Chapter 18

Reviving Marlboro

Marlboro, Johannesburg, Gauteng, South Africa

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Introduction

Northeast of Johannesburg's bustling hub lies the Marlboro suburb, which connects to the famously known township of Alexandra. The site we were allocated falls within a 1km radius between the busy N3 highway interchange on Marlboro Drive, which is part of the Jukskei River, and the not-so-old but quiet Marlboro Gautrain station. The site and surrounding developments face major challenges such as river pollution, inadequate and affordable housing, safe pedestrian nodes, and public spaces.

Our project outline for the elective focused on the suburb of Marlboro, which connects to the township of Alexandra and surrounding industrial and city areas as well as the Marlboro Gautrain station as a point of public transport. The area and community face major challenges surrounding adequate and

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affordable housing, food security, river pollution, safe and easy pedestrian movement and access, as well as community interaction and trade. Through our project and research, we looked at ways in which these issues could be combatted by using transit-oriented development as a method of integrated spatial city planning. This is very important, as it is believed that this method could reduce greenhouse gas emissions by 23–26% by 2050, as shown by the quote adapted from the C40 website. Through various proposed strategies, we look at how we can revive Marlboro into a transit-oriented development "city" [TOD]. By implementing the TOD method, you look to create a suburban hub that looks at sustainable living through easy access and movement to transport hubs such as bus stations and train stations and, in this case, the Gautrain station but also at creating inclusive, economical, and considerate public spaces surrounding this transport hub.

Figure 1: Marlboro mapping showing site extents

Through site visits, in-depth research on site history, and learning about TOD, we established multiple influential factors that led us to make our proposed decisions. Our proposed five new strategies included sustainable farming, new transport and movement

nodes, new public and culture spaces, new mixed-use housing, and new informal trade and market spaces.

Sustainable farming connected to the housing and made use of terracing systems and water systems from the Jukskei River. Connecting farming to housing allows residents to grow and produce products and sell them through mixed-use housing, with ground floors being public spaces and upper floors being residential. Housing also accommodates a wide spectrum of people with respect to their needs in a residential space, whether it is single units or multiple-bedroom units. This connects to informal trade and market spaces, as one can easily access resources quickly by using two new proposed bridges connecting all three sides of the river and site. These new bridges improve the overall connection of TOD, as they promote safe and comfortable pedestrian and cyclist routes. These new routes also connect and promote new landscaping, outdoor sports, learning, and cultural spaces, which are all inclusive and promote community engagement as well as natural safety by creating lively and busy spaces.

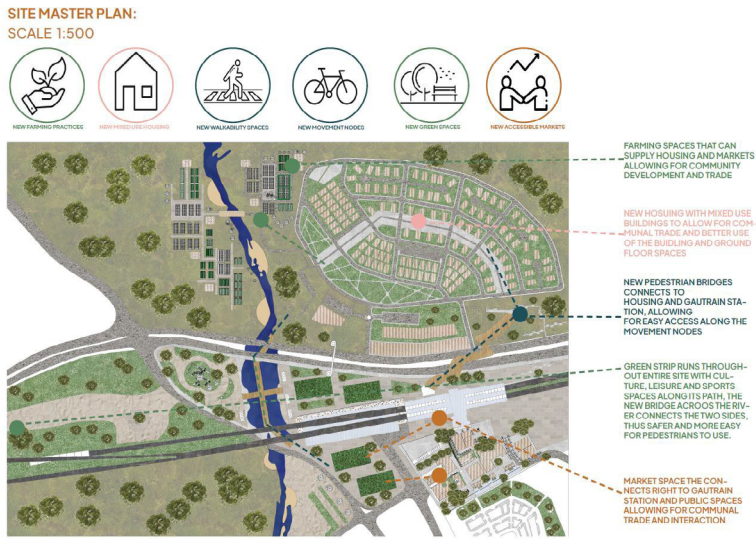

Figure 2: Site master plan

For the housing aspect of our group for the Marlboro station, the conceptual design involves a group of modular structural homes. The typologies consisted of single-bedroom homes, two-bedroom homes, three-bedroom homes and mixed-use typologies. The modular structures are used to allow for change and growth in the future, as they provide the option of expansion upwards, which can allow for more housing within the community, allowing for fewer people without homes in the community. The structures are made with timber frames with panels that can be changed accordingly to adjust to the weather conditions in the area, whether brick, wood, vinyl, or plaster is used. The structures involve sustainable practices to help with the living experience, which include sprung steel structures with wooden louvres to help maximise solar benefits, as they allow penetration for the low winter sun while blocking the high summer sun.

