

A LEARNING ARCHIPELAGO

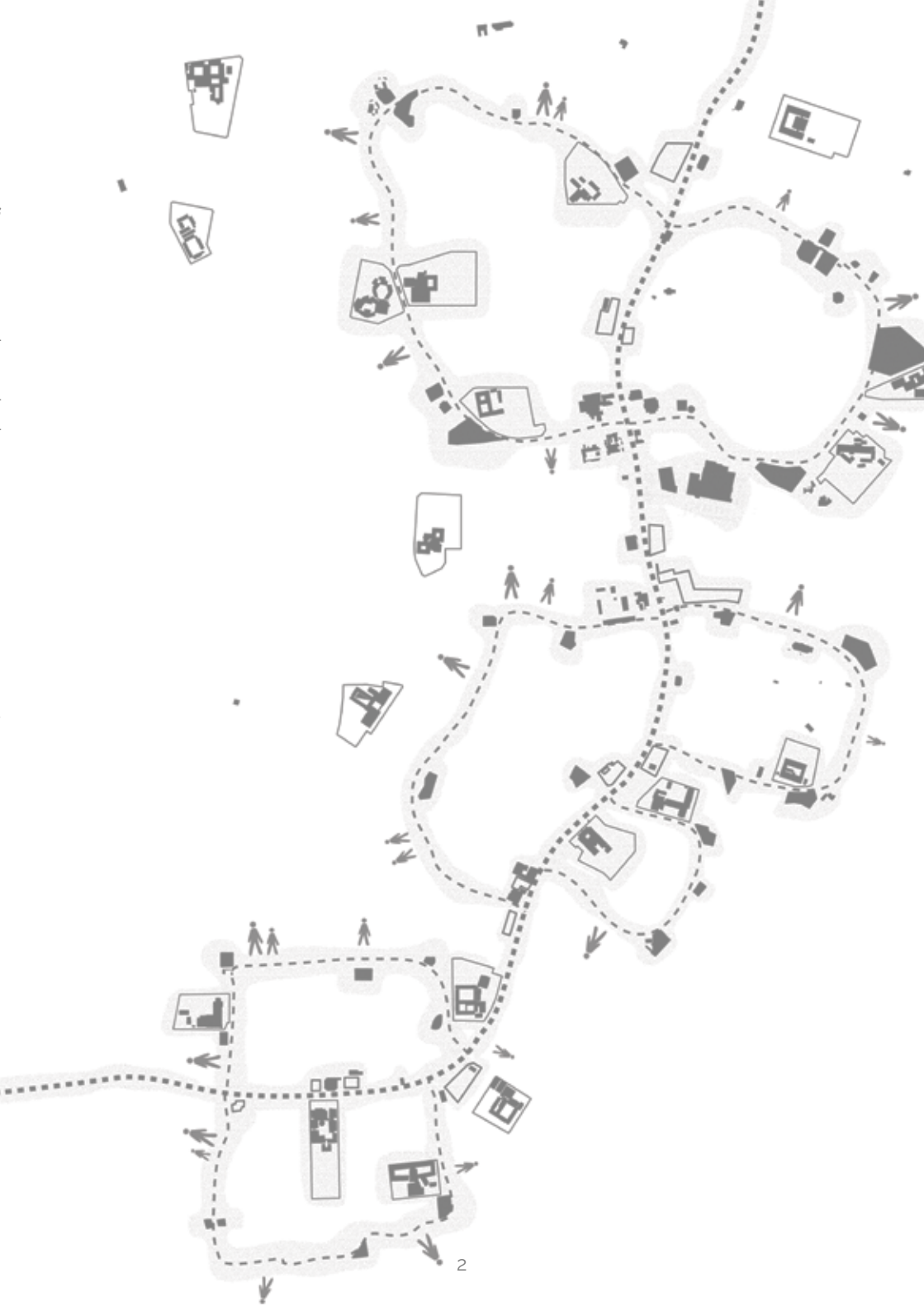
VIEWING EDUCATION BEYOND THE BOUNDARIES OF THE SCHOOL

Politecnico di Milano
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Master of Science Degree in Architecture and Urban Design

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ABSTRACT

The current education system in South Africa continues to be characterised by inequality due to the history of apartheid which segregated education along racial lines. Apartheid ended in 1994 and two decades later, the majority of previously disadvantaged schools have overcrowded classrooms, inadequate infrastructures and disappointing educational outcomes. The well-resourced schools are still mainly found in 'white' privileged communities and even though they are now open to all race groups, these schools remain in the minority.

The main research question of this thesis is how can the role of education promote social mobility and spatial transformation in post-apartheid South African cities? This question is investigated through the selected case study of Delft which is an informal settlement created during apartheid on the outskirts of Cape Town, South Africa. The schools in Delft are studied as an example of the apartheid school typology, as they function as insular and disconnected from the broader community. The school grounds are under-resourced and as a result, on site research highlights that modes of learning, play and exchange take place outside school boundaries and extend into the public realm with little infrastructure in place to support it. This shows that learning is not an isolated

spatial phenomenon which takes place only in a classroom or a school, but rather it exists as a network throughout the neighbourhood.

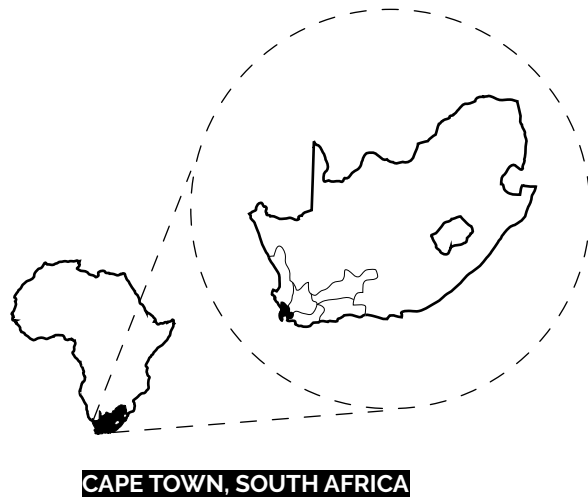
This research reflects a concept of education that extends beyond the boundaries of a school through a multi-scalar research-by-design project entitled, 'A Learning Archipelago'. The concept of 'A Learning Archipelago' shifts school sites from acting as introverted islands and entities to a network of shared educational resources working with the whole community. The project is explored through a masterplan of Delft's urban settlement followed by a focus into a part of the neighbourhood through an urban and architectural scale. The settlements prominent routes are enhanced to connect new sites of intervention, which forms an educational network of resources and facilities, both new and existing. This urban approach explores an opportunity for spatial transformation, social mobility and socio-economic change in Delft.

Keywords: Schools, Education, Transformation, Informal Settlements, South Africa

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I would like to thank my supportive family, especially my mother who instilled in me my sense of social justice and activism.

I would also like to offer my sincere thanks to my supervisor, Professor Maria Chiara Pastore for your guidance and encouragement throughout this thesis.



■ PREFACE

This research reflects the current debates taking place in Cape Town, regarding educational transformation in post-apartheid South Africa. If one considers that schools can be seen as the nodal points of resilient neighbourhoods where surrounding residents can provide social and financial investments into its infrastructure- it has great potential to allow for a more holistic use of its facilities. Furthermore, schools can serve as social hubs for economic and cultural exchange and stimulate a broader process of learning. Through this broadened engagement with public life, new relationships and forms of learning may be established. These are important features of a healthy democratic society.

