




## Chapter 7

# Property Development in Midrand: How it Physically Shaped the City

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### Abstract

Urbanisation has many impacts on the city landscape such as urban sprawl, and this has been perpetuated by unsustainable urban design practices by property developers. Midrand is an example of such practices and has resulted in an unfunctionally shaped city. Sustainable urban design is important because it helps mitigate the issues caused by urbanisation, and it is important for property developers to implement these practices, as they yield good results. Waterfall City, a large mixed-use development, may be an example of such a city. This study aims to prove that the design of Waterfall is one of the first examples of sustainable urban design in South Africa. The methodology used in this study is qualitative, which uses both primary and secondary data as the collection method as well as observations of the city. These data have then been textually analysed, and the elements of Waterfall City have been compared with parts of Midrand, focusing on the roads and layout, amenities, and green open spaces to conclude that Waterfall City's urban design is sustainable and that property developers can promote unsustainable communities.

### Introduction

Urbanisation is causing significant environmental impacts, such as climate change and urban sprawl, with over 50% of the world's



population living in urban areas, and this number is expected to rise to 66% by 2050. This has led to unsustainable development patterns, as cities struggle to meet societal demands for water, sanitation, clean air, and transport (Edenhofer et al., 2014). Puchol-Salort et al. (2021) explain that urban growth presents an opportunity to rethink urban planning and design to support sustainability, both in new development projects and in the retrofitting of existing spaces. Reed (2021) highlights property development as a global process involving private or government entities owning freehold or leasehold property. It involves modifying land use for structural improvements, often involving urban design, and involves various elements.

Sustainable urban design involves the careful integration of environmental, social, and economic issues into urban area planning and development (Lak et al., 2020). Ghosh (2017) defines sustainable urban design and planning as the process of organising diverse natural and humanmade aspects in cities and towns to produce ecologically responsive, economically successful, and socially inclusive locations for communities. Omole et al. (2024) assert that it incorporates a holistic vision that combines urban living needs natural resource protection and community well-being. Sustainable urban design promotes resource efficiency and environmental care through eco-friendly construction strategies, fostering a vibrant economy, and promoting sustainable practices such as mixed-use construction, density, and green buildings while respecting cultural heritage and high-quality public infrastructure (Omole et al., 2024; Carmona, 2009)

Waterfall City is an award-winning mixed-use development in Midrand that presents urban design elements that have changed the approach to property development. The urban design components may include buildings, roadway networks, pathways, trees, parks, gardens, green roofs, water, natural regions, and food-producing places. Ghosh (2017) explains how these features are incorporated into various land uses, including residential, commercial, retail, institutional, open spaces, transit, and mixed uses, to facilitate many activities simultaneously. These elements can be noted in

Waterfall City; however, whether the urban design of Waterfall City promotes sustainable development in Midrand is unknown. This study aims to investigate whether Waterfall City's urban design promotes sustainable property development in Midrand. Discussing what makes Waterfall City sustainable and how urban design can reflect that.

## Conceptual Framework

### Elements of sustainable urban design

Sustainable urban design incorporates functional, environmental, and quality issues into built settings through partnerships and participatory procedures (Carmona, 2009). In the process of creating such environments, some suggested qualities of such places as design rules include the following:

- places should be liveable, where everyone can live in relative comfort and security;
- places should have identity and control, in which people feel that they have some ownership and want to be involved (place attachment);
- places should offer access to opportunity, imagination, and excitement; and
- places should give people a sense of authenticity and meaning, but not in.

To satisfy the needs of such an urban environment, at least five physical qualities are required. López Chao et al. (2020) and Frey (1999) categorised the desired sustainable features down into constituent elements.

López Chao et al. (2020)

- Liveable streets and communities with plenty of sunlight, pure air, trees and plants, gardens and open spaces, well-scaled and planned structures, no annoying noise, cleanliness, and physical safety.
- a specified minimum density
- Integration of activities (living, working, shopping, public, spiritual, and recreational) near one another.

- Buildings and other items that people place in the environment should be placed in such a manner that they define and even surround public space rather than sitting alone in space.
- Various buildings and places with intricate layouts and interactions are required.

