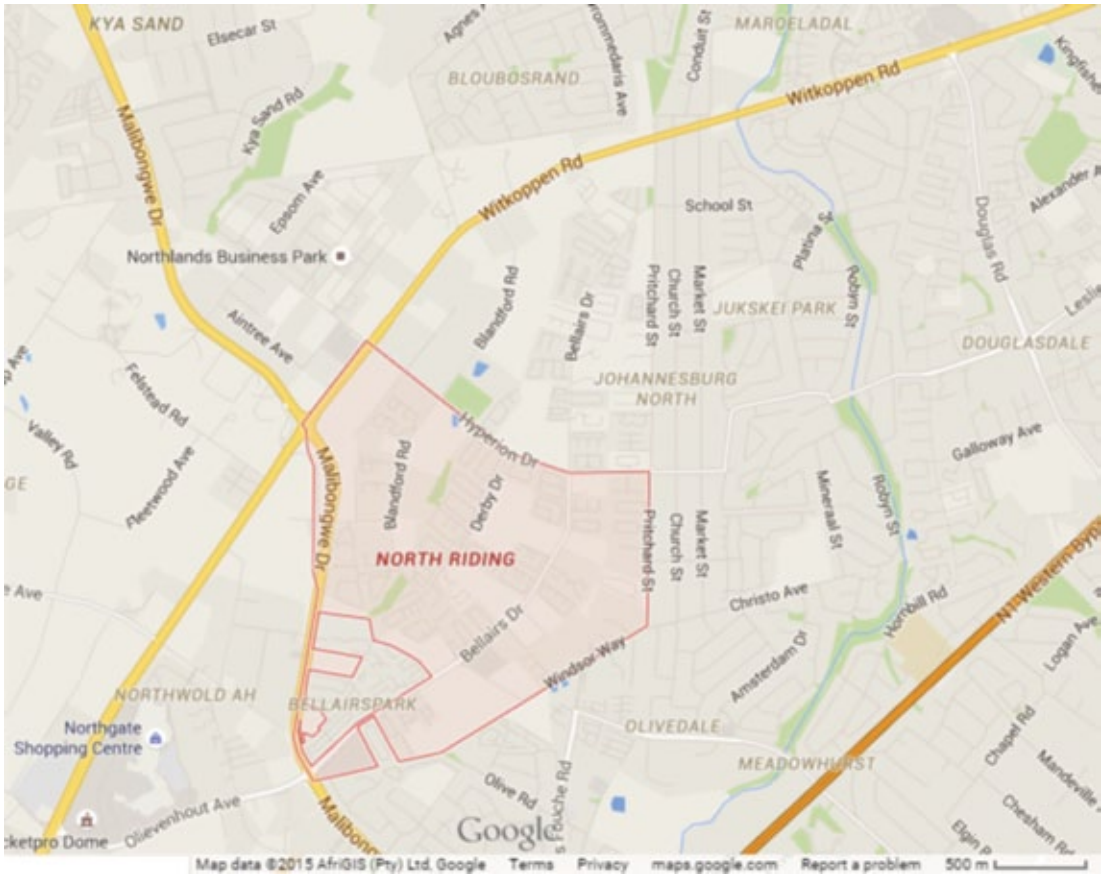
FIGURE 1: North Riding's Location in the City of Johannesburg.



Base maps © 2015 Openstreetmap.org

The suburb lies immediately to the east of the intersection of Malibongwe Drive and Witkoppen Road (Figure 2). It is not to be confused with North Riding AH (Agricultural Holdings) that mostly lie immediately to the west of the same intersection. North Riding encloses the suburb of Bellairs Park in its south-eastern corner, a suburb which is very similar in its development and layout, hence together they are regarded as a single neighbourhood in this paper. North Riding lies (as the crow flies) about 2km north of the Malibongwe Drive on- and off-ramps to the N1 Western Bypass. This bypass forms the western half of Johannesburg's ring road motorway and thus connects North Riding to the wider city area and its surrounding region. To the east lie mostly residential suburbs, including Johannesburg North, Olivedale, Noordhang and Douglasdale. To the north are the industrial areas of Hoogland and Kya Sand, as well as the residential suburb, Bloubosrand and Kya Sands informal settlement.[3]

FIGURE 2: Immediate Context of North Riding



Map data © 2014 AfriGIS, Google

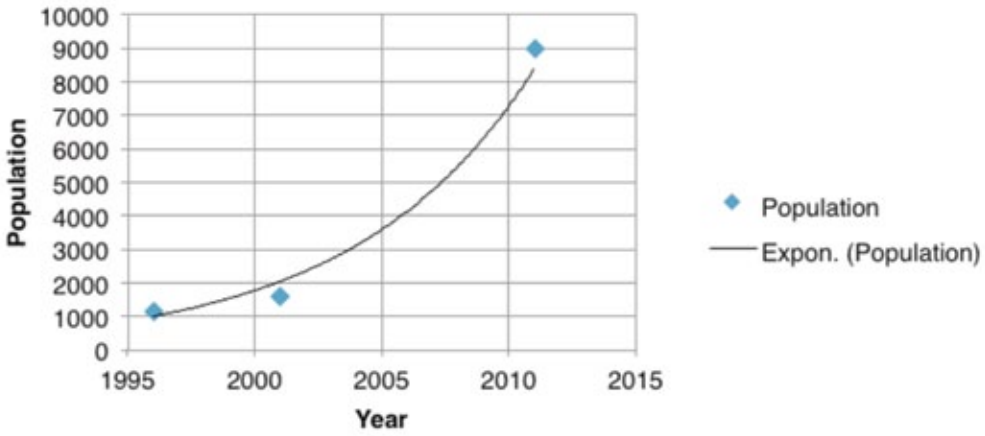
Up until the mid-1990s, North Riding and Bellairs Park remained mainly agricultural smallholdings. They were originally the farms, North Riding and Olievenhoutpoort, that were subdivided and proclaimed as townships (section by section). Hart & Partridge (1966, p. 41) describe the original smallholdings in North Riding as follows:

> *A most important part of this eastern district [of] the urban fringe north-west of Johannesburg] is the North Riding community. Most of these holdings range from five to ten acres and are so situated as to gain the benefit of extensive views of the Magaliesberg to the north. It can easily be appreciated that in a relatively featureless area such as comprises the Witwatersrand, any land which commands views of a mountain range, and is also associated with a northerly aspect will maintain high value… Unfortunately the Rand Water Board does not reticulate to North Riding so that its development has been hampered. However its proximity to the older and better placed Bryanston-Witköppen region will maintain and improve its value in the future (Hart & Partridge, 1966, p. 41).*

Densification: From Smallholdings to Townhouses

While there could be uncertainty about Hart and Partridge's (1996, p. 41) view that landscape in the area would enhance its value in the future, their prediction that the land is attractively placed in relation to the rest of the City can be confirmed by the establishment of North Riding and Bellairs Park's numerous township extensions, mainly during the 2000s. The primary evidence of this growth is from census data from 1996, 2001 and 2011. While the population of the two suburbs combined increased from 1 174 in 1996 to 1 637 in 2001, in the following ten years it almost sextupled to 9 034 in 2011 (Quantec, 2015).

FIGURE 3: Population Increase over time: North Riding and Bellairs Park



Significant change in built form accompanied this vast increase in population. It happened through individual smallholdings being converted into multi-dwelling townhouse developments. Each new area was proclaimed as extensions of North Riding or Bellairs Park. Transformation in the area has been dramatic. Very few smallholdings or farm houses still exist (Figure 5). Respondent Michael reinforces this rapid and extensive transformation by reporting: "I think the biggest thing has been more high density development, because the land has become so expensive and the only way for them to make any money is to make it as high density as possible. So the bigger properties and that kind of thing are being sub-divided. They're building this type of thing nowadays because that's where the money is." Census data also indicates this change. While in 1996, 167 dwellings fell into the general 'townhouse' category[4], this number increased to 358 in 2001 and shot up to 2 543 in 2011 (Figure 4)(Quantec, 2015).

FIGURE 4: Housing type change over time: North Riding and Bellairs Park

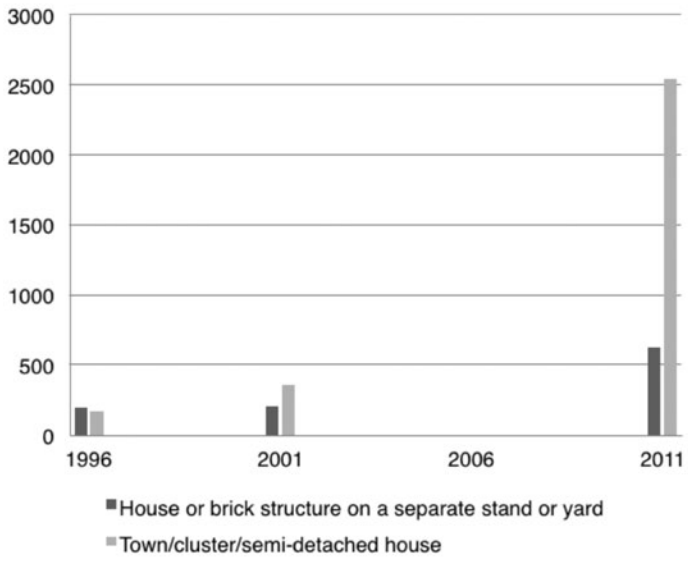


FIGURE 5: Townhouse Development from Aerial Photographs of North Riding and Bellairs Park, 2004 to 2014

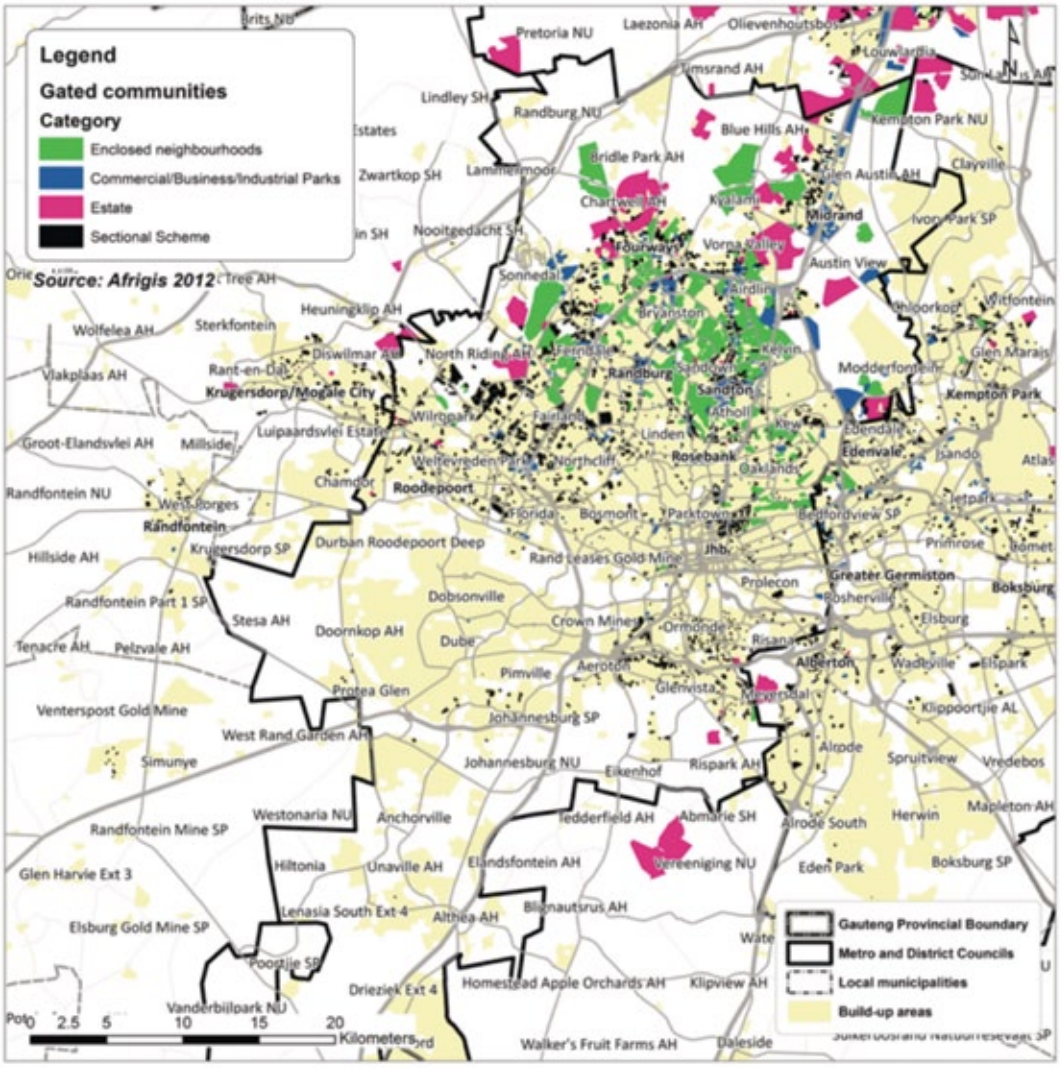
Images © 2015 Digital Globe, Google Earth