The specific case study in this thesis of Delft, Cape Town, is the culmination of ongoing work that began in 2018 through the fieldwork of mapping Delft in the postgraduate design research studio, Space of Good Hope (SoGH), at the University of Cape Town run by Melinda Silverman and Fadly Isaacs. Through utilizing a ground up approach, the studio focused on documenting and understanding the spatial transformation of place. This was achieved by building on previous years' mapping and by carrying out of on-site research. The investigation involved ethnographic studies as well as experiencing the

dynamic and evolving nature of spaces and their users throughout the day. The studio also worked in collaboration with members of the community, represented by local organisations in Delft.

Since 2018, the research into Delft has continuously evolved as the studio was asked to present their work at the Architecture and Urban Design 2019 Seoul Biennale. The personal development of this research continued in presenting the paper, "(RE)IMAGINING PHYSICAL INFRASTRUCTURES AS SOCIAL INFRASTRUCTURES" for the Workshop at Feltrinelli Foundation in Milan for "SURVIVING THE CITY. LEARNING FROM AFRICA- The political relevance of informality".

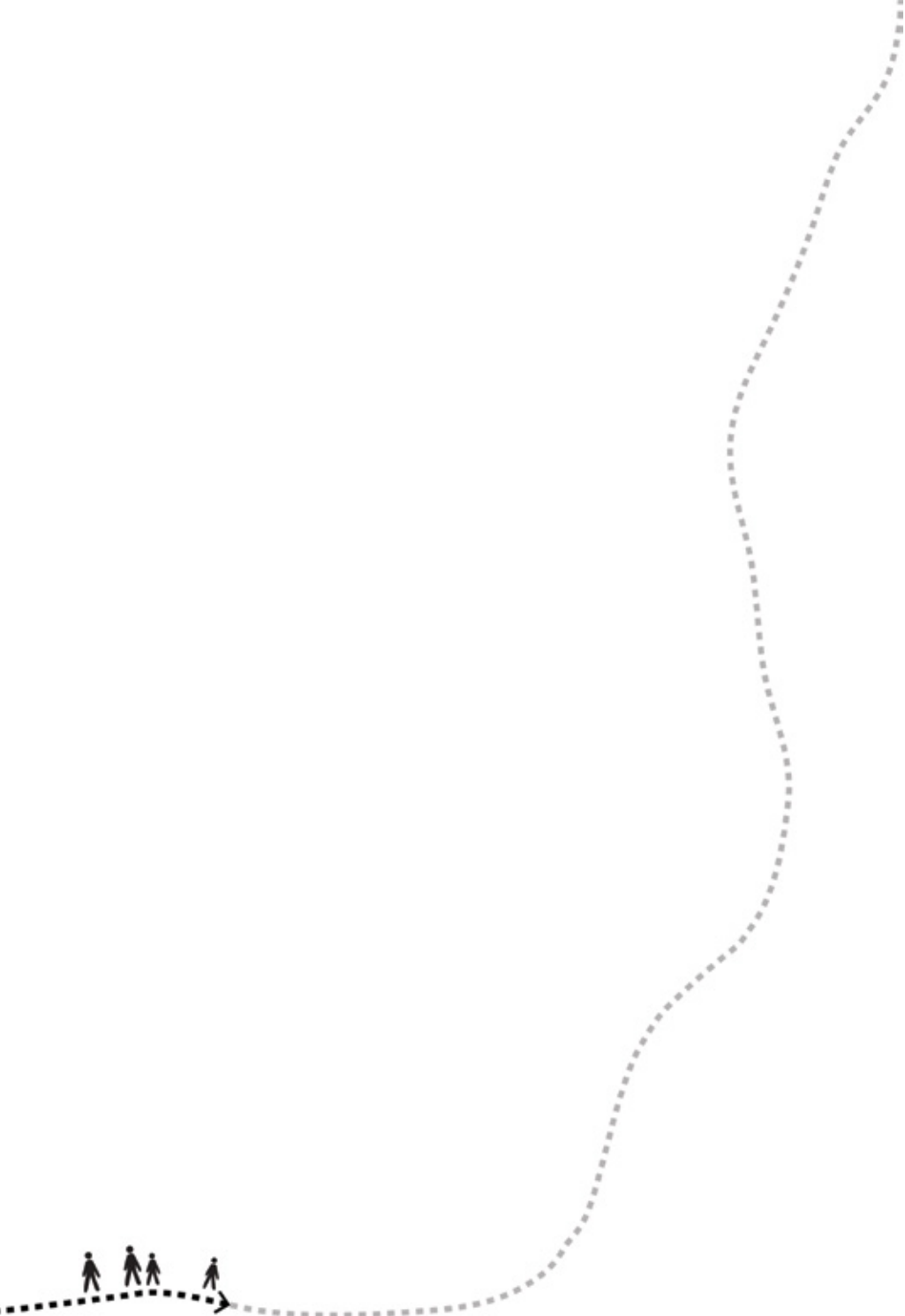
This thesis explores the question of "How can the role of education promote social mobility and spatial transformation in post-apartheid South African cities?". This question is explored through a research-by-design project using the case study of Delft neighbourhood. Due to not being able to revisit South Africa since the start of the COVID-19 pandemic, the research relies on previous data gathered on site, along with Google maps, ethnographic studies, and current news articles and journals.

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INTRODUCTION

**A DIVIDED SOCIETY: HOW UNEQUAL
QUALITY OF EDUCATION LIMITS SOCIAL
MOBILITY IN SOUTH AFRICAN CITIES**

INTRODUCTION

A DIVIDED SOCIETY: HOW UNEQUAL QUALITY OF EDUCATION LIMITS SOCIAL MOBILITY IN SOUTH AFRICAN CITIES

The world's cities are growing at a tremendous rate, especially those of the global south where the youth make up a large proportion of the population. In South Africa, youth sit at the core of the urban population with limited prospects of accessing decent employment and education opportunities which would in turn promote a better quality of life and well-being¹.

Education is a key element of human development. As Figure 1 demonstrates,

literate and educated people are in a more favourable position for employment opportunities and consequently create better outcomes for themselves. The Global Campaign for Education (GCE) states that education is essential for poverty alleviation and the promotion of economic growth². These are two of the main priorities for national development affecting South Africa's transformation.

South Africa is currently faced with an ongoing crisis of the quality of education. Duetothevastamountofinequalityfound within the country, educational systems are split by wealth, socio-economic

¹ Edgar A. Pieterse, *Epistemological Practices of Southern Urbanism*, African Centre for Cities, University of Cape Town, 2014

² 'Global Campaign for Education', last modified 2020, accessed March 3, 2021, <https://campaignforeducation.org/en/>

National Youth Unemployment

Unemployment rates of youth age 25-35 by highest level of education attained

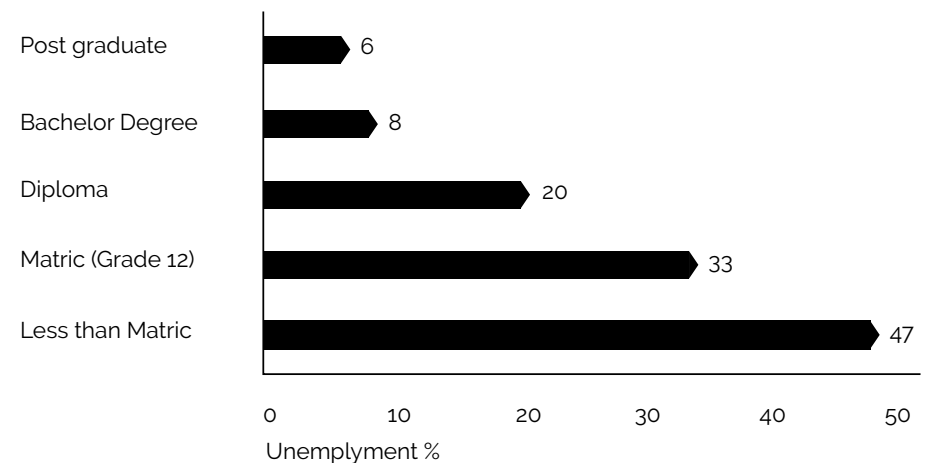


Figure 1: South Africa youth unemployment

“The doors of learning and culture shall be opened!”