Frey (1999)

- Environmental and ecological conditions: Low pollution, noise, traffic, accidents, crime, accessible private outdoor space, symbiosis town and country;
- Physical properties of the city include confinement, densities that support services, mixed usage, and adaptability.
- Socio-economic conditions: a social mix to lessen inequality, a degree of local autonomy, and self-sufficiency.
- Visual-formal quality: The city and its constituent sections are imageable, with a sense of centre and location.
- Provisions of the city: Easily accessible public transit, decreased and distributed traffic volumes, a hierarchy of services and amenities, and access to open space

### **Importance of sustainable urban design for communities**

Sustainable urban design is important because it is based on inclusive design principles that enable the accessibility and use of public places for all community members (Hub, 2021). Sustainable urban design emphasises social cohesiveness and connectedness (Mouratidis & Poortinga, 2020). The structure of urban places promotes social interaction and community participation. The incorporation of green spaces, parks, and community places promotes social cohesion by allowing inhabitants to connect, exchange experiences, and form a common identity within their neighbourhood (Gaudette et al., 2022). The design of sustainable urban settings directly affects citizens' health and well-being (Johnson et al., 2022). Public green zones, walkable communities, and easy access to recreational facilities all help improve physical

and mental health. The inclusion of nature in the urban landscape not only improves air quality but also lowers stress and increases general health.

## Case Study: Waterfall City



**Figure 1:** Waterfall City CBD. Source: Bulbulia, 2023.

### **Property Developers: Attacq and Atterbury**

Waterfall City was developed by Attacq and Atterbury, a South African REIT and real estate investment firm. Attacq focuses on smart, safe, and sustainable spaces (ATTACQ, 2023), while Atterbury builds mixed-use, commercial, retail, and industrial complexes (Atterbury, 2024). Attacq Waterfall Investment Company (AWIC) recently purchased 20% of the Mall of Africa from the Atterbury Group, acquiring 80% of the assets (ATTACQ, 2024).

### **Waterfall City**

Waterfall City is located near Midrand, Gauteng. The neighbourhood is centrally placed between Johannesburg and Tshwane, with easy access to the N1 motorway from all directions. Waterfall development covers 2,200 hectares of land. It is larger than Sandton and extends from Woodmead to Kyalami and Vorna Valley, with the suburbs of Buccleuch and Sunninghill serving as

partial borders. The city is home to a diverse range of large-scale retail, commercial, and residential complexes, as well as schools and crèches, hospitals, and a world-class fibre-optic network. The residential area was designed to include up to 18 500 units. House prices range from R600,000 in one inexpensive home development to R160 million in the Waterfall equestrian estate (Mail & Guardian, 2016).

Kilian (2015) notes that architectural principles have been in place for residential development since its inception, with the goal of creating a residential estate whose design reacts to the climate and surroundings while embracing the use of raw building materials. The goal is to offer a uniquely South African design utilising natural materials that are ideal for the Highveld environment. According to Kilian (2015), the Waterfall Estate intends to raise awareness of green living both architecturally and through the manicured park that surrounds it. According to Bulbulia (2023), Waterfall City received the Best International Mixed-use Development 2022/23 award at the 2023 International Property Awards event. Waterfall City won the regional title of Best Mixed-use Development in Africa for the seventh time. Waterfall City has been honoured as the Best Mixed-use Development in South Africa for the seventh time.

## **Research Methodology**

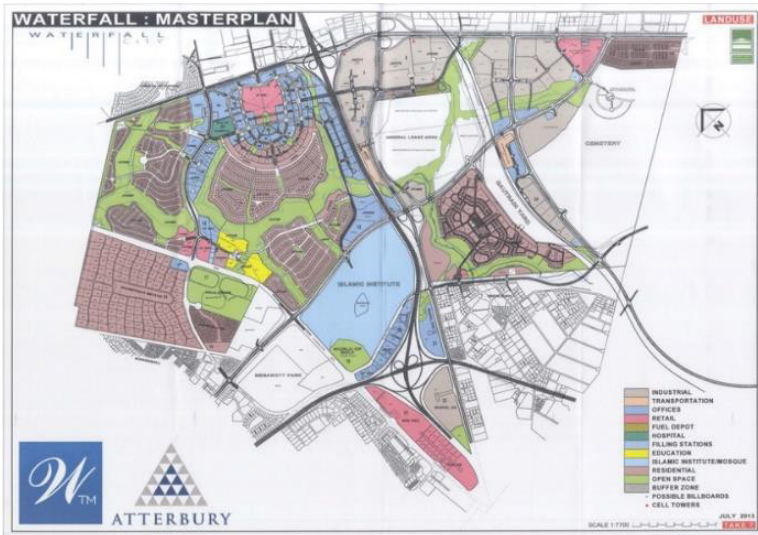
The methodology used in this research is qualitative. Data were collected from primary and secondary sources. Secondary data were also collected through journal articles, newspaper articles and documents. Primary data were collected from observations of Waterfall City and other areas of Midrand, which focused on three aspects: roads and layout design, the locations of amenities and open green spaces. The data analysis was a textual analysis as well as a comparison of observations noted in parts of the Midrand (Summerset, Vona Valley, Halfway Gardens, Blue Hills) and in Waterfall City CBD.