Aerial photographs also show this trend of developing smallholdings into townhouse complexes. Townhouse developments in North Riding and Bellairs Park are mapped in Figure 5. The earliest photograph available (to the authors at least) from 2004, shows that a significant number of developments had already emerged. If the boom in townhouse development took place between 2001 and 2011, as shown in Figure 4, it can be assumed that the initial boom occurred in the early 2000s (2001 to 2004). This trend has continued, although it does seem to have decelerated during the late 2000s and early 2010s.

This growth and model of development has resulted in the urban form seen in North Riding today. It comprises what Landman and Badenhorst (2012) describe as 'secure townhouse complexes', each with single, security-monitored access points. They are sectional title schemes, with individually owned dwellings collectively managed by a body corporate. Significant changes to the public road network have not accompanied the growth, and the only land use mix is the development of a number of shopping malls in the area.

Townhouse development is not unique to North Riding and Bellairs Park in Johannesburg, nor indeed to other South African cities. Todes (2012, p. 158) notes that this type of development has taken place at a fairly large scale in post-apartheid Johannesburg, describing it as the growth of "edge cities… [and] the development of gated communities in sprawling settlements". Figure 6 shows the location of gated communities[5] to highlight their concentration towards the northern part of the City of Johannesburg. While "townhouse complexes are scattered over a much larger area [than gated communities in general]... Smaller or concentrations of townhouses also occur around certain intersections or alongside... major road[s]" (Landman & Badenhorst, 2012, p. 28). This is certainly the case of North Riding and its surrounds, shown between 'North Riding AH' and 'Ferndale' in Figure 6

FIGURE 6: Gated Communities in the City of Johannesburg



Landman & Badenhorst, 2012, p. 28

Demographic Changes

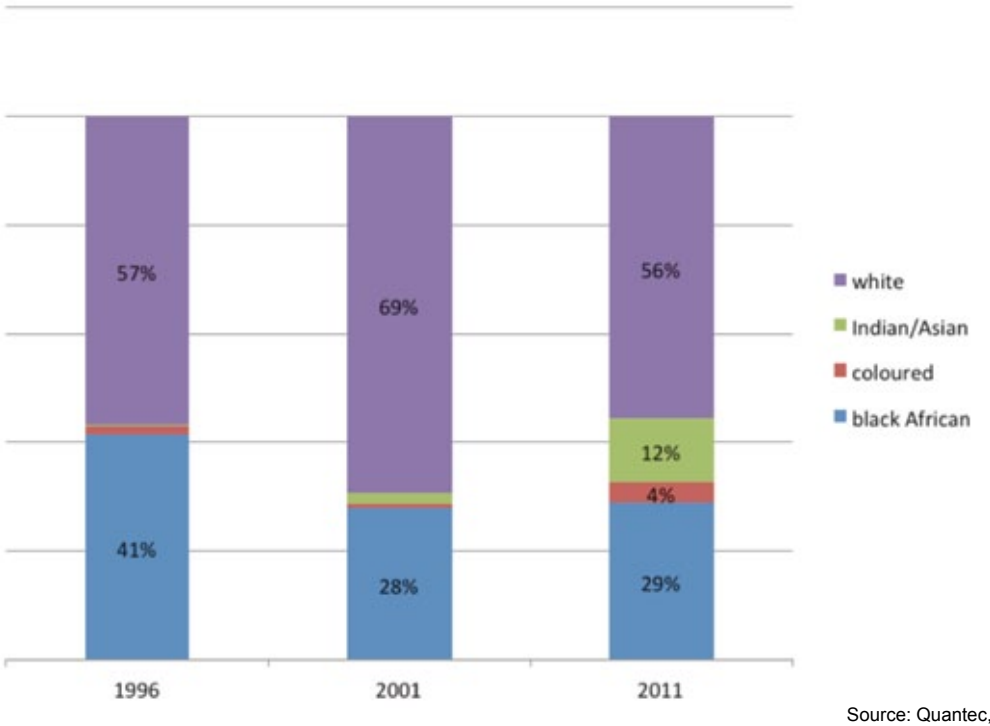
Demographically, growth and densification have brought a number of changes to North Riding. This is shown in both census data and in interviews conducted. In 1996, before the growth of townhouses (as shown in Figure 3) the population numbers were very small compared to what they are today. For this reason, past and present populations are so different that they are almost incomparable. However, a comparison is still made to show the scale of transformation. After the period of extreme population growth, the most significant demographic changes have been the general increase in household income and, importantly, the fact that this has occurred across all race groups.

A number of respondents commented on the changing racial demographics of the suburb, when asked about the changes that have taken place in North Riding. For example, Fiona describes this change in the local school. She says "Yeah, it has changed here, I think when we opened this school it was like four black children, among eighty white children… so now black children are… the majority." Willie notes "there's no apartheid now… not like before". However, as is seen in Figure 7, not that much racial change has taken place in the proportion of different population groups living in the area. In 1996, the population was 57% white, 41% black African and 1% coloured, while in 2011, the population was 56% white, 29% black African, 12% Indian/ Asian, and 4% coloured.[6] The significant changes are rather the increase in absolute values of black, Indian/ Asian and the coloured population figures (Figure 8), and more importantly, the narrowing divide in household income between different race groups (Quantec, 2015).

In 1996, there was a clear difference in the incomes of white and black African households. It is assumed that this was the result of the white population being mostly smallholding owners, with black Africans being mostly workers. In 1996, over 90% of black households earned under R2 500 a month, while 52% of the white households (who collectively were by no means very wealthy[7] earned over R3 500 per month Quantec, 2015).

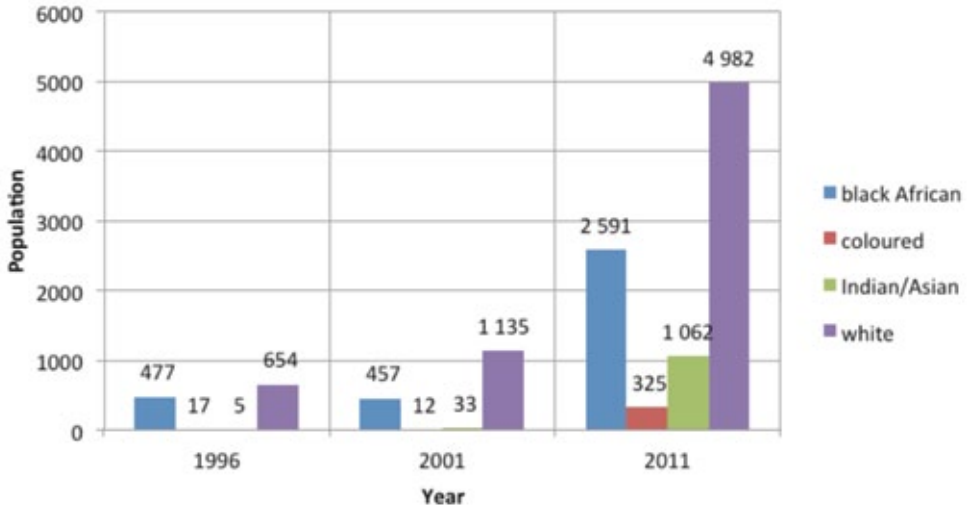
By 2001, North Riding was embarking on its growth spurt. Many of the new households that moved into the newly built townhouses seem to have been white families with an increase from 645 to 1 135 people from 1996. Figure 9 shows that in 2001, there was still a significant divide in the incomes of white and black households in the area. Sixty per cent of white households fell in or above the R76 801-R153 600 per annum category while just under 75% of black households fell in or below the R9 601-R19 200 per annum category. By 2011 however, North Riding had evolved into a distinctly middle class suburb, with a very similar spread of incomes across households of all race groups (Figure 10). In 2011, over 60% of households in each of the four census-defined race groups included fell within or above the R307 201-R614 400 annual income bracket. This is significant when compared to the City of Johannesburg as a whole, where fewer than 15% of households fall within or above this annual income category (Quantec, 2015).

FIGURE 7: Racial Composition, North Riding and Bellairs Park, 1996, 2001 and 2011



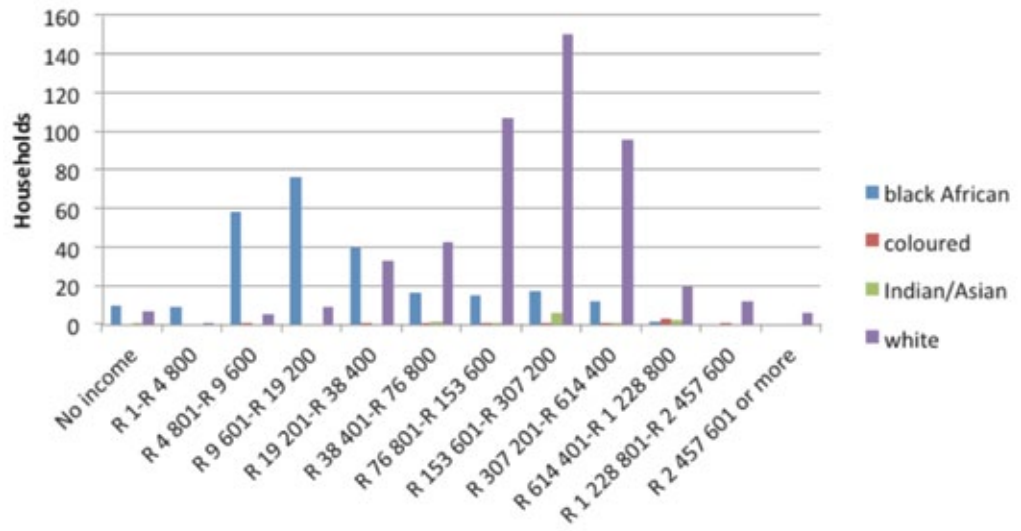
Source: Quantec, 2015

FIGURE 8: Changes in Population by Race: North Riding and Bellairs Park, 1996, 2001 and 2011