- South African Freedom Charter 1995

status, language and geographic location. The current schooling system undermines youth's hope for future opportunities, as it does not support a space in which dreams and aspirations can be realized. It is therefore important to acknowledge the dire state of the South African education system, and create dialogue and discussion as to how it can be addressed.

If education is neglected, then the country's economy and democracy are unable to strengthen and progress. Education is not just about teaching from a book- it is about the fostering of a safe place where children feel at home. The education system in South Africa works for about 20% of schools, with the remaining being marked by low pass rates and few university level passes³. Even within first year university, the drop out rate is so high due to the poor schooling preparation for a university discipline. This lack of effective early education and intervention perpetuates the inequality already present within the country due to apartheid. Those children with privileged positions and private schooling will continue to have a head start over children in poorer areas.

With apartheid ending in 1994, the

³ Jonathan Jansen and Molly Blank, *How to Fix South Africa's Schools: Lessons from Schools that Work*. (Bookstorm), 2014

new Freedom Charter of 1995 provided a vision for the future wherein, “the doors of learning and culture shall be opened!”⁴. Although it has been so difficult to realise this vision, it is important to acknowledge that building a new society does not start on clear ground. Since apartheid left a legacy of inequality within schools, one must re-imagine how the education system can stand for equality and justice and therefore prepare all young people as future citizens with equal opportunity.

While progress has been made since the end of apartheid on widening access to education- a true transformation needs to look beyond the provision of basic facilities to satisfy education norms and standards. Educational transformation needs to create an appropriate learning landscape to encourage learners potential and enable their opportunities.

Within this research-design thesis, the role of education in promoting social mobility and spatial transformation in a South African context is explored. Given South Africa's deep structural inequality, these two notions must go hand in hand in order to make progress in the new democratic country.

⁴ South African History Online, ‘Congress of the People and the Freedom Charter’, accessed 8 March 2021, <https://www.sahistory.org.za/article/congress-people-and-freedom-charter>

After contextualizing South Africa in chapter 1, the following research in chapter 2 focuses on the legacy of apartheid education and its unequal school models. Majority of South African learners essentially follow a learning trajectory that still leads to inadequate primary and secondary schooling, and poor access to tertiary education-affecting labour market outcomes, and ones social and spatial mobility. This upholds a cycle of inequality for the following generations, one that is difficult to escape due to the structural divide created by apartheid education. This persistence of inequality levels more than 2 decades after apartheid ended in 1994, highlights how the current educational system is not able to overcome the injustices of the past, even with the government allocating more funds to previously disadvantaged schools.

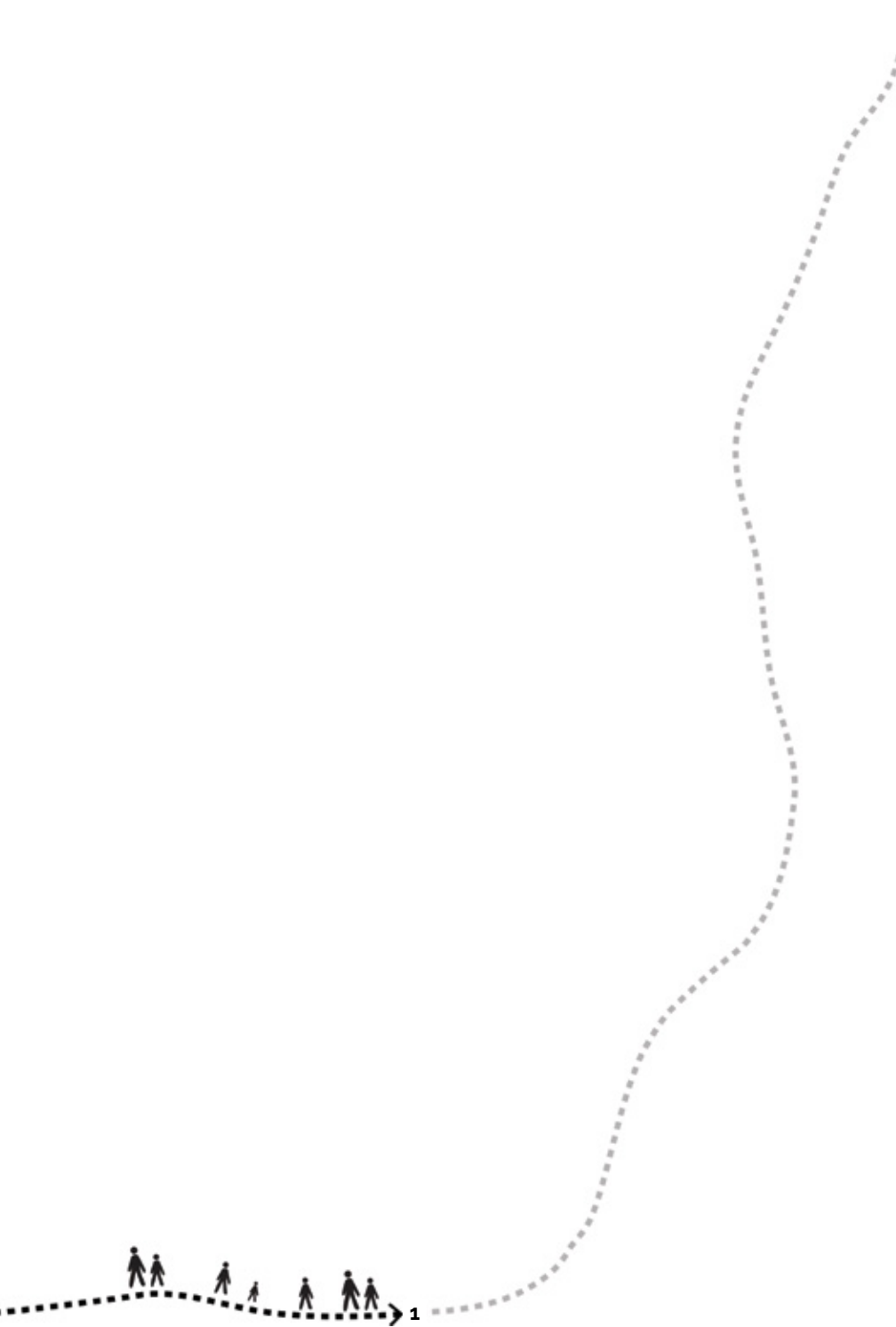
Therefore, this thesis explores the main research question of "How can the role of education promote social mobility and spatial transformation in post-apartheid South African cities?". From chapter 3 onwards, this question is investigated through the case study of Delft, an informal settlement implemented during apartheid, on the outskirts of Cape Town, South Africa. In looking at the relationship of the school and existing educational

infrastructure within Delft in chapter 4, the following sub questions in chapter 5 are explored through a research-by-design approach.

- How can schools be transformed from isolated enclaves, to networks of educational resources?
- What is the network of public infrastructure that supports learning and exchange?
- Which educational resources spill out into the public domain, and which resources cease to exist?
- How can this existing network be enforced to create equal opportunity for all?

As a method of investigation, these networks of education are unpacked through data reports, historical maps, on the ground fieldwork techniques, ethnographic studies, on site workshops and satellite investigations.