The structures also contain butterfly roofs with galvanised corrugated sheets, which help reduce heat gain due to reflectance and help with collecting water, which is collected and stored in water tanks on the side of the structures that can be used by the people living in them. The butterfly roof shape also allows photovoltaic panels to be used to obtain solar energy from the southern face.

The single-bedroom structures are located inside the housing layout so that they are closer to the facilities that are needed. The two-bedroom modular structures form the central hub of the housing layout, as they are surrounded by both single-bedroom housing and three-bedroom housing. This housing structure consists of a residential space at the top of the structure and a commercial space located at the bottom, which is open to the public and moves along the main public walking spaces, which contain the public plant seating and bicycle lane in between them. The final housing space is the three bedrooms, which are located on the outer part of the housing layout, as these are intended for families to live and form part of cul-de-sacs to allow for more private space so that children can be protected from moving in the housing area. Through these slides, one can obtain a sense of the proposed housing design through exterior and interior

perspectives and thus understand how it promotes integrated spatial planning.

We propose a green strip that runs through the entire length of the site. Through this, we looked to create an environment where members of the community always have close and easy access to outdoor green spaces and do not have to travel far distances to reach one. For this purpose, we decided to investigate the Kamwokya Community Centre in Kampala Uganda by Kere Architects. Through this study, it was important to note how the use of lightweight shading structures framed the recreational spaces but also allowed easy access across the centre as well as interactions that were seamless and promoted a fun learning and extramural environment. Here, you can see how the green strip runs through the entirety of the site and how it can bring all aspects to life. A new bridge connects all three major parts of the site and allows for safe movement across the river. We created recreational spaces for the public to use and mixed-use sports facilities as well as learning centres for all members of the public. Through these images, you can see new spaces such as the sports facilities here and the learning centre here.

For our farming systems, we then looked at terraced bench farming with public spaces incorporated into it; thus, we looked at the Thammasat University campus in Thailand. It was important to note the runoff areas, the layout of the terraces and the benched areas. Our terraced bench farming protects the soil from landslides and reduces the velocity of surface water runoff, thereby preventing floods. Through urban agricultural farming, food systems are not only environmentally sustainable and economically viable but also socially just and culturally vibrant.

To create an atmosphere that is vibrant and lively for the people in Marlboro. We proposed a market space in which the people in Alexandra can be glad to visit. Having pockets of public spaces for human interaction and great company. places for shopping and places available to lease out for those who need to. The new market space is located on the old Gautrain parking lot,

which is not used by the community. The market also connects to multipurpose sports areas, community centres, and, further, the green strip. Through creating this market space, we introduce intercommunal trade, as farming products can be sold in markets, and local businesses can have formal places to conduct their trade and connect with a larger target market.

We created walkable routes that show Marlboro's diverse activities, encourage pedestrian movement and allow for transportation stops. With two new pedestrian bridges and access points, the movement nodes for the community would improve substantially. We aimed to create a place for everyone. A space for social inclusivity, the distribution of benefits, the support of local businesses, creating neighbourhoods that encourage walking and utilise advanced transportation, communication and productive systems. We believe in developing a space that will currently work for the community but is mindful that it will impact the future. With two new pedestrian bridges and access points, the movement nodes for the community are improved substantially.

The creation of new bicycle stands and waiting points for modes of transport, such as buses and e-hailing services, is also a crucial step in promoting the TOD method and having these connect to housing drop-off areas and green strips is crucial.

Through our various suggested strategies, we believe that the method of transit-oriented development could be successfully carried out, reviving the community of Marlboro and increasing the potential for sustainable development in the future.