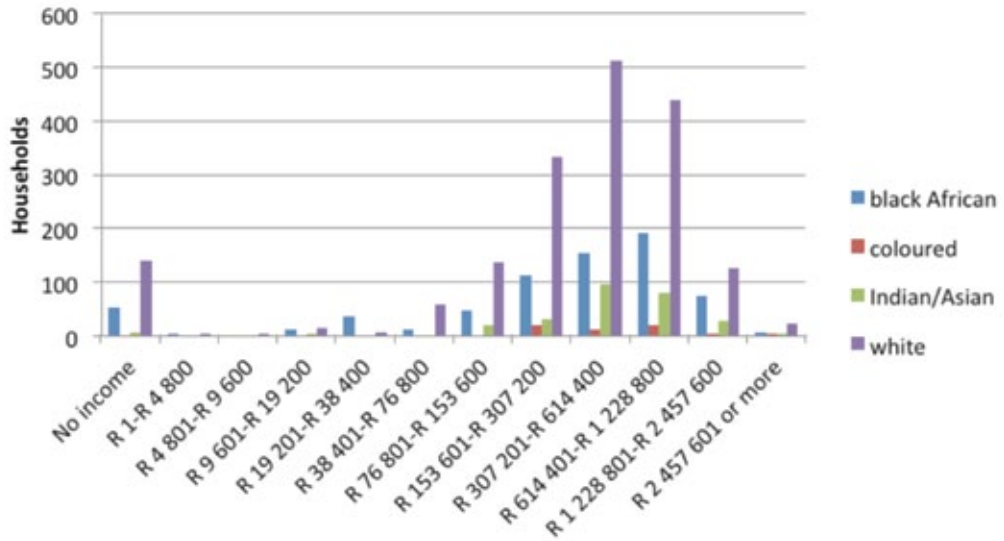
Source: Quantec, 2015

FIGURE 9: 2001 Household Income by Race: North Riding and Bellairs Park



Source: Quantec, 2015

FIGURE 10: 2011 Household Income by Race: North Riding and Bellairs Park



Source: Quantec, 2015

Residents' Perceptions of Densification in North Riding

Residents' general perceptions of change in North Riding vary, with the authors noting a distinct difference between black and white respondents, respectively being generally positive and generally negative. Some of these general responses are shown in Table 2.

This section, under different headings, presents the findings concerning the residents' perceptions of the residential densification in North Riding. It starts by outlining the reasons why people moved to North Riding in the first place; a useful indication of the perceived positive aspects of living in the area. A review of services (hard and soft), access and connectivity (including to the wider City, schools, health care and shops) then follows. Lastly, it addresses issues of social cohesion, identity and belonging and looks at issues of governance, both public and private.

TABLE 2: Varying Generally Positive and Negative Perceptions of Densification in North Riding

Positive	Neutral	Negative
Bigger changes [are that] we've got no field anymore […] People don't want to see field. They are all building nice complexes […] then I told myself "but this place is nice, compared to where I was staying in Alexandra where there's noise. It is so good for me (Willie)	*North Riding and Honeydew are the two areas that have supplied the most number of housing complexes over the last ten years in Johannesburg […] The obvious changes pertain to the increased amount of properties that have been sold and turned into complexes… instead of having five homes on the street, there are now fifteen hundred homes (Marc)*	*The amount of construction that's happened here in the last ten years is psychotic. It's not just here. It's Bellaire's Drive; it's Blandford Road; it's Hyperion; it's Pritchard […] They've just built... and they've built crap. The problem is you've got all these people living here now; and you've got a tiny two-lane road; and, if you look on a road map, it's highlighted as a main route (Ralph)*
Because these plots, which can actually have eighty homes, belonged to one person… Now this plot can occupy many people. So we are many. It used to be like few people in the area […] So now the development has made it different and nicer […] And there were no black people, many people [who] lived in this area were white because black people could not afford anything from this area […] I always loved the area, yes, but I've always wished for more houses to be built, instead of one person owning the equivalent of eight homes, which was very ridiculous (Fiona)	*There might be isolated (one or two) stands but that's literally it […] I mean this whole road has gone. On the left, when you drive up towards Malibongwe, there's one stand that's just now been built up. That was like the last one (Quinton)*	

Why North Riding?

Most people interviewed were relatively new to North Riding, having settled there since 2005. In fact (as mentioned earlier), it was very difficult to find respondents who had lived in the area for longer than seven years. Questions around their length of stay in the area were met with mixed responses. While some people tend to stay for an extended period (7-10 years), there are many who settle in the area for shorter periods due, in the opinion of one resident, to not being able to afford living there. She states, "every now and then they are coming in. After six months they go, or maybe before. I think it depends on if they can afford it or not, because there are times when it's very hard… they always look for [something] cheaper… It's always in and out" (Fiona). While Fiona suggests that a main reason for moving out of North Riding is lack of its affordability, many respondents generally see it as a relatively affordable place in which to live. Marc for example, when asked why the area is attractive, responds "Due to the supply of housing in the area, affordability and good security."

Most respondents chose to settle in North Riding because they consider it affordable and a good investment, particularly in terms of the relatively large stand sizes. The area is also seen as being conveniently located. Because of its relation to the the north of Johannesburg, it is considered by many respondents as being more central than established northern suburbs[8] such as Sandton, Rosebank and Cresta (to name a few). While many domestic workers and gardeners working in the area travel a long way to get to work, residents

interviewed appear as mainly orientated to Northern Johannesburg. Although this can be considered a positive factor, what became clear is that residents in the North Riding area had a distinct lack of connection to other parts of the City. As such, despite having access to the wider Johannesburg region, limited integration and interaction between them exists. This quotation from May best sums up how living in North Riding seems to have created a definite inward-focused and self-sufficient area and community that has little cohesion or integration with the rest of the City of Johannesburg…

> *I went to a dinner party as part of my decision-making process, where I was invited by a friend, and there were twelve people at the table and of the 12, eight of them lived in North Riding and I was about to move to North Riding, so I was like wow, so I realised that that's my demographic. I have made so many friends and one of my closest friend lives across the road… we do all these things together, gym buddies and our world is very small. North Riding is absolutely a micro suburb, you find that people in North Riding very rarely [travel] … You look at 10 years ago when we used to go to Melville, town but now here. So it really shrinks your world because you have got absolutely everything including not just the amenities but the people you want to be doing stuff with. Most of my friendship circle lives within walking distance if [we] were those kind of people but we still drive.*

The three main reasons for moving to North Riding are affordability, safety and centrality (as summarised in Table 3).

TABLE 3: What makes North Riding an attractive area to live in?

Centrality	*It is central. It is central to the highway if you want to get onto the highway. It is close to Fourways Mall. It is close to North Riding mall. And it is close to William Nicol - the shopping centre there (Karen)* *I have everything that I need in my area; I have entertainment shops, friends and social restaurants. I have never had to go more than a kilometre or two to get to what I need (May)*
Affordability	*We looked in the greater Randburg/Fourways area and this place came up at a really good price. It was one of the few townhouses that we could afford that had a big yard, as you see this complex. Yes affordability and [it is] spacious… You know, I've got a 300 m^2 backyard, which you don't get today (Quinton)* *It was far away, it was affordable, it was pretty much countryside living, which was nice. I mean there was nothing on the other side of the road – literally. It was [just] veldt (Ralph)*
Safety	*…it was just safety. I mean in all the units that I have stayed in here I have never had an incident and the fact that I am black in a middle of the complex is better (Louise)* *I've never heard of anything, you know... like any incident or anything. It's very quiet and I think, black and white, we are united, as far as I know... in this area… Yeah, it's very safe. It's very safe to live in North Riding (Fiona)* *Look the thing about security in this area, because of Douglasdale police station, North Riding (all the way up until Witkoppen) is supposed to be one of the safest areas in Jo'burg (Ralph)*

In addition to centrality, affordability and safety, homes in North Riding are reported to be good investments. Moreover, renting out property owned in North Riding yields good financial returns. A two bedroom home can sell for around R720 000, and fetch around R5 900 per month in rent (Table 4).[9] Using numbers like these it is clear that rentals would cover the bond costs of a house in North Riding although huge profits would not be made.[10] While most of the respondents own their properties, some rented and mentioned that renting is widespread in North Riding. Respondents report:

> *There are a lot of rentals. I'm not going to say it's 100% here or 80%… not majority but a lot (Quinton)*
>
> *I would say 60% purchase and 40% rent (Marc)*
>
> *A lot of these [are rented] I would say 50% of the owners live and 50 % have invested so they have tenants (Karen)*

High residential demand in North Riding continues as Ralph describes, "…when places go on the market for rent [they go fast] , for example, the last two units that went on for rent didn't have a show day… word went out… and they were taken within a week". It also seems that many people are renting because it is currently difficult to secure mortgages, as explained by Fiona who said "…to be able to buy your own home in this area, you have to earn very high because, you know, the banks, for you to qualify [for mortgages] is very tough… and the repayments are not easy" (Fiona).

TABLE 4: A good return on investment; relatively high rental and low purchase prices

Renting	*Surprisingly, it's quite a bit actually. These units are going for about R5 000 or more. Yes, R5 000 a month (Quinton)* *I pay five, but other people of the other side pay R6 000. Which is a lot of money (Louise)* *A two bedroom is about R 6 000-7 000 (Fiona)* *Well, in my case, I am paying five. I know my friend up at number 9 is paying six and half … but it is because she has got a nice unit and a big garden (Karen)* *The… average price that people pay for renting is between R5 000-7 000 … for about 50-70 square metres; a 2 bedroom (Michael)* *It is about R6 000.00 per month, for two bedrooms (Marc).*
Buying	*It varies on what sort of condition they are in but say up to late R 600s [thousands]. But it's still affordable (Quinton)* *Yeah but to buy here, the last place went for about... R 680 000. This is the standard [unit] some of them have changed a bit on the inside but they are all 60 m^2, one bathroom, [and] two bedrooms (Ralph).* *I would say if you talking two bedrooms, bathroom townhouse they are about R800 000 (May).* *A sectional title unit would be between R600 000 and R800 000 for a two bedroom (Marc)* *The one wanted R780 000 with two bedroom one bathroom (Karen)*

Although homes in North Riding and Bellairs Park are reported as being generally affordable, residents note that levies and rates are highly priced. The management and maintenance of space for common use within the complexes, and also the public pavement areas outside, are the responsibility of the respective body corporates or homeowners' associations. Levies for these services are perceived as high, particularly as most owners need to pay council rates too. Quinton's response is that "… it's like R1 900 to R2 300 … rates are separate. It used to be part of it but its separate"; with Karen noting: "… I also think that the older people here on pension can't afford the levy anymore. The levies are high; they [are] about R1 600 a month … rates and taxes are about R230 a month."

Amenities

The transformation of North Riding from agricultural farmlands to residential complexes and the rapid influx of people into the area, also meant the need for an increase in infrastructure and local amenities. Shopping complexes are now distributed throughout the area providing a range of restaurants, supermarkets and local services. Many interviewees felt that the amenities available in North Riding and its neighbouring areas are able to meet most of their needs, with the notable exception being access to open spaces and parks. In many cases, where government-provided services are lacking, the shortfall is met by the private sector. However, people with a lower income often find these private services unaffordable, particularly schools and health care.