Finally, chapter 6 comprises of the research-by-design project, 'A Learning Archipelago', viewing education beyond the boundaries of a school. This urban approach aims to shift Delft towards a neighbourhood that is safe, stimulating, attractive, lively, well connected and sustainable. It is an educational strategy which promotes shared resources and facilities that can represent a great opportunity for spatial transformation, social mobility and socio-economic change in Delft.



CONTEXTUALIZING SOUTH AFRICA

LOCATING SOUTH AFRICA

South Africa is the most southern country on the African continent, and has a population of roughly 57 million inhabitants. South Africa has a rich diversity in terms of its resources, as well as its culture, as it's characterized by a multi-ethnic society with 11 official languages⁵. South Africa has a long history of segregation, first under colonization of the Dutch, followed by the British, and later under the apartheid regime. Apartheid has left the urban landscape and the population spatially segregated with high levels of poverty and inequality. Although apartheid was abolished in 1994, the country still faces many challenges today. This thesis will specifically focus on Cape Town, the city I grew up in, located at the southern tip of the continent.

FORCED SEGREGATION: APARTHEID

Looking at the history of South Africa, starting from 1948, the nationalist government enacted laws to define and enforce segregation, known as apartheid which means 'separateness' in Afrikaans which was the language that was derived from the Dutch colonizers in the Cape⁶. In 1950, a law was passed known



SOUTH AFRICA

Figure 2: Locating South Africa in Africa



CAPE TOWN

WESTERN CAPE

Figure 3: Locating Cape Town in South Africa

⁵ Aryn Baker, 'What South African can teach us as worldwide inequality grows', *TIME*, last modified 2 May, 2019, accessed 8 March 2021, <https://time.com/longform/south-africa-unequal-country/>

⁶ Ibid

1. CONTEXTUALIZING SOUTH AFRICA

Key: Apartheid Racial Group Classifications:

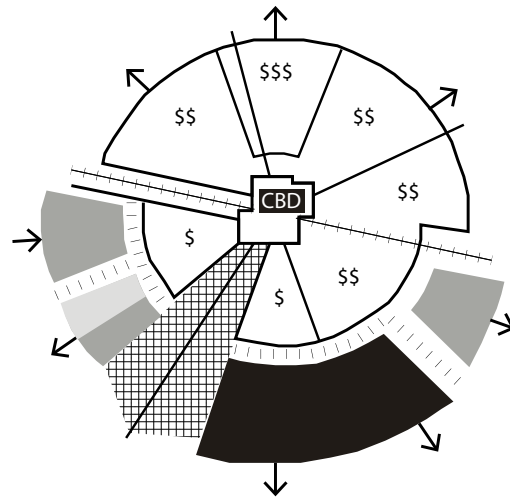
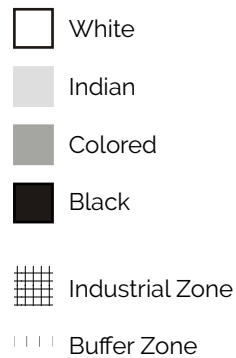


Figure 4: Apartheid City Model

Key: Apartheid Racial Group Classifications:

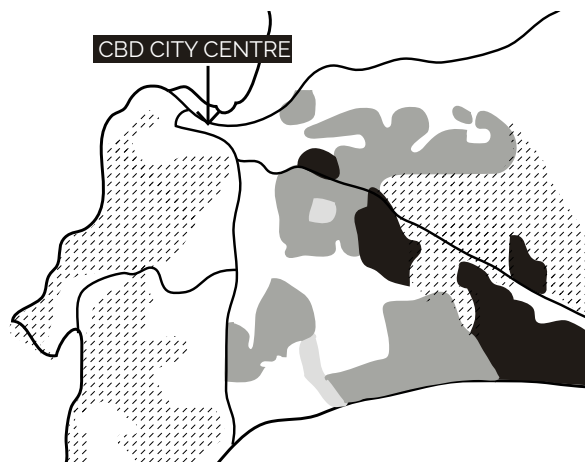


Figure 5: Apartheid model applied to Cape Town

1. CONTEXTUALIZING SOUTH AFRICA

as the 'Group Areas Act' which was an imposed spatial planning strategy used to segregate South African citizens by their race⁷. Under this law, the city centre was allocated for white citizens only, and people of colour⁸ were forcefully removed to the outskirts.

The core of the apartheid system was the division of people into racial groups using a trivial series of tests. The result was the classification of the population into one of four groups: *White, Black, Indian and Coloured*⁹. The tests were primarily based on appearance, such as skin colour, facial features, and appearance of hair. Most infamously, the 'pencil test' determined that if an individual could hold a pencil in their hair when they shook their head, they could

not be classified as white¹⁰. The tests were so imprecise that members of an extended family could be classified in different racial groups.

Hence, as seen on the headline of the Time magazine published in May 2020, South Africa is 'The World's Most Unequal Country'¹¹. This notion is experienced in terms of spatial, political and economic means.

POLICIES FACILITATING SEGREGATION

There were many policies put in place by the apartheid government, which facilitated segregation through socio-spatial means. Major policies implemented were:

1. Relocation – as people of colour were forcefully removed to the outskirts of the city on undesirable land under control of the apartheid government.



⁷ Aryn Baker, 'What South African can teach us as worldwide inequality grows', *TIME*, last modified 2 May, 2019, accessed 8 March 2021. <https://time.com/longform/south-africa-unequal-country/>

⁸ People of colour-refers to anyone who were not racially classified as white under the apartheid rule.

⁹ *Coloured, White, Indian and Black*- are written with a capital letter and italics as they are referring to the exact classifications imposed under the apartheid government.

¹⁰ Thompsell, Angela. 'How the State Assigned Race Under Apartheid.' *ThoughtCo*, last modified 1 September 2020, accessed 27 January 2020, www.thoughtco.com/racial-classification-under-apartheid-43430

¹¹ Aryn Baker, 'What South African can teach us as worldwide inequality grows', *TIME*, last modified 2 May, 2019, accessed 8 March 2021. <https://time.com/longform/south-africa-unequal-country/>

Figure 6: Time magazine cover, 2020

1. CONTEXTUALIZING SOUTH AFRICA

2. Proximity to the city centre was not the only tool used for segregation. Planned infrastructure as physical barriers was used to divide racial groups such as the implementation of highway and railway lines.

3. Apart from being physically separated, when people of colour exited their designated zones they had to carry a 'pass book' which classified their race in accordance to apartheid laws and had very strict rules and hours of where and what one could do.

4. Signage across the country was

used as a physical and visual tool to distinguish spaces of segregation which intruded into all aspects of life. These restrictions allowed for white people to move freely around the city, while coloured and Asian groups had access to few privileges. The sharpest distinction was between the native black population and European white decent. This could be seen on public entrances and facilities such as hospitals, schools and beaches, separate modes of transport and walkways, and even down to benches.