## Results

The town of Midrand has long experienced property development, particularly housing development. In fact, because of the large part to the unrelenting commercial and residential development, Midrand has grown to become one of Gauteng's most important growth hubs (BusinessTech, 2021). Nevertheless, most of these residential developments have contributed to unsustainable urban design practices in the area, creating problems such as traffic, car dependence, and inaccessibility. The research findings will focus on the road and layout, amenities, and green open spaces and will be compared with the urban design of the larger Midrand area.

### Roads and Layout

The former farmland area has undergone many transformations – from White farmers settling in the area since the middle of the 19th century to a stop-over stations where horses and mule teams could be changed.



**Figure 2:** Waterfall City's Masterplan. Source: Murray, M., 2015.

These changes have impacted the layout and road networks of Midrand. This can be noted by incomplete roads in the area,

the narrow roads that do not accommodate the larger amounts of traffic, roads that were once connected to being separated by walls to create complexes. All these factors have shaped and impacted the road network and layout of the Midrand, and as time went on, these changes created a layout that was unsustainable, creating considerable traffic congestion during peak hours, car dependency, minimal pedestrian considerations, and a lack of access to public transport in most of Midrand. These problems are worsened by residential developments in the area through the popularisation of complexes and estates.

In contrast, the new development of Waterfall has a different, more sustainable design. In terms of road and layout design considerations, the roads are wider in the CBD, which also accommodates buses and taxis for public transport. The design considers non-motorised and cycling, with the majority of their roads having pedestrian and cycling lanes. The Waterfall City design was more coordinated and considered the longer-term effects of development as it grew, which is a sustainable way of designing an urban area.

### **Amenities**

Amenities are facilities such as shopping centres, schools, clinics, and libraries. The development of residential complexes encouraged the development of more amenities to accommodate the larger population that started settling in Midrand in the last 10 years. Unfortunately, these developments, although trying to achieve accessibility, have created a car-dependent city. Malls are being developed in semi-secluded areas, with little public transport to access areas such as the Blue Hills Shopping Centre and Kyalami Corner. Most of the schools in Midrand are private schools, which has caused overpopulation in public schools for those who cannot afford private schools. Schools such as the Noordwyk Secondary School are quite inaccessible, and many of the students attending that school stay more than 5 km away. Public facilities such as libraries are inaccessible in that the majority of the population does not even know where it is.

Waterfall City has made accessibility an important feature in its designs. The city placed its schools and hospitals close to the neighbourhoods. Netcare Hospital is accessible not only to Waterfall City residents but also to the rest of the Midrand population, which has Life Carstenhof Hospital as its only hospital. The Waterfall City layout has almost five more shopping centres outside of Mall of Africa, which makes shopping easier for those who do not want to go to the mall to buy essential items and give them choices. These shopping centres are closer to the residential areas, and they are supported not only by the residential areas in Waterfall City but also by its surroundings, as shown in the Masterplan.

### **Green Open Space**

The way that Midrand has developed and continues to develop land uses such as green open space is an overthought, and this can be noted by the lack of green open spaces or the availability of open spaces in undesirable locations. Most green open spaces are vulnerable areas, and these areas are hardly protected and are used as “short-cut” to access facilities of different parts of the city; for example, this wetland area next to Curro Sagewood is used to access the Noordwyk Secondary School on the other side of the wetland.

Waterfall City has 150ha of its 2200ha of land dedicated to green open space. The intentional incorporation of landscape into its design is evident and promotes eco-friendly practices. The design of the Waterfall City has created a welcoming and calming environment through the incorporation of a landscape and its green thinking designs, which make it a more desirable place to reside.

### **Conclusion and Remarks**

Urbanisation has led to rapid growth in cities, causing urban sprawl and environmental impacts. Sustainable urban design is crucial for mitigating these issues. Property developers play a significant role in shaping cities, and their choices can either promote sustainable development or perpetuate it.

Waterfall City, a mixed development in Midrand, has elements of sustainable design that ease urban growth. Its road layouts accommodate traffic, non-motorised transportation, and access to amenities while incorporating green open spaces. These aspects demonstrate that Waterfall City's design is sustainable and that developers can create sustainable communities.

However, the major differences between Waterfall City and Midrand cannot be ignored. Waterfall City had the advantage of being developed on a large empty lot with little existing surrounding infrastructure to consider, whereas Midrand has been developing and changing in pieces over a long period of time. Compared with how property development in Midrand was done, in silos, Waterfall City is a collaboration of different stakeholders, which helps the design of the area to be more sustainable. This approach to property development is something that should be promoted more for the creation of sustainable communities. Although Waterfall City is not a sustainable city because of reasons such as its lack of integration of the low-income community, its urban design can be considered an example of a sustainable urban area. Property developers should collaborate and work with different stakeholders when dealing with areas such as Midrand, which are not plank canvas to ensure a more sustainable and coordinated environment.

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