Public Open Space

Access to public space is limited in North Riding. The few public open spaces that exist are reportedly poorly maintained and underutilised. From observation, it also seems that some open spaces are not official city parks, but rather merely vacant smallholdings (for example, the open piece of land on the corner of Ascot Avenue and Blandford Road). Louise says, "there is one [park] down that side but it is dirty and is in the middle of nowhere. It has got grass up to your knees… ja, I wouldn't actually go there… if I need to take [my son] to a park I need to drive out of North Riding". Ralph explains that residents, on occasion, even undertake maintenance themselves, saying "I've actually seen the people that face [onto] the park taking their lawn mowers, with cords running across the grass, to actually cut the grass down".

While there is some use of parks, it is limited, and the demand for more public open space came through strongly in the interviews. Quinton comments that "the one [park] seems to be used by people walking their dogs. Not so much the young children crowd but adults walking dogs and stuff and the other one [park], not so much… is more sort of random people, loitering. But if you go to something like Botanical Gardens in Roodepoort, you can barely fit in there on a Saturday". Fiona echoes the demand for parks, stating "we need that [parks and public open space]… we really do... they would be used, as long as they are safe, clean and well looked after".

Interestingly, one respondent speculates as to why the provision of open space is limited. Michael attributes this phenomenon to the piecemeal, private developer-led nature of growth in the area, without accompanying municipal interventions. He says, "There are [public open spaces] in Jukskei Park[11] because they were done… [when] you could not open or start a suburb without providing a park… [in] North Riding… you've got a hundred different developments… it's all piecemeal; you've got nothing like that". This is indeed similar to respondents' theories about the inadequate road network and other perceived overextended services, as will be discussed later.

Health and Education

A general sentiment among respondents is that health and education facilities provided by government are limited in the area. As already mentioned, the private market has largely filled this gap through providing private clinics and schools nearby. Having said this, it must be noted that a public secondary school has recently opened in North Riding, showing that government responses to increased population density are being implemented, albeit at a slower rate than what residents would like.

North Riding secondary school was opened on the 14th of January, 2014 by the then Premier of Gauteng Province, Nomvula Mokonyane (Fourways Review, 2014). The school was opened to grade 8 and 9 learners, with expansion planned to further grades as learners progress. When it began, 10 of the school's 25 classrooms were in use (ITWeb, 2014). The school is described as a green school, with solar panels to generate electricity, and rainwater harvesting systems (ITWeb, 2014). While introducing a school offering secondary education is certainly a positive element for North Riding and its surrounding areas, there is a clear demand for more public schools in the area. The Fourways Review (2014), for example, reports that North Riding Secondary is one of only two government high schools in the Fourways area. Residents also express their concern about the lack of a primary school, although some note that plans are in place to build one. Some of the responses regarding schooling issues are detailed in these residents' responses:

> *He [my son] goes to Cooper College [a private school]… there is Cooper College, and they just built a secondary school on Hyperion Street. And that is a government school. So when you think about*

it in terms of schools, for everybody who stays here it is a bit inaccessible because I took [my son] to Cooper College but it might be an affordability issue for somebody else. And there are a lot of crèches though but not a lot of schools. So it is just two schools currently in the area (Louise).

There are quite a few. We are sending her to Aurora next year, which is a very good one. It's the Curro Aurora, that's actually started in Cape Town privately but they've got schools everywhere and it's not even a ten minutes' drive… Look, public schools here are a bit of a problem. They've just opened a high school but, in terms of a primary school, there's nothing really… There's a critical shortage of primary schools. They've got the land for it there. That property was designed for two [schools] and they only built the senior school. They didn't build the primary school (Quinton).

But I think they are going to build another primary school, which is going to be close to the government school. But the government schools are actually not enough for us because the population of black people is very high… It is very in demand, as you can see opposite our school. There's eighty four properties there… where are they going to go to school? There's only Sharon Lee Primary School, which I hear is full. This is the only government school. Not all of us can afford private schools (Fiona).

As with schools (and in fact to a greater extent), most medical facilities nearby are private, meaning that, for most people, medical aid schemes are needed to access them. When asked about whether hospitals were available in the area, Louise responded: "Not really because we don't have any government facilities here. We have to travel to Witkoppen and it's very far for people in North Riding to travel. Otherwise you have to use doctors but moneywise you can't afford… and the private hospital [Olivedale] that we have is so expensive… So many black people cannot afford it but if you have the money you can afford a private doctor". Public hospitals that are available are either very far away or, in the case of Fourways Clinic, overstretched and too busy. Quinton explains that while Olivedale Clinic provides a good service for those can afford it, regarding public hospitals, "…there's nothing really close by. Helen Josephs is probably the closest and that's not close at all" (Quinton). Concerning Fourways Clinic, Willie says "I never go to Fourways Clinic… you wait there… oh there you wait. If you go there you must wake up at four o' clock… to be in the queue by five o' clock… and by the time they close [it could happen that] maybe you didn't even go inside… It's better to go to a private doctor [and] pay R300".

Security

North Riding has become an attractive area to settle because of the perceived tight security and sense of safety it affords, a point already noted as significant. Security services in the area take three forms, private security companies, the local community policing forum (CPF) and the police. Private security companies were foremost in respondents' minds when talking about security during the interviews. Responses to questions about the effectiveness of the police were mixed, while many respondents were unaware of the CPF. This may be due to the fact that the CPF is fairly new, as Quinton puts it: "There is the community policing forum and that kind of thing but… well, we've only recently become exposed to it. We are actually going to attend the first meeting shortly".

Three main private security companies service the area, Chubb, RSS Security and ADT Security, although other small firms are also evident. Each complex is manned by a security guard, and is enclosed by high walls. From respondents' replies, these various security companies are the first point of call when problems arise in a complex. Despite the tight security, crime does occur, particularly, according to Louise, on certain roads where people sit and wait for possible day work. She says, "I think the crime is getting a bit crazy because of a lot of people that are searching for jobs. It is unsafe for people that walk around. I mean just yesterday a woman was mugged down there at the corner of the road. And for me that was too close because now and again I like to go jogging. So that means I can't go jogging listening to my phone" (Louise). In contrast to this experience, most respondents report the area to be a safe neighbourhood. Some related responses are given with Fiona interestingly connecting the perceived low rate of crime to the high household incomes generally earned in North Riding.

I mean it's got crime [but] everybody's got crime. It's not crazy crime… yeah it's a pretty safe neighbourhood. And if you are [walking] up the main road you are fairly okay. I wouldn't wander off the beaten trail (Quinton).

Photographs by Hayley Gewer

[There aren't] many serious incidents. We have had a couple of break-ins and things like that but in this area, it seems to be pretty safe. You don't feel too... your heart doesn't beat as fast driving... [or] walking at night as you would somewhere else… in the complex… not around the roads because people drive like idiots around here (Ralph).

Yeah. We've never heard of any [incidents of crime]... although in other places it comes and goes but, you know what, people are very alert. Security is very good. For those who have security, it's very good. People are... I think because jobs are readily available to people, they have the money. If you have money you don't have to steal. (Fiona).

The area is serviced by Douglasdale police station. Opinions are mixed about the effectiveness of police services, seemingly based on personal interactions with individual officers. Quinton, for example, describes the Douglasdale station as "incredible". He goes on to say, "You can go in there any time, day or night and you'll get professional, not just professional but friendly, service… They do their job and they've got the cellphone numbers of all the patrol vehicles, the brigadier of the police station is really running a tight ship… I'm not saying its 100% but it's pretty good." On the other hand, Ralph presents a completely different view, going so far as to say that he thinks "…the easiest way to stop crime in this area would be to close down that station" and describes the police there as "…the biggest bunch of crooks" and as having "a reputation for being corrupt and useless". As mentioned above, this view is seemingly based on a personal experience of poor response time and service to a violent crime. Ralph reports "… a woman here was raped about four years ago. She was raped. She came here to ask me for help. It was seven 'o clock in the morning. I phoned the police station, which is 1.5 km away; it took the cops three and a half, four hours to arrive".

Services

It was a small area. It's now become a dense area. The services you are talking about haven't expanded or were never designed to handle this amount of people (Ralph).

Along with not being met with the provision of adequate public open space, the rapid and extensive development of North Riding has reduced the quality and efficiency of service delivery. Most respondents reported this to be particularly true during the intensive construction of new complexes. However, many are still dissatisfied with the infrastructure and lack of resources, attributing problems experienced to increased densification. Many respondents highlighted that the development of the area from farm roads and plots to busy thoroughfares happened very quickly without suitable planning and consultation. The development of the built environment and resulting densification was driven by private developers with little collaboration with the City of Johannesburg. It is thought that plans for the complexes were individually approved, with not enough attention being given to the combined impact the various developments would have. The result is that services are overloaded and seen as under-designed for present needs, as Ralph observes in the previous quote. Added to this, the maintenance of services by the City of Johannesburg is reported as being infrequent and substandard. This is evident in responses, for example, May says:

So what you get is that the developers saw a need and a want, so they put up the clusters, because that's what the people wanted. The municipality was just there to grab the money, take the rates, take the taxes but they never did their share… they haven't improved the roads, they haven't done the pavements. Definitely the feeling we get is that they have taken our money and used it in other areas and they haven't used it in the area it was paid (May).

Electricity costs are reported as high, although this is not specific to North Riding, with Quinton saying "Electricity has gone through the roof. But that's everywhere". Fiona provides similar sentiments in saying "electricity, you can't just use it anyhow. You know what I mean? It's very expensive… you have to just limit yourself, switch off the geyser and things like that because everything has gone higher" (Fiona).

Access to water is also a source of frustration as a result of densification. Quinton describes this by saying "the one thing that there was a huge problem with – with all these new complexes being built – was the water. The water was off every second day for connections and modifications. It was a pain in the ass". Complaints of overstretched services due to densification are not limited to water supply. Ralph, for example, states: "Oh shocking, it's totally overloaded at the moment… They haven't upgraded the electricity. They haven't upgraded the road. They haven't upgraded the water. So we get sand in our water; we get water cut-offs; we

get power shortages, power outages… it's all gotten worse, with the influx of people. It's gotten worse. The roads are worse. The electricity is worse. The water quality is worse. The street lights are worse. You know... The traffic is worse because [when] the robots [traffic lights] go out, you've got an intersection of two main roads but I've never once seen a points man up there – not once" (Ralph).

Lastly, regarding services, the effectiveness of Pikitup, the City of Johannesburg's refuse removal company, also met mixed responses. Refuse removal services were reportedly acceptable in some complexes but very bad in others. These responses are summarised in Table 5.

TABLE 5: Residents' Responses of Refuse Removal Services

Acceptable	Bad
So it's generally alright. Okay Pikitup has their ups and downs. When they have a strike, then you have problems, but that's everywhere … You'll go through phases with Pikitup when they are on strike, where there is change but, today, it's okay. I'm not saying its five star (Quinton)	*Pikitup... to me they are dead… yes. To me they are dead… I can say, since January I've never [seen] Pikitup come to take our rubbish Yes. And [they'd] leave the big pan. You worked the way you want, throw anything you want [into the pan] but, today, we are stuck with the rubbish. We have to find another truck to come and get the rubbish because Pikitup doesn't come (Willie)* *Pikitup doesn't even pitch most of the time. We have to pay Pikitup to come collect our rubbish and then we have to contract an outsider to come and pick up the rubbish that Pikitup doesn't collect. But we still have to pay Pikitup. Basically once we've got a skip in there, they've got to come with a truck and collect. And, basically, it's costing the complex R1 500 every time we've got to phone somebody else to come and collect our rubbish because – literally – we cannot take it anywhere else. We were sitting, as trustees, trying to figure out another way to lessen our rubbish (Ralph)* *Not really, they [Pikitup] are not [efficient]. So Pikitup doesn't always... doesn't work, every week. No. Sometimes the bins will be lying there. You know, they are on strike or whatever. It's a challenge (Fiona)*

Access and connectivity

A key point made in this paper is that North Riding is well connected to the northern part of the City of Johannesburg by the motorway and two main arterial roads, Malibongwe Drive and Witkoppen Road that surround the area (Figure 2). Within North Riding itself however, narrow streets (originally farm roads) connect the many complexes, with only three main roads leading into, and out of the area, and five entry and exit points altogether. In this way, the layout of the suburb represents a 'tree', as opposed to an interconnected 'leaf' or 'semi-lattice' (Alexander, 1965; Salat & Bourdic, 2012a). Traffic is funnelled from each home, to a single point (the entrance or exit to the complex that the unit is in) and then to one of five entry and exit points to the suburb, concentrating traffic at these points. Thus, despite its proximity to main arterials, many

residents complain of high traffic volumes within the suburb, or when entering or exiting North Riding. The lack of public transport in the area exacerbates the problem. While North Riding's size (roughly 1.5 km by 1.5 km) makes it practically walkable, many residents seem to drive, citing security issues and the pedestrian-unfriendly nature of the roads as reasons.