Figure 7: Photograph of sign during apartheid showing 'Whites Only' beach

1. CONTEXTUALIZING SOUTH AFRICA



Figure 8: Photograph during apartheid allocating 'Black, Colored & Asian' bathroom



Figure 9: Photograph during apartheid showing a "Whites Only" bench

1. CONTEXTUALIZING SOUTH AFRICA

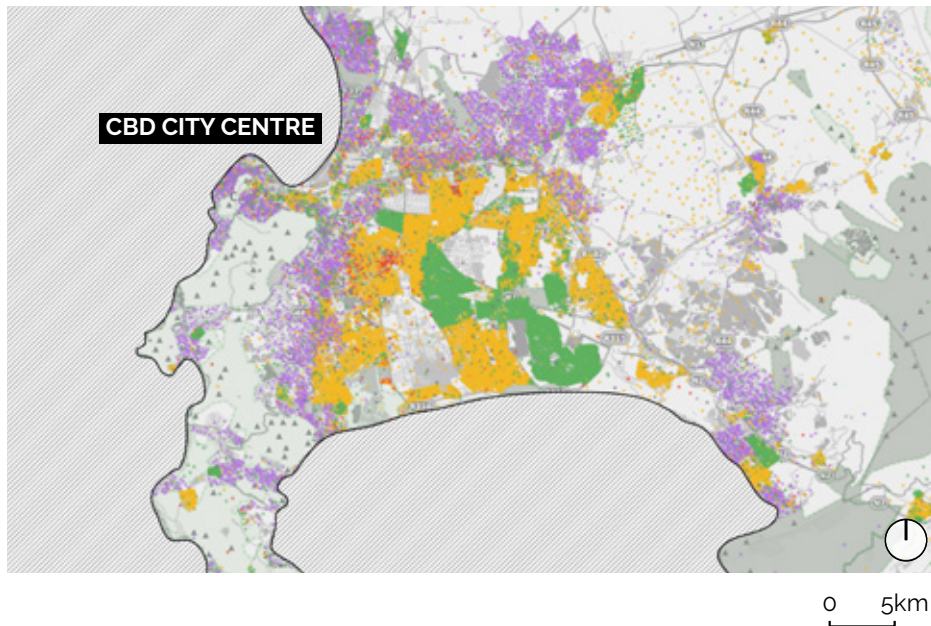
SPATIAL IMPACTS OF FORCED SEGREGATION

Today, Cape Town, one of the main cities in South Africa, may appear to be harmonious and progressive, but many of these spatial and social planning decisions still impact the city's residents. Given how apartheid constructed wealth and class based on race, many of these divisions are still evident today.

Compared to the apartheid model implemented in 1948, the data in

Figure 10, shows the racial distribution in Cape Town in 2011- marking a clear representation of how little has changed since the end of apartheid (1994) in terms of spatial segregation, with the majority of white citizens still located in the city centre, and people of colour on the outskirts¹².

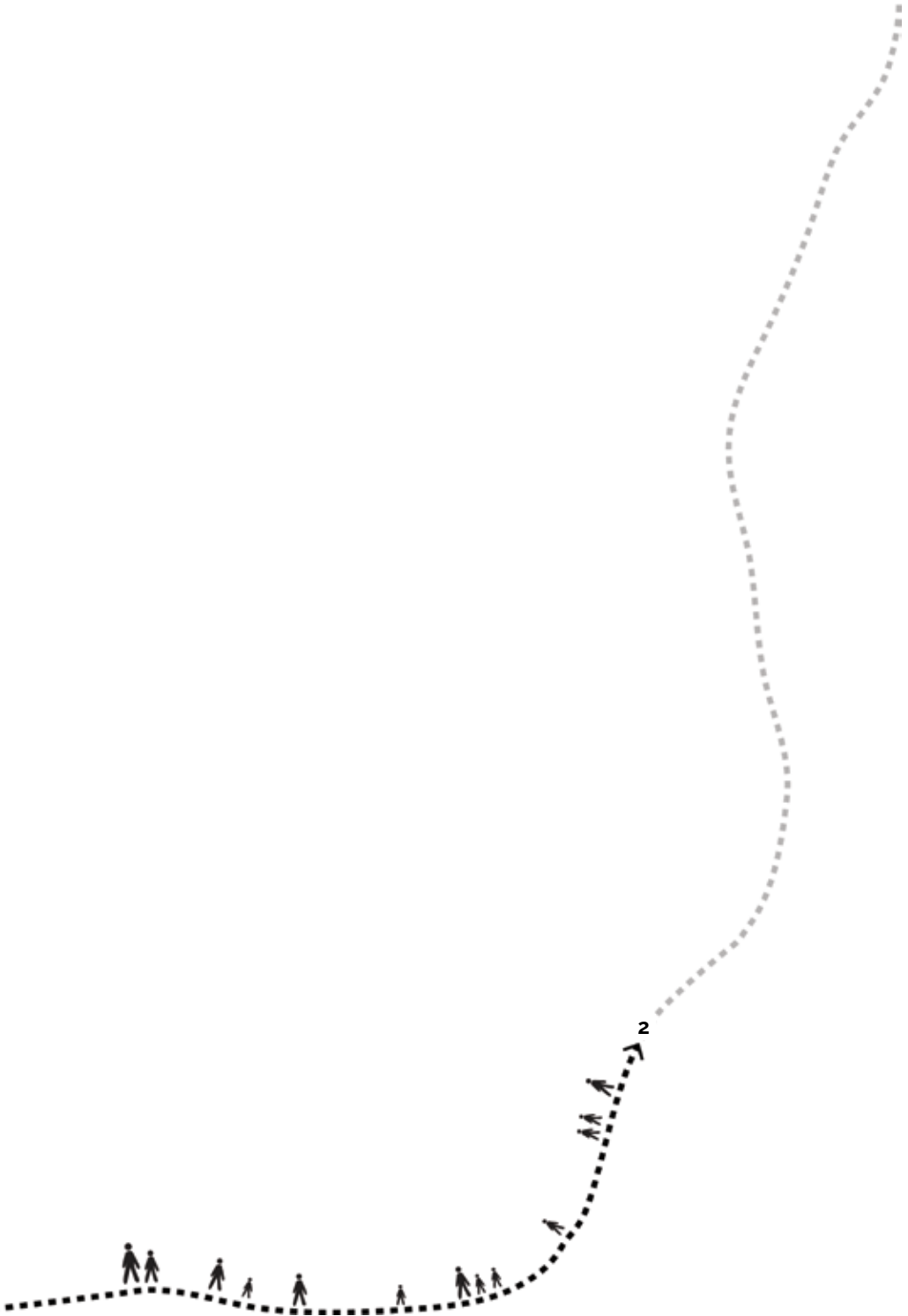
¹² Adrian Frith. 'Dot Map of South Africa', *Dot Map Race*, population data from Census 2011 and Statistics South Africa, last modified 2011, accessed 8 January 2021, <https://dotmap.adrianfrith.com>



Key:

White Black African Colored Indian/Asian

Figure 10: Census mapping showing distribution of racial groups in 2011 in the Western Cape



THE LEGACY OF APARTHEID
EDUCATION

SOUTH AFRICAN EDUCATION MODEL

Along with the new democratic constitution in 1994 post-apartheid, there was a focus on rapid transformation of the school curriculum, to be one that was equal and just for all. Transformation in education is not only about providing adequate facilities to satisfy education norms and standards, but even more importantly about creating an appropriate learning landscape to encourage learners potential. This is challenged by the increase backlog in classrooms, as well as numerous facilities which have become almost unusable due to their inferior design, condition and location during apartheid. These conditions are the characteristics of the apartheid ghetto school of Bantu Education, located on the urban peripheries.

BANTU EDUCATION ACT 1953

The Bantu Education Act of 1953 and in effect from 1954, governed the education of black South African children. It was part of the government's system of apartheid, which fostered racial segregation and discrimination against non-whites in the country¹³.

Bantu Education for black South Africans was part of a general socio-economic plan for the country. Teaching was to take place in the students' native tongue,

although the syllabus for examination was in English and Afrikaans, which majority of black learners did not speak. The educational focus was on needlework, planting, and soil conservation as well as in arithmetic, social studies, and Christian religion. The syllabus was aimed at training children for manual labour and inferior jobs that the government deemed suitable for black learners. This fostered the apartheid ideology of black people being viewed secondary to white South Africans. There was almost no money allocated to schools of colour, in comparison to white privileged schools, and therefore resulted in a shortage of qualified teachers, and teacher-student ratios ranging from 40–1 to 60–1¹⁴.

Since apartheid classified all racial groups, there was also the Coloured Person's Education Act of 1965 which was run by government under a separate body, as well as the 1965 Indian Education Act¹⁵. All non-white students were not allowed to attend universities, as the educational syllabus allocated to them was only for labour purposes.

¹³ Iain Low, "Space and Transformation: reflections on the Cape schools programme", in *Counter Currents: Experiments in Sustainability in the Cape Town Region* (Cape Town, Jacana Media, 2010), 202 – 215

¹⁴ Ibid

¹⁵ Ibid

The Bantu Education Act was replaced by the Education and Training Act of 1979, followed by segregation of schools ending in 1996 with the South African Schools Act. With decades of substandard education and segregated educational opportunity structures, it has left South Africans with a large issue of educational achievements facing the country today.

OUTCOME BASED EDUCATION 2005

Post Apartheid, a new model was introduced in 2005, known as Outcome Based Education (OBE), which shifted away from the apartheid curriculum and focused on addressing skills, knowledge and values¹⁶. Textbooks were replaced by workbooks and learner portfolios, attempting to shift to a learner centred approach looking at the notion of social justice¹⁷. Although this model has been successful in some developed countries, this new syllabus overlaid to a South African context, doesn't acknowledge that the country has a different teacher-student ratio, not as many highly educated or critically thinking teachers, as well as under resourced classrooms and schools. Moreover, the new syllabus in general did not spend the time, finances or resources to properly train the staff for the new curriculum. This model moved away from teaching the basics such as

reading, writing, and arithmetic, which majority of the nation did not have proper access to. In 2011, studies showed that 65% of grade 3 learners were not literacy competent, 72% were not meeting the standard language tests, and 70% were not able to do basic mathematics as seen in the national benchmark test¹⁸.

The historically advantaged schools, usually referred to as 'ex-Model C' schools, had a different reality adjusting to the implementation of the OBE model. This new curriculum reflected their previous teaching practices taking place before, and therefore these more advantaged schools found ease in implementing changes. This only created a further divide as the OBE model was to benefit and uplift previously disadvantaged teachers and learners.

Today, there is still a big divide in ex-Model C schools setting the pace for state education statistics, and many families living in informal settlements still try to send their children far distances to

¹⁶ Iain Low, "Space and Transformation: reflections on the Cape schools programme", in *Counter Currents: Experiments in Sustainability in the Cape Town Region* (Cape Town, Jacana Media, 2010), 202 – 215

¹⁷ N Mouton, "A Historical Analysis Of The Post-Apartheid Dispensation Education In South Africa (1994-2011)", *International Business & Economics Research Journal* #11, no.11 (Northwest University, South Africa, November 2012), accessed on 5 September 2020

¹⁸ Ibid

access education from an ex-Model C school, due to their higher educational standard and resources available.

This alone is a serious concern in terms of transformation of the country, as the newly proposed curriculum seemed to benefit the wrong target group of the population, which further facilitated a divide. Therefore, main problems facing South African schools transformation was: quality, equity and relevance.

NATIONAL SENIOR CERTIFICATE 2010

In 2010, the National Senior Certificate (NSC) was implemented as the exit point from secondary education and the entry point to accessing tertiary education. This new school curriculum tried to bridge knowledge and skills needed in the working environment after school, and create a more accessible entry level into university for all. This new complex and technical curriculum struggles, due to majority of schools being under resourced, and teachers being inadequately trained. This leads to a huge discrepancy between learners in private or former Model C schools succeeding; when the drop out and pass rates in previously disadvantaged public schools has decreased even more over the years¹⁹.

The physical shape, and the spatial

dynamics of the school buildings can have a profound impact on learning, and the relationship the school holds within the community and context. Therefore in order to create new approaches for education, one needs to revise these physical structures.

¹⁹ N Mouton, "A Historical Analysis Of The Post-Apartheid Dispensation Education In South Africa (1994-2011)", *International Business & Economics Research Journal* #11, no.11 (Northwest University, South Africa, November 2012), accessed on 5 September 2020

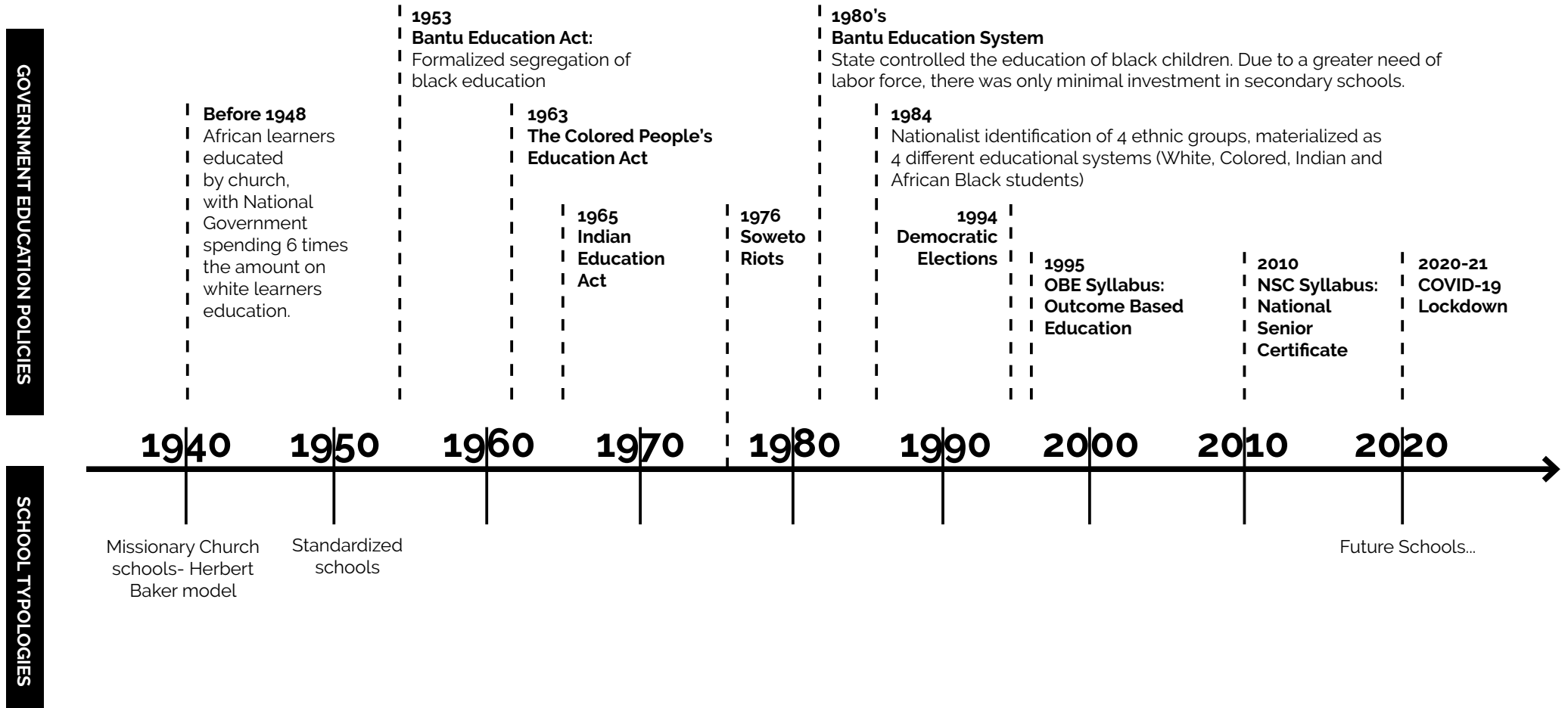


Figure 11: Educational structure in South Africa since apartheid

2.2 SCHOOL TYPOLOGIES

SCHOOL TYPOLOGIES

South Africa's education system is made up of 3 very different school types, being: public/government schools, former Model C schools, and independent/private schools.