Traffic congestion, due to the limited size and layout of the roads in the area, is possibly the biggest complaint that comes through in the interviews with residents, with some reporting a wait of up to an hour to enter or exit the suburb. May describes North Riding as having "… a terrible reputation for traffic… [that] is completely founded; it is what North Riding is known for" (May).

> *Yeah. There'd be one townhouse for every two stands or one complex for every two stands. It was great. There was virtually no traffic getting onto the highway. It was quite relaxed here and I liked the general vibe but of course, now, subsequently, it's become a traffic disaster (Quinton).*

Added to the layout and capacity, the reported poor condition of the roads seems to add to traffic congestion and travelling hazards. Some residents have the opinion that the poor condition of roads is because they were not designed for such high traffic volumes. Quinton, for example, says "I think it [the condition of roads] goes hand in hand with the traffic, the underdeveloped road structure, which must [now] cater for the population explosion" while Marc reports that "the roads have gotten more and more shocking… it's the volume of traffic, and the roads can't handle it". Interestingly, the introduction of e-tolls[12] has reportedly worsened traffic congestion in North Riding, as motorists are now more likely to avoid the motorway. Karen describes this by saying "… people don't go on the highways anymore because of the e-tolls. So the suburb roads are now being affected" (Karen).

Added to road layout, size and maintenance issues, is the fact that public transport in North Riding is very limited. The only public transport comes in the form of minibus taxis, but these run on the main arterial roads only and reportedly do not come into the suburb itself. No public bus services operate in the area, while the nearest Gautrain[13] stations are in Rosebank and Sandton[14]. Quinton describes the lack of public transport's effect on traffic, in saying:

> *I suppose the lack of public transport contributes. We don't have a Gautrain station here and to get the Gautrain buses is not that convenient from here… there's no public transport at all, just about. The other thing is transport for domestic workers and gardeners is a big issue for this area, especially if you are from Diepsloot… You might wait three hours to get a taxi (Quinton).*

While North Riding and Bellairs Park are walkable in terms of distance, responses as to whether people walked around the area or to nearby shops were mixed. Interestingly, while most respondents did not report that they themselves walk around the suburb, they did comment on other residents walking. Added to this, the majority of responses around walking relate to recreational walking, rather than commuting. Karen, for example, says "a lot do [walk] in Bellairs. Every morning and evening you will see them walking their dogs, cycling, running and just walking". Again, reasons given for limited walking and walkability concern the design and layout of roads. Roads are perceived as being only car orientated, with little consideration given to accommodating pedestrians. Quinton explains "[walking in the area] scares me a little bit because, when they did the paving, the Johannesburg Roads Agency [JRA], instead of putting a kerb, put a slanted kerb so the cars overtake on the pedestrian [footpath], which is a bit scary… it's not the greatest road because the footpath is a bit narrow". While the design of roads makes them undesirable for pedestrians walking is deemed to be relatively safe, with regard to crime. As Willie puts it, "… now it's better. A woman can walk here at seven o' clock, half past seven, and go to Northgate" with Quinton adding that while he "… wouldn't wonder off the beaten trail" it is "… a pretty safe neighbourhood. And if you are doing [your walking] up the main road you are fairly okay". While walking as an activity is predominantly recreational, some residents do access shops on foot. This is discussed in the next section on access to shops.

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• ARMED REACTION
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Private Property
Trespassers will be prosecuted

Access to Shops and Commercial Activity

> *In a three-kilometre radius, we've got three Spars, one Checkers and Woolworths. We've got Clicks and then if you go a little further we've got the entire Northgate [mall]. So we've got a lot of access to entertainment and that sort of thing... It's just convenience (Ralph).*

Over time, densification has increased the number of shopping and entertainment facilities in North Riding. Like housing in the area, this seems to be market-driven, with local 'strip malls' being built by private developers. Fiona reports that, initially "…there was nothing" adding that "…with development we've got shops here… about two minutes away… there are shopping centres everywhere… [before] the shopping centre was Northgate, which was far. And with many black people we would walk. I would trek [from] here to go buy a loaf of bread from Northgate, which would take me an hour. So now it's a five minute walk" (Fiona).

Three shopping malls service North Riding within the immediate vicinity and there are a number of malls in neighbouring areas, including Northgate and Fourways. Many respondents perceive the area as having large variety of goods that satisfies their choices and needs. May, for example, remarks, "I have every outlet of any chain I could possibly want… Pick 'n Pay, Jet, Edgars, Wimpy, Steers, whatever I want. I have never had to go more than a kilometre or two to get to what I need" (May). While this is true, many of the shops are franchises and as such provide little opportunity for independent businesses. At the same time, while some residents do report walking to shops, the malls are designed to be car orientated, and (along with pedestrian un-friendly road layouts mentioned earlier) do not encourage access on foot.

An interesting result of the high traffic volumes is that seemingly many residents in North Riding work from home. Working from home takes a number of forms, ranging from professional services such as architects and designers, to small-scale service businesses such as hairdressers, crèches, home industries and even car mechanics. A number of public bars have even opened in people's homes, with Ralph saying: "There's quite a few pubs in houses and, you know… I won't say shebeens but, you know, like taverns. You've got Doug's Pub, up the road and you've got... Smugglers up the road… I think there's one [like that] in Pritchard Street, where there's a house… yeah. People turn a section of their house, sometimes a garage, into a... little entertainment area". While the existence of these small businesses is related to traffic problems according to many respondents, it also shows that there is a demand for more mixed land uses within the area. This pattern is starting to evolve, in an arguably informal way. It provides a rare glimpse of adaptability of land uses in North Riding and something that land use planners can consider for the future diversification of North Riding.

Lastly, regarding commercial activity, during the fieldwork process, the researcher observed that there was very little street trading in North Riding in contrast to other areas of Johannesburg[15], a point raised by respondents too. "There used to be street traders in the area but now they are non-existent at all" (Marc). On a couple of corners, however, casual labourers do wait in the hope of being picked up for a day's work, and over the weekend a few trade traders do sell fruit and snacks. The lack of informal street trade may be related to the relatively high incomes of residents in the area, a characteristic mentioned earlier in the paper.

Identity, ownership and belonging

> *Community, it's not there. There's nowhere where people can actually meet and talk, like in other areas. But if [you] get to know each other, wherever you live, you create a bond (Fiona).*

Little mixing and social coherence

Despite living in enclosed 'communal' complexes, all respondents commented on the lack of interaction and socialising amongst the residents. Many do not interact with their immediate neighbours, as Fiona explains: "no, not really… [you] mind your own business" although she still respects a civil relationship between residents where "Afrikaans, English, blacks... we wave, we talk" (Fiona). The respondents suggest two general reasons for this apparent lack of socialisation and integration. First, is a change in where people gather to socialise, related to the lack of public social facilities. Willie describes this in saying "In the past people used to gather at a [sports] club to socialise, however, these no longer exist. Now people seem very busy and tend to either

socialise in restaurants or in bars." Marc echoes these sentiments when saying "people don't [communally socialise, in the past there were]… community centres where everybody [got] together to have a braai[16] on a Sunday... ja, that doesn't happen anymore". He goes on to say that "… I think this is the product of the kind of housing in the area… in the olden days people used to be club orientated and lately those kinds of clubs are going down".

Second, declining socialisation and cohesion is related, by respondents, to the same trend that is taking place across the city, and indeed in the wider South African society. Quinton describes this in saying "when I was a kid it actually wasn't the same but it's shifted that way for communities in Jo'burg, not just here" with Marc adding that "South Africans have become unsocial lately… I think people just go to work, to restaurants and back to their houses".

Some of the respondents suggest that living in close proximity tends to make some people less trusting of their neighbours and more protective of their personal property. Ralph states: "there is no longer trust anymore". A general feeling is that spaces and modes of mixing have changed over time, as Karin puts it: "look, I think it has changed; people pretty much just live in their little boxes these days". The various configurations of the cluster housing complexes do not seem to foster mixing and cohesion either (with a few exceptions noted by respondents), instead they reinforce the individualised and compartmentalised lifestyle that seems to characterise contemporary everyday life in North Riding. This is in strong contrast to what the researcher found in Hillbrow, where so much of private life and sociality is enacted on the streets. While the configuration of these housing units is intended to increase a sense of community and therefore security, only a few respondents explicitly recognised the value that this has in bolstering these phenomena, with an example being:

> *We make an effort. We don't get along great with the neighbours but we know them. We know what the movements are so if there's anything suspicious.... If you just make an effort of knowing your neighbour you'll cut your crime down by fifty per cent (Quinton).*

The complexes are internally dynamic spaces with different social and spatial subtleties. Residents are constantly making and breaking internal and external networks. The close proximity of people to each other means that tensions tend to develop between older and newer residents, or between renters and owners. This was particularly salient for Louise, a young mother who was new to the area and was renting a cluster house. She said:

> *I can put my hand on exactly what the issue is because the previous tenant had been here for like five years… she moved out because somebody was threatening to shoot her dog… at first when I moved in I thought it was a race issue because twice my tyres were flat… because the lady that lived here was white so it didn't make sense to me that what exactly is happening… it is just that you get bullied if you are renting… so I think it would be better if I owned a place.*

Questions about ownership and belonging received mixed responses. The complexes are perceived as neutral space, free of set criteria and categorisation, with the main criterion for admission being affordability. Despite different groups of people from different backgrounds living in all the different types of complexes, people have one shared view that town houses are the best contemporary residential option available.

Despite the complexes being seen as neutral spaces, understandings of community and ownership and the ability to state one's own identity seem contested. Notions of community are attached to the overarching desire for safety, order and privacy, which is constantly being constructed and negotiated. Fiona argues "if you come from outside coming here, you have to adapt the kind of North Riding way of life. You just follow, you become... you just have to fit in. If you don't fit in you won't… be happy to be living in North Riding" describing those to whom one needs to conform as the "… old people who have lived here longer".

Taking ownership in terms of the social and spatial management of the complexes seems to occur when social and economic issues are threatened, again particularly with respect to safety, order and privacy. A number of community-led initiatives have emerged when these needs are threatened, as indicated by Quinton and Michael respectively:

> *People don't have much time nowadays to get involved in too many community things and that's really where I think it is… but there is a feedback, I mean we had an incident, a security incident in*

the complex next door, we are meeting tomorrow night with a couple of people getting together, so there is that sense of community working together and that kind of thing and then at that stage we can decide which way we're going to go forward (Quinton).

You tend to also find, not necessarily here but you tend to find a lot of areas people have informal WhatsApp groups and things like that in terms of security and keeping up to date with what's going on… a lot of them have groups for where you live, which is nice 'cause then you're driving home and you see a suspicious white van and this and this and you just put it on or if there's a road block or there is an accident (Michael).

Governance and management

Individual complexes are managed by body corporates or homeowners' associations. The wider suburb has an elected ward councillor. Respondents indicate, however, that most of the management responsibility is taken on by the body corporate of each complex. As the complexes have limited interaction with one another, the management within the suburb is compartmentalised and disjointed. This adds to the residents' sentiments of disconnection with the wider suburban area, and indeed with the wider city region. Fiona describes this in saying:

No. we've never had one [ward meeting]… if there is a problem in the complex, the body corporate deals with this… they never bring in the ward councillor to talk to residents… which would be the best thing. You know, you would feel safer. You would just feel like you have a home. But it's each man for himself (Fiona).

Impressions of the ward councillor in the area are generally negative, with Ralph, for example, stating "We don't even know who that [the ward councillor] is - I think I tried contacting them once… the phone just rings". Similar sentiments were expressed about the lack of accountability and responsibility on the part of the City of Johannesburg with regard to maintenance and repairs, as outlined in the earlier section on services. Marc claims, "The property developers are the ones responsible in that regard... the municipality would not assist with anything".

While management, social and built structures promote disconnection, many residents would like to see the promotion of more united governance and social structures. An example of this is the establishment of the North Riding Resident's Association. While interviewees welcomed the establishment of the association, it was still receiving some criticism. Michael, for example, argues that "I think they're going the wrong route around it, I think they're trying to get membership by painting a black picture of the area instead of trying to promote some sort of social interaction… and get people more interested, more excited about being part of an area".

Conclusion

North Riding is a residential suburb that has gone through massive transformation over the past twenty years due to the large-scale subdivision of former agricultural smallholdings into delimited space for the construction of townhouse complexes. This development has led to a sharp increase in population and residential density in North Riding. The area is perceived as attractive because of its proximity to the northern and north-western areas of the City of Johannesburg, its affordability and its safety. Diversity of built form in the area has become very constrained due to this type of densification. The wholesale development of open spaces into repetitive structures surrounded by high walls, means that very little interaction takes places between residents, and there is little integration or engagement between private and public space. People wanting to live in the area have little choice in terms of the types of housing, the types of activities and the social services available. This is due to the standardisation and inflexibility (as perceived by the authors) of the built form, and social services offered that are mainly privately owned.

Densification has resulted in demographic and racial changes that have increased the diversity of North Riding, most notably in fostering a mixed race middle class suburb. While most complexes have centrally located communal social areas (for example, swimming pools and braai areas), little socialisation and mixing takes place and people tend to keep to themselves which weakens the sense of cohesion within the area as a whole. The area is serviced by a range of amenities that are close by — either in North Riding or in surrounding areas. However, most of these services are private, which excludes lower income people living and working in the area. The area lacks affordable schools and health centres. There are a number of malls offering a range of franchised food and clothing outlets similar to those found throughout the City of Johannesburg. Many of these malls are within walking distance from places of residence; hence access to shopping and entertainment options is convenient for people living in the area. However, most residents generally drive to their destinations around North Riding, not only as this is a trend for middle to upper income residents of Johannesburg, but also because the pavements have not been designed and laid out for safe pedestrian use.

Because North Riding used to be farming land, the present roads have the same characteristics as the former narrow country lanes, although their surfaces have changed over time. Given the density of the area today, traffic congestion is a huge problem. In addition, public transport facilities do not service the area adequately, which increases stresses of congestion and accessibility. Road maintenance and repairs are an on-going problem. The lack of efficient service delivery on the part of the City of Johannesburg is a source of frustration for residents living in North Riding.

While North Riding offers an entry point to the property market for many young professionals and families, it is constrained in many ways. It is yet to be seen how the built form may adapt to mitigate some of the problems relating to social interaction as well as hard and soft service delivery, although many opportunities are evidenced in this research. These include introducing public open space, addressing traffic issues (possibly through the redesign of roads and introduction of better public transport), upgrading infrastructure, continuing to deliver social services (for example, building the planned primary school) and redesigning streets and mall-street interfaces to promote walking. While the built form does seem fairly rigid, some adaption is already being seen, with informal conversions of some homes into small businesses. Consultation between residents, their various associations and the City of Johannesburg will be essential to creatively promote the continued adaption of North Riding, to promote those attributes that attract residents to the area, and address those reported as limitations.

Notes

1 These two suburbs effectively make up one neighbourhood, thus in this paper are referred to collectively as North Riding.
2 Racial descriptions match those used by the censuses, 1996, 2001 and 2011
3 Kya Sands informal settlement is (as with many informal settlements) (Map Kibera Project, 2011) not shown in Figure 2, but lies between Bloubosrand and Kya Sand.
4 In the 1996 and 2001 data, this category is called “Town/cluster/semi-detached house (simplex; duplex; triplex)” while in the 2011 data it is split into “Cluster house in complex”, “Townhouse (semi-detached house in a complex)” and “Semi-detached house”. The 2011 categories have been added together here so as to make the figures comparable over time.
5 This includes the categories “Enclosed neighbourhoods”, “Commercial/Business/Industrial Parks”, “Estates” and (pertinent to this work) “Sectional Schemes. For definitions of these, see (Landman & Badenhorst, 2012).
6 These categories are from the censuses of 2006, 2001 and 2011 (Quantec, 2015)
7 Only 8.3% of white households earned more than R16 000 a month
8 Here ‘northern suburbs’ refers to the older (now central-northern) suburbs, as opposed to newer growth, further north and to the north-west of the City, such as North Riding, Fourways and their surrounding suburbs.
9 These are rough rounded up figures, calculated from responses in Table 4. Variations in size, location and the condition of houses will obviously exist, and affect individual prices. These figures are a representation of the general perception that respondents have, that purchase prices are low, and rental prices are relatively high.
10 This was calculated using a purchase price of R720 000, assuming a 10% deposit of R72 000, the prime interest rate of 9.25% (February 2015) (South African Reserve Bank, 2015) and a 20 year payment period.
11 Jukskei Park is a suburb about 2 km north east of North Riding
12 E-tolls are a tolling system that charges drivers to use certain highways currently in Gauteng, including the N1 Western Bypass, the closest motorway to North Riding
13 The Gautrain is a high speed rail system that links the Johannesburg Central Business District, via Rosebank, Sandton to OR Tambo International airport, Midrand, and three stations in Pretoria
14 Some 17 km and 15 km away, respectively
15 Including Hillbrow and Bram Fischerville dealt with in this volume
16 Barbecue

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Annexure 1

Terms of Reference

1. Introduction and Background

In South Africa, both Apartheid and post-Apartheid planning policies have generally resulted in increased sprawl and segregation in our cities. During the Apartheid era, black urbanites were largely segregated to dormitory townships on the peripheries of white urban cores (Harrison, Todes, & Watson, 2008), while the housing policy, released in 1994, and other forces, have been argued to have extended this trend (Charlton & Kihato, 2006; Pieterse, 2009). As such, since the early 1990s, the concepts of increasing urban density, urban infill and creating compact cities as methods of combatting urban sprawl and shaping more just, inclusive and sustainable cities have become popular arguments in South African planning theory and policy (Todes, 2006). The city of Johannesburg is a case in point, with all of its Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) since 2002 placing strong emphasis on strategic densification and infill in the metropolitan area (e.g. City of Johannesburg, 2002).

Although, in 2006, the City of Johannesburg reported that, in general, the city was sprawling and becoming less dense (City of Johannesburg, 2006), newer reports seem to dispute this. During the 1990s, contrary to the international trend for cities to sprawl and de-densify, there is preliminary evidence that residential areas in Johannesburg indeed became denser. Angel, Parent, Civco, & Blei (2010, p. 20) report that between 1991 and 2000, while the population of Johannesburg increased by 33 percent, the city's built up area only increased by 14 percent, resulting in an increase from 3900 to 4800 persons per square kilometre in the period. During the period 2001-2009, densification figures are even more pronounced. Here a 28.9% increase in gross density is reported, with a 16.4% increase in the population density of built up areas, from 5575 to 6479 people per square kilometre (GeoTerraImage, 2010). This densification has been, in places, driven by city policy and planning and, in others, driven by market forces both formal and informal. It has also taken place through densification of built form in places and, in others, through increased population densities in existing, unchanged (externally at least) built form.

Within a larger enquiry on urban resilience as useful framework for sustainable urban development, theoretically framed as the "key to sustainability" (Walker & Salt, 2006); this research seeks to explore the linkage between urban densification and urban resilience in the case of Johannesburg, through four case studies. These terms of reference are for one such case study.

The case studies have been chosen as four different typologies of urban densification in the city. These are densification through:

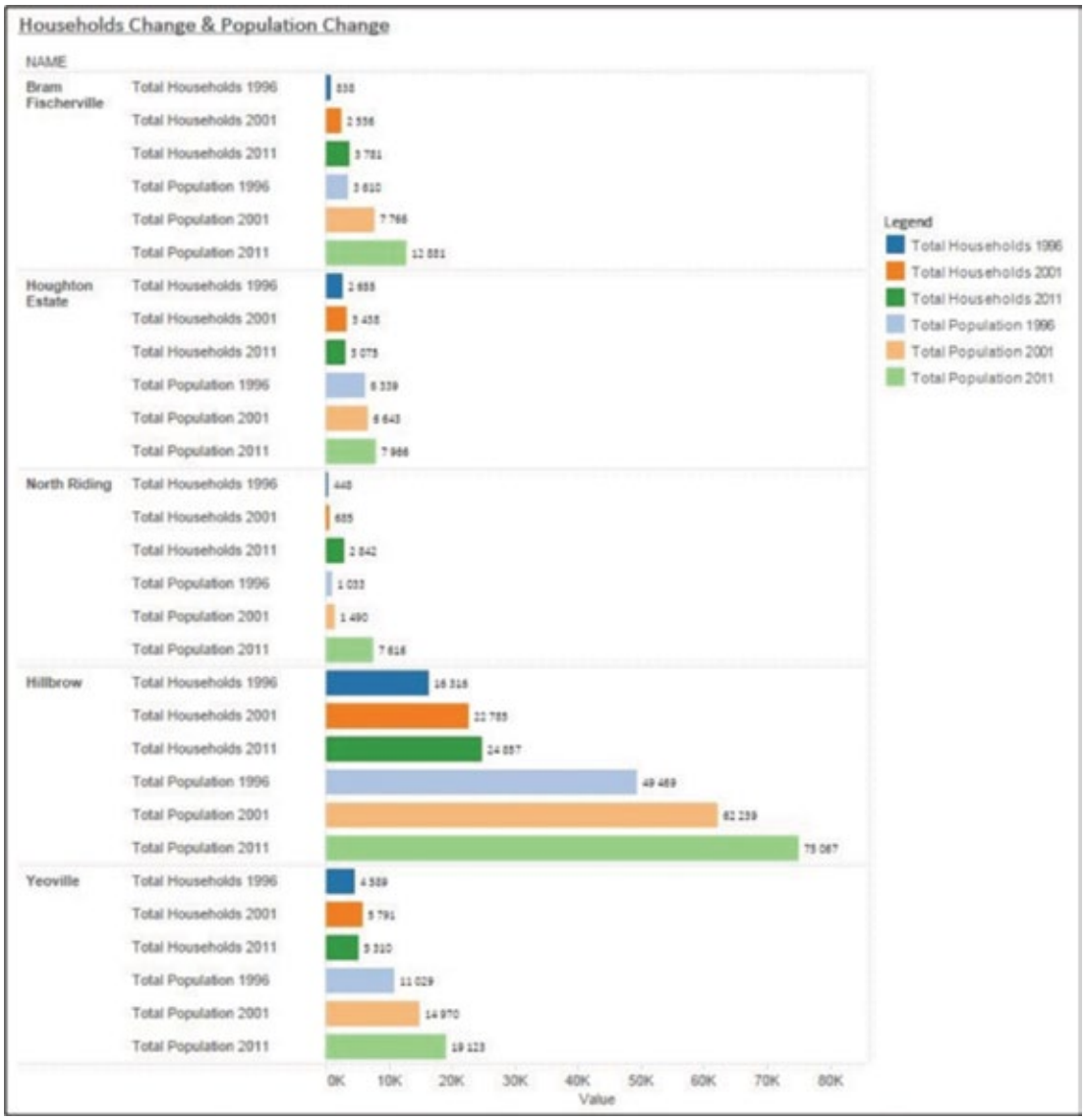
1. Backyarding (Bram Fischerville)
2. Infill of townhouse and flat developments (Houghton Estate)

3. Townhouse developments on the outskirts of the city (North Riding)
4. Interior densification of residential buildings (Yeoville)

The broad data on this residential densification is presented in Figure 1 below.