Public schools in South Africa are fully dependent on government funding for salaries and materials. These funds allocated are often extremely low and the standards and facilities can vary hugely depending on the school, its area and previous zoning during apartheid rule. There are 2 predominantly different models of so-called public schools in the country: those that were set up during apartheid for learners of colour²⁰ in informal areas on the outskirts of the city, and former Model C schools which are state run although were previously white schools under apartheid rule.

These 2 very different models, will be analysed alongside private/independent schools, which are largely run by donors and the parent body.

²⁰ People of colour-refers to anyone who were not racially classified as white under the apartheid rule.

2.2 SCHOOL TYPOLOGIES

2.2.1 GOVERNMENT SCHOOLS

The schools allocated during apartheid rule were set up in zoned areas of forced removal for people non classified as white citizens. These schools were allocated to serve a large amount of pupils, although their infrastructure, size allocated and budget states otherwise. Not only was Bantu Education an impoverished system, but so were the school buildings and the infrastructure that was delivered.

Within the informal settlements where black people were relocated, schools were built functionally to answer minimal space requirements. A standardized architectural model was implemented for schools being relocated on the periphery of the city in disadvantaged areas. Buildings and layouts within the plot were usually derived from analysing what would minimize the job delivery and the assembly. These models were designed mainly as a triple story height, with an orthogonal path and little to almost no input from architects or designers. No attention was given to the quality of learning spaces, outdoor environments, extra curriculum resources or general well-being of students. Specialized buildings such as libraries, halls and gyms were mainly left out.

These mono functional schools

became a symbol of the apartheid era- both physically and symbolically. When looking at aerial views of South African informal settlements, one can very clearly see the presence of these schools in the urban fabric as they were often the only institutional structure provided by government. This placed an importance on the schools within the community, despite their inadequate conditions²¹.

The schools today still have a shortage of classrooms in ratio to pupils attending. Running water, ablutions and other basic services are either not present on site or meet minimal standards. The schools lack recreational or sport facilities, as well as additional learning resources such as computer labs and library's. Since majority of the schools remain with the same basic services they were built with during the apartheid regime, it hinders social mobility and opportunity structures facing its learners.

Within these schools everything is paid for by the state and parents generally pay nothing or a very small contribution to school funds every year. These schools have low tuition fees, meaning that most children can have access to education,

²¹ *Coloured, White, Indian and Black* are written with a capital letter and italics as they are referring to the exact classifications imposed under the apartheid government.

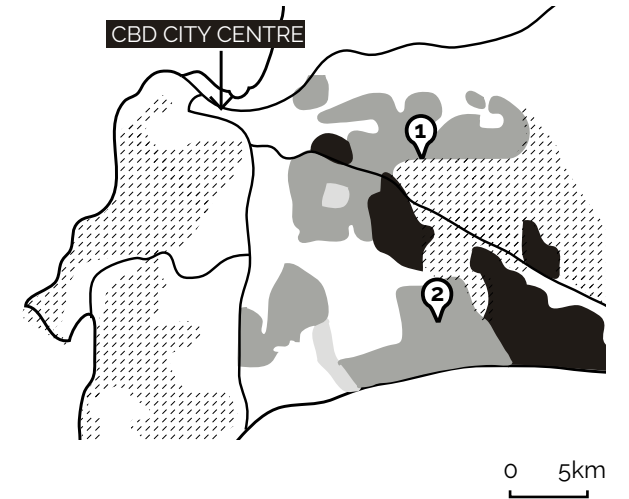
2.3 SCHOOL TYPOLOGIES:

meeting the needs of the democratic South African Constitution. Although, since classes are overcrowded, and teachers salaries are very small and controlled by the government, it means that the more affluent schools attract better qualified teachers- leaving the physical standard and quality of learning very low in government schools.

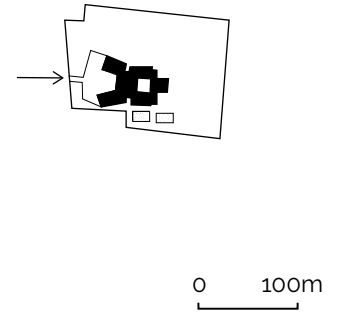
One can see an example of the scale and location of 2 of these school models (Rosendal High school, and Mitchells Plain Primary School) situated on the outskirts of Cape Town.

2.3 SCHOOL TYPOLOGIES:

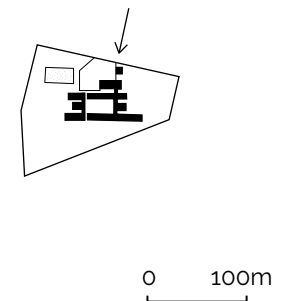
LOCATION



1. ROSENDAL HIGH SCHOOL
| DELFT



2. MITCHELL'S PLAIN
PRIMARY SCHOOL
| MITCHELL'S PLAIN



2.3 SCHOOL TYPOLOGIES:

2.2.2 FORMER MODEL C SCHOOLS

In the last years of apartheid, all former white government schools established in the 1980s and early 1990s were converted to "Model C" schools, which gave them autonomy by the large role of the parent body in the running of the school.

Since the parent body do majority of fund raising, it means the model functions like a business instead of a public school²². Therefore, Model C schools offer the possibility of semi-privatization while still being funded by the state.

Even though post-apartheid the Model C schools officially ended and racially segregated education was abolished- this term still remains due to these former white government schools functioning differently. These schools are an alternative to private expensive schooling and offer a better standard of education than government schools. Their prices are much higher than public schools, although not nearly as much as private schooling. This means that Model C schools can have better teacher-student ratios, different budgets and higher standards of education and facilities. This includes interactive classrooms with technological advancements, and a focus on sports and recreation facilities and after-

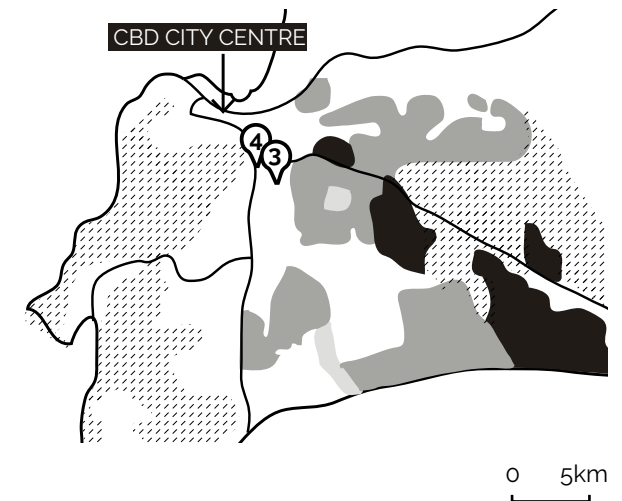
school programs and societies. Another advantage of these schools is that they are diverse and multicultural, and since their teachers are better paid, the educational quality is higher. Since the involvement and resources of the parent body varies, this school model ranges from very being successful to some of the schools struggling.

Two former Model C schools, (Rondebosch Boys High School and Westerford High School) have been chosen as examples to show their location being close to the city centre, as they were formerly only white schools, and their scale of plot and buildings offering more opportunities than the previously seen government schools.