In the research, resilience is based on the adaptability and persistence of urban form; a conception of resilience that is central to the work. In this way, the research takes a critical view of densification, noting that while in some cases it may be desirable (for example in increasing access, complexity and efficiency of service delivery) in others it may not (for example, resulting in overcrowding and overburdened infrastructure). Urban areas may be resilient in the fact that they are adaptable, or indeed in the fact that they are stable and in most cases, through a combination of the two. Their resilience is based on a normative conception of the term that considers the positive resilience of systems . As the work primarily focuses on qualitative data collection methods, the main emphasis will be on the social resilience (including economic resilience) of the communities under study. This has a strong link to the resilience of the urban form itself however, and to environmental resilience and sustainability. While environmental sustainability and resilience is not the focus of the study, links to it should be made trough a number of the questions to ba asked, and data sources to be studied. For example, travel methods and costs will inform this analysis.

FIGURE 1: Changes in Population and Household numbers in the selected case study areas



Data source: Quantec. Compiled by Miriam Maina

2. Project Vision

The goal of this research is to build understanding of the effect that densification has on the resilience of urban form and the communities that inhabit and use it, and to what extent urban form may allow or resist change and adaption, such as densification. The work is a critical enquiry into the rationales that promote densification and infill. This will be done through four studies (one of which these ToR refer to) of areas that have densified over the past ten years in Johannesburg.

2.1. Research Questions

How has residential densification affected the resilience of the area and thus the community that inhabits or uses it?

How has the area changed with densification?

What continuity has the area seen with densification?

How has the built form promoted or restricted positive continuity and adaption?

2.2. Deliverables

There is one key deliverable for the project; a report of 8000 to 10000 words. With this, all of the mapping, photographs, interviews and other data collected should be made available to the working group.

3. Method

Each case study will have two components. The first is a desktop study that considers existing data and information on the area in question; and the second a fieldwork component, made up of qualitative interviews.

3.1. Desktop and Background Study

3.1.1. Historical Profile of the Area (Background)

In assessing resilience of social-ecological systems, the Resilience Alliance recommends, as a starting point, creating a historical profile for the system (2007a; 2007b). This profile should, importantly, look not only at the focal scale in question (the neighbourhood in this case) but also relate to historical events and changes in wider systems that have affected the neighbourhood. This research should be based on historical sources such as news articles, archives, City of Johannesburg documentation and census data. It should also be based on interviews with city officials (in planning, infrastructure departments, transport) that work in the area under study/have an understanding of conditions in the area, and indeed informed by any relevant data derived from qualitative interviews.

The historical profile should include:

a) When and how the neighbourhood was established

b) How the neighbourhood has changed and grown over time

a. A land use analysis of the area, looking at different uses, and how this may have changed with densification

b. Major internal or external events that have affected the area

c) Summaries of plans, policies and laws that have been implemented or are proposed for the area (land use planning legislation, RSDFs , Transport Plans, etc.)

d) Transport methods (public/private transport) and how (if) this has changed with densification

e) A land use analysis of the area, looking at different uses, and how this may have changed with densification

f) An assessment of the state of infrastructure in the area, and how this has been affected by densification

g) An analysis of household and demographic profiles of the area, and how this has changed with densification (this analysis has been done, and data will be provided, and will need to be added for context). This will include both QoL and census data.

3.1.2. Quantitative Investigation: GCRO Quality of Life Survey Data

The quantitative investigation is broken down into two parts. The first considers the resilience of the urban form itself (both in terms of continuity and adaptability), while the second considers the resilience of the community (considering people/households in the area).

If we define community resilience as the measure of a community's sustained ability to utilise available resources to respond to, adapt to, and thrive in changing situations/conditions, it is possible to indirectly assess it through the way in which people perceive their quality of life and quality of the built environment throughout changes. Starting from this assumption, a series of existing data will be utilised to better define what kind of changes most affect people's perception of their quality of life in each area.

For instance, if increased density changes the way in which people can access services, or the quality of basic service delivery, this will emerge from the comparison of data sets pertaining to different moments, and it will therefore be possible to assess the way in which the inhabitants of that area deal with those changes in order to better focus possible critical issues related to increases in density.

The data to be used are the GCRO Quality of Life Surveys (QoL) from 2009 and 2011. Specific questions and pieces of data to be considered from the surveys are outlined below.

A study is underway by Dylan Weakley, into the variables in the QoL's that correlate strongly to high or low densities in the Gauteng City Region. Here, QoL responses will be grouped by the density of the ward they are located in (using census 2011 data). The first analysis will then be to see which variables are most strongly correlated to density (for example, there may be a correlation between density and household income, with high income households living in less dense areas and vice versa). These correlating variables will then be analysed and narrowed down to those that relate to community resilience, resilience of the built form and environmental resilience. Analyses of these variables will then be done for each area in question, with the data provided to researchers to guide and inform their studies. The data will also inform the qualitative questions to be asked, and as such Mr Weakley will endeavour to have this ready within 2 weeks of the work commencing. This will allow researchers to do background and desktop research before heading into the field. Some preliminary examples of the QoL data and questions that may be considered are :

Resilience of the Area	Resilience of the Community (People and Households)
Satisfaction with infrastructure a. Satisfaction with roads b. Satisfaction with energy sources c. Satisfaction with waste removal d. Satisfaction with sanitation e. Satisfaction with water f. Satisfaction with dwelling Waste generation Transport a. Mode of transport for different activities e.g. % who walk for shopping, work, schooling b. Distance and time travelled for different activities (work, shopping, schooling etc) c. Location of main activities (work, shopping, schooling etc) d. Time to get to public transport e. Transport costs	Access to amenities a. If you have visited any of the following types of public amenities in your area in the last year, how satisfied were you with them? Food Security Employment/unemployment Health Alienation or Anomie Sense of safety Main problem facing the community The amount of time you have to do the things you want to do Compared with five years ago, is it easier or harder for people like you to find jobs, or is there no change? Community involvement b. In the past year, have you participated in the activities of any of the following clubs, societies or organisations?

Community resilience also has a strong link to governance and leadership, or to the linkages between people. This relates to trust, reciprocity and leadership, raising questions such as: "Are the communities thriving but atomized?" And "Are they capable of collective action and collective governance of their areas?"

3.2. Fieldwork

The fieldwork makes up the qualitative part of the research. As such, it will not seek to create generalizable data, but rather a narrative of different perceptions on the effects of densification.

3.2.1. Stakeholder Interviews

Ten interviews of about an hour each should be conducted. **Two groups of respondents should be identified, those that have lived in the area for 10 or more years, and those that have lived there for shorter periods of time. This is to compare the responses of those who have seen the area change, and those who are experiencing it in its current and recent states.** A semi-structured interview method should be used, with the question guideline (Appendix 1: Question Guideline) used to guide, rather than dictate the conversation. Questions start of very broadly, and get more detailed as the interview goes on. This is to avoid leading respondents, allowing them to speak freely. Responses to early questions may cover later (more detailed and specific) questions negating the need for them to be asked. The questionnaire will also need to be altered according to different respondents, for example, if the respondent has only recently moved to the area, s/he should not be asked how the area has changed with densification, but rather their opinion of current densities. As such, researchers will be given a fair deal of freedom in the qualitative part of the research.

In order to make the case studies comparable to one another a number of 'lenses' have been defined, through which the research should be considered. These outlined in Annexure 2: Qualitative Lenses for the Assessment of Resilient Urban Form.. The concepts are derived from South African planning theory and policy that outline concepts for the assessment of urban form. While each case study should stand alone and be unique, the concepts provide a common vocabulary, intended to tie them together. The broad concepts used are the same that will be used in a separate technical study of the built form of each area, making all of the work legible both vertically and horizontally. This is summarised in the table below.

Importantly, the concepts should not be used to analyse the static nature of the areas in question (i.e. a snapshot of their current state), but rather to see how the area has changed with densification, and how communities have coped with that changed, persisting with or adapting former behaviours.

Sampling should be qualitative, meaning that respondents should be chosen for having certain characteristics. They should include 1-2 municipal officials and/or councillors, with the rest made up of members of the community, including (for example): homeowners (in different types of housing), tenants (in different types of housing), people who work in the area, people who shop in the area, members of community groups (religious groups, resident associations, schools, business associations, clubs) etc.

As mentioned above, distinction must be made between respondents who have lived in the area for 10 or more years, and those who have lived there for less than 10 years. There needs to be a reasonable balance between the two groups.

TABLE 1: Summary of themes of the Study

Theoretical Framework	Quantitative Analysis (Urban Morphology Lab)	Qualitative Analysis (South African Researchers)
General Resilience enabling qualities Qualities/conditions for enabling general resilience of complex socio ecological systems considered as open multi-scalar ones	Specific Resilience (Structural Resilience of Urban Form) Indicators Indicators of structural efficiency for improving resilience of the built environment (in terms of urban form and functions) considered as complex sub-system	Strategic Density Design Guidelines Density Assessment - City of Johannesburg - SDF Theory and Policy of South African Cities
Diversity	Diversity - Diversity of activities (mixed use) - Diversity of forms and elements - Diverse density (or densities)	Variety & Vibrancy Choice
Modularity	Intensity	Intensity Efficiency
	Scale Hierarchy	Balance Scale Integration
Openness	Connectivity	Connectivity Continuity
Nestedness	Complexity	Complexity Coherence/Identity/Clarity Interaction
	Proximity	Accessibility/Proximity/ Convenience
Reserves	(Spatial) Distribution	Equity Adaptability Opportunity

4. Role of the Researcher

This research will be wholly undertaken by an independent researcher or research organisation appointed by the working group on the programme “Resilience Assessment for Sustainable Urban Resilience” situated in the University of the Witwatersrand’s School of Architecture and Planning. The researcher will report to the working group, with Dylan Weakley as the key contact. While the researcher will work independently on the project, s/he would be encouraged to engage with the working group (collectively or individually) for input and assistance.