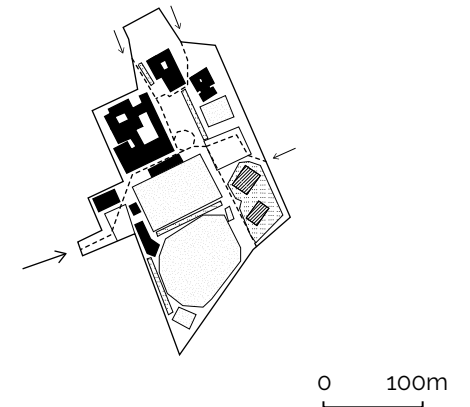
²² PUBLIC, PRIVATE OR MODEL C: WHICH SCHOOL IS BEST?, *School Guide*, accessed on 1 March 2021, <https://www.schoolguide.co.za/guide/primary/entry/primary/public-vs-private-which-school-is-best.html>

2.3 SCHOOL TYPOLOGIES:

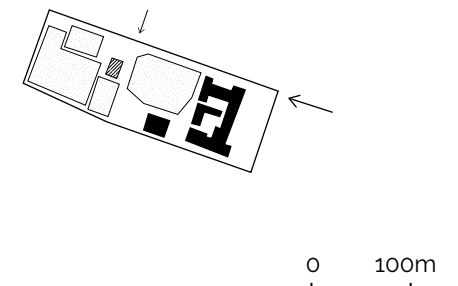
LOCATION



3. RONDEBOSCH BOYS HIGH SCHOOL
| RONDEBOSCH



4. WESTERFORD HIGH SCHOOL | NEWLANDS



2.3 SCHOOL TYPOLOGIES:

2.2.3. INNER CITY PRIVATE/ INDEPENDENT SCHOOLS

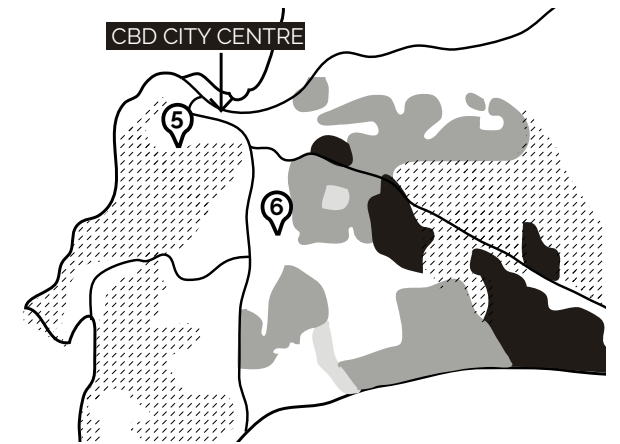
Private schools are not owned by the government, and are usually very high in price. They are funded by a mixture of school fees and the parent body²³. Their characteristics are therefore superior in having smaller class sizes, smaller learner-teacher ratios, teaching assistants for extra support, and a greater variety of after school curriculum, facilities and activities to expose children to more opportunities-although these come at an extra cost.

As seen by the two chosen examples (St Cyprians School and Bishops Diocesan College), one can see that they are well located close to the city or in favourable suburban neighbourhoods. Their scale is completely different to the previous models analysed. They function as a campus of educational facilities, offering many different kinds of learning and supportive structures, both through external and internal use of space.

²³ PUBLIC, PRIVATE OR MODEL C: WHICH SCHOOL IS BEST?, *School Guide*, accessed on 1 March 2021, <https://www.schoolguide.co.za/guide/primary/entry/primary/public-vs-private-which-school-is-best.html>

2.3 SCHOOL TYPOLOGIES:

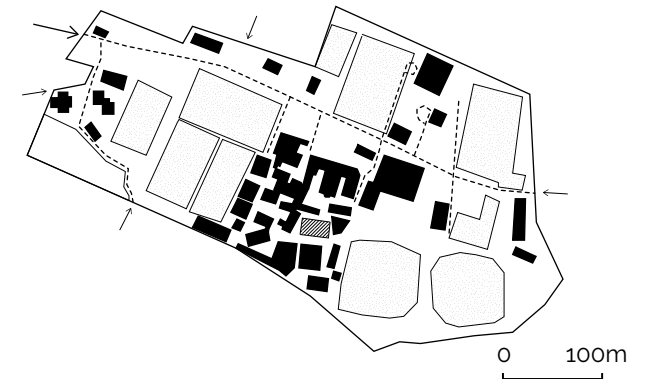
LOCATION



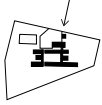

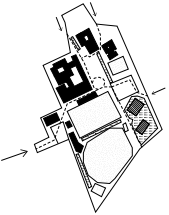
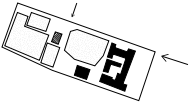
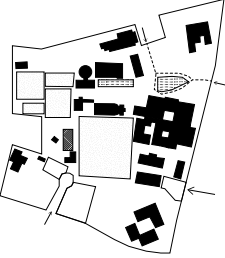
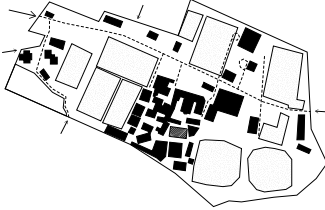
5. ST. CYPRIANS SCHOOL | GARDENS



6. BISHOPS DIOCESAN COLLEGE | RONDEBOSCH



2.3 A COMPARATIVE RESOURCE ANALYSIS

SCHOOL	1. ROSENDAL HIGH SCHOOL	2 MITCHELL'S PLAIN PRIMARY SCHOOL	3. RONDEBOSCH BOYS' HIGH SCHOOL	4. WESTERFORD HIGH SCHOOL	5. ST. CYPRIANS SCHOOL	6. BISHOPS DIOCESAN COLLEGE
MODEL TYPE	PUBLIC/STATE SCHOOL	PUBLIC/STATE SCHOOL	FORMER MODEL 'C' SCHOOL	FORMER MODEL 'C' SCHOOL	PRIVATE SCHOOL	PRIVATE SCHOOL
FIGURE GROUND						
HISTORY	Apartheid Years 1996	Apartheid Years 1976	Pre- Apartheid 1897	During Apartheid 1953	Pre- Apartheid 1871	Pre- Apartheid 1849
PUPIL ATTENDANCE	1472 pupils	1300 pupils	850 pupils	900 pupils	900 pupils	780 pupils
ADEQUATE WATER/ SANITATION	○	○	●	●	●	●
LIBRARY	●	○	●	●	●	●
HALL/ STAGE	○	○	●	●	●	●
ART ROOM	○	○	●	●	●	●
MUSIC ROOM	○	○	●	●	●	●
CULTURAL CLUBS	○	○	●	●	●	●
COMPUTER ROOM	○	○	●	●	●	●
SCIENCE LABORATORY	●	○	●	○	●	●
WORKSHOPS	○	○	○	○	●	●
SPORTS FIELD	●	●	●	●	●	●
POOL	○	○	●	●	●	●
SPORT PROGRAM	○	○	●	●	●	●
RELIGIOUS CENTRE	○	○	○	○	●	●

2.3 A COMPARATIVE RESOURCE ANALYSIS

COMPARATIVE RESOURCE FINDINGS

In analysing the 3 school models, with 2 examples of each, it is clear that there are common characteristics shared between schools falling under the same category. This is not only in terms of scale, location, and connectivity to transport and the city centre, but also in terms of resources.

The first apparent condition is the size of the built infrastructure of the school, and the sqm in relation to the intake of students. Both public school examples had by far the largest quantity of students, yet the size of the school was roughly 15% of the sqm of the Model C schools, and only 2.5% of the private schools, which function more like an urban campus.

One can also note a difference in open space resources-as the public schools sit within the middle of the site, surrounded by soil and neglected grass. There is no consideration here for the quality of outdoor space in terms of recreational or educational means. Instead, this 'play space' for learners is dangerous as