The researcher will be encouraged to keep to deadlines, and let the working group know of any difficulties s/he is facing in undertaking the research. The working group will endeavour to assist the researcher in any way, within their limited time capacities. If the researcher believes s/he will not make a deadline, s/he should let the working group know at least 5 working days in advance. We hope to create an environment of rich discussion, mutual assistance and cooperation to provide a productive environment in which to work, in order to achieve the best outcomes possible, for both the researcher and the programme.

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Appendices

Appendix 1: Question Guideline

This is just a guideline for questions, and it can be adapted as needed by researchers (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. Over the time you've lived here, what changes have you noticed in the area?
5. How has the area changed physically (in terms of roads, buildings, parks, new land uses)?
6. Have you noticed increased residential densification in the area, if so, how has this happened?
7. How has the area changed socially?
8. Please explain where you and your household works, shops, schools, prays, and how they get there (transport). Has this changed over time, and with densification?
9. What have the effects of these changes been, have they had positive or negative effects?
10. What is your opinion of the specific densification under study in the area (i.e. increased backyard shacks, townhouses, people living in existing buildings)?
11. What has driven this densification? (policy, private developments, market forces etc.)
12. What effect have these changes had on the area?

Question	Information Sought	General Resilience Enablers	Qualitative Lens
1. Do you live here, work here, worship here, etc.?	Introductory/Contextual question		
2. How long have you worked/lived/worshipped etc. here?	As above		
3. Why did you choose to come here?	Is their variety or choice that attracts people to the area?	Diversity	1.1 Variety and Vibrancy 1.2 Choice
4. What do you like about living/working/etc here? What don't you like?	Is their variety or choice that attracts people to the area?	Diversity	1.1 Variety and Vibrancy 1.2 Choice
5. Do you have everything you need: water/electricity/etc? if not, what do you need but don't have? Has this changed since you first got here? How so?	- Context - is there infrastructural variety in the area - how efficient is this in the area? - how satisfactory is this for people who live/work there	1. Diversity 2. Modularity	1.1 Variety and Vibrancy 2.2 Efficiency
6. And what about other facilities/ammenities – Shops? Schools? Libraries? Medical help? Community centre? – do you have these here ? 6a. if you do – do you have many choices of these facilities 6b. if not where do you go for these?	- Context - is there a variety of facilities/ammenities in the area (in terms of land uses and the community) - how efficient is this in their area? - how satisfactory is this for people who live/work there	1. Diversity 2. Modularity	Variety and Vibrancy Choice 2.2 Efficiency
7. Over the time that you've been (in/involved with) the area, what changes have you noticed in the area? (interrogate: have you seen more people coming here? To live? Work?	Contextual - sense of what changes have happened and if changes in density have been perceived. Extent to which intensity in the area has changed.	2. Modularity	2.1 Intensity

Question	Information Sought	General Resilience Enablers	Qualitative Lens
8. If you think that more people are coming into the area? Where do you think the newer people are coming from? Is it mostly younger or older people who are coming here? With or without families?	See if and how the area has changed? Is there variety in the area (in terms of land uses and the community), has this changed with increased densification?	1. Diversity 2. Modularity	1.1 Variety and vibrancy 2.1 Intensity
9a. Where do you think the new people are staying? (probe; staying with friends/family? In flats? Sharing?). 9b. Do you think more people are living in your block of flats then when you first arrived there? Are there more people sharing?	Is their sufficient housing for newcomers? Also get a sense of densification/ change and how it is happening – possible changes in land use — also a measure of intensity	2. Modularity	2.1 Efficiency 2.2 Intensity
10. Are there enough services for them (new arrivals)? Enough public space/green parks/places to relax?	Get a sense of ratio of people to spaces and services Intensity of use and how well serviced the area is What difference (if any) increased density is making.	2. Modularity 5. Reserves	2.2 Intensity 2.1 Efficiency 2.3 Balance 5.1 Equity
10. Has the service provision changed since you moved to the area? Has it got worse/better? Why do you think this has happened?	Efficiency of service provision in the face of increasing density	2. Modularity	2.2 Efficiency
11. Why do you think people come here? What does the area offer? Why do you think the area is such a popular destination of newcomers? Do people living in the area consider themselves 'citizens' of the area first?	What attracts people to the area? What does it offer and how does that contribute to the diversity and vibrancy of the area? Is there a coherent identity to the area? What makes the area so accessbile?	1. Diversity 4. Nestedness	1.1 Vibrancy 1.2 Choice 4.2 Coherence 4.3 Access/Prox/Conv

Question	Information Sought	General Resilience Enablers	Qualitative Lens
12. How much do people generally pay for accommodation in the area? (Probe: see if get a sense of the different amounts that are paid for different types of accommodation)	Are people excluded by these practises? Spatial implications? Also sense of differentiation and diversity of land use	2. Diversity 5. Reserve	1.2 Choice 5.1 Equity
13. Do people interact with each other? Do people stick together? If there is mixing where does it generally happen? Has this changed at all over time?	How do different people and different land uses interact, and how has this changed over time? Integration/mutual support	4. Nestedness	4.4 Interaction
14. How has the area changed physically (in terms of roads, buildings, parks, number of buildings)? Have these changes been spread out or grouped in certain areas?	Is there variety in the area (in terms of land uses and the community), has this changed with increased densification? How adaptable is the area?	1. Diversity 2. Modularity 3. Connectivity 5. Reserve	1.1 Vibrancy and variety 2.2 Efficiency 2.3 Balance 3.1 Connectivity 5.2 Adaptability
15. Have the kinds of things that people do here changed since you have been here i.e. some e.g.s: more commercial activities? More residential? More street trading etc? More shebeens? Why do you think these changes have happened? (probe see if can unpack residential changes v/s land use changes etc) Do you think these changes are consistent all over the area – or are they concentrated in particular areas?	Is there variety in the area (in terms of land uses and the community), has this changed with increased densification? How adaptable is the area?	1. Diversity 2. Modularity 3. Connectivity 5. Reserve	1.1 Vibrancy and variety 2.2 Efficiency 2.3 Balance 3.1 Connectivity 3.2 Continuity 5.1 Adaptability

Question	Information Sought	General Resilience Enablers	Qualitative Lens
16. Where do you and your household: works, shops, what schools/educational facilities Worship/prays, How do you get there? Do you walk to any of them of them. If not, what do you do, Is it affordable/expensive? Has this changed over time? Has where you have to do these things changed over time? How and why?	Does the area function at a human or walking scale? Is the area well-connected? Well covered? Has density made any difference? Threshholds	2. Modularity 3. Connectivity	2.4 Scale 2.2 Efficiency 3.1 Connectivity Exclusion
17. If you had a problem in your neighbourhood, can you identify 3-5 people/places you would go to help you with your problem? What was the problem? Why would you go to these people/places? How have they helped you in the past? Do these people live/work in the area?	Are there specific support networks in the area the enable or erode resilience? What types of networks develop with increasing densification? Are these similar or different?	4. Nestedness	4.4 Interaction
18. Do you think there is a positive future in the area for you and/or your children? Do you think you will be able to continue to live and work in the area? Why/Why not? Has these feelings of living and working in the area changed over time? Why/Why not?	Does the area provide opportunities for positive change?	5. Reserve	5.3 Opportunities

Appendix 2: Qualitative Lenses for the Assessment of Resilient Urban Form

The 'lenses' presented and described here are those that are to be applied to the qualitative sections of the four case studies. They are based on the section 'Urban Form Guidelines from South African Planning Theory and Policy' and include contributions from the City of Johannesburg Policy documents and the work of the UCT School of the early 1990s. The indicators have been narrowed down to correspond with the indicators for specific resilience to be used in the work. This is to enable the qualitative and quantitative sections of the study to be compared to one another. It is important to note that as these are qualitative concepts intended to describe the resilience of the system, they are not prescriptively defined. This means that researchers applying them have a fair deal of freedom in doing so. It also means that there will be overlap in places, with some concepts relating to one another across the defined enablers of general resilience. Further, it is noted that some of the concepts will be more relevant in certain cases than others, and researchers are encouraged to use their discretion and intuition in managing this. The research outputs are thus intended to be narrative descriptions of each case that will be conceptually comparable to one another.

Diversity: Variety, Vibrancy and Choice

Variety and vibrancy relate to built form, land uses and functions, economic activities, and people.

Choice relates directly to variety and vibrancy, and how much choice the area offers for different users and uses.

Modularity: Intensity, Efficiency, Balance, Scale and Integration

Intensity speaks to the concentration of different land uses, social interactions and difference.

Efficiency relates to economic efficiency, how efficient movement is, the efficiency of infrastructure and social efficiency.

Scale here relates primarily to the human (walking) scale of the settlement, and its relation to surrounding areas and the city at large.

Integration is considered socially, culturally, and physically (between land uses, public and private space, open space, services)

Openness: Connectivity and Continuity

Connectivity is how well the community is connected (physically and socially) both within the community, with surrounding areas and with the city at large.

Continuity is similar to coherence (below) and speaks of the continuity across the study area, and how continuously it interfaces with surrounding areas and with the city at large.

Nestedness: Complexity, Coherence, Accessibility, Proximity and Convenience

As the complexity of social-ecological systems are infinitely complex, assessing complexity is a difficult task. It is not a question of if the areas in question are complex, or indeed what the level of this complexity is. Rather, researchers will be asked to comment on this complexity, with a specific focus on how this may have changed over time and with the densification that has taken place in the area. It is envisaged that much of the commentary on complexity will be inferred and derived from questions on the other lenses of enquiry in the work. Importantly, as indeed with the entire work, the complexity of the area should be described at different scales, including the neighbourhood, surrounding areas, and within the city. Also, complexity should look at the area spatially and socially, and how these interact and affect one another.

Coherence relates to the sense of place, identity and clarity of the area in question. This is both a physical and social notion, regarding the coherence of the built and natural environments and the community that lives there, with an intrinsic inter-relation between the two. In terms of its physical form, do the built and natural elements of the neighbourhood interact to create a unique identity, or do they interact poorly, fragmenting the landscape? At the same time, how well does the neighbourhood fit into and relate to its surrounding contexts, and to the city at large? From a community point of view, the identity of the community should show its own unique characteristics, yet still reflect and contribute to the identity of the city. This relates to the nestedness

of the community and its, where its identity is clear, yet it still coherently fits into and contributes to the identity of the wider urban system.

Reserves: Equity, Adaptability and Opportunity

Equity argued to be a driver of growth and economic growth (Prof Chris Brenner).

Adaptability is a reserve in that it is a capability (of the built environment, society, the economy and governance) that affects the resilience of an area.

Opportunity relates to adaptability, and speaks to the potential for positive adaptability and change.

Notes

1 The work acknowledges both positive and perverse resilience. Positive resilience relates to either positive stability or adaption, or a positive balance between the two. Perverse resilience relates to the stability or continuity of perverse systems or system states, or to adaption and change that has negative effects on our cities.
2 Regional Spatial Development Frameworks (http://bit.ly/jhbrsdf)
3 “Community resilience is a process linking a network of adaptive capacities (resources with dynamic attributes) to adaptation after a disturbance or adversity. Community adaptation is manifest in population wellness, defined as high and non-disparate levels of health, functioning, and quality of life.” (Norris, Stevens, Pfefferbaum, K F, & Pfefferbaum, 2008, p. 127)
4 All of this data is available in the QoL survey 211.

Urban Resilience Research Programme

This programme is part of the Global Change, Society and Sustainability Research Programme (GCSSRP). It is funded by the Department of Science and Technology, South Africa through a National Research Foundation administered grant (NRF Grant Number: 78645)

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Funded by the Department of Science and Technology, and the National Research Foundation South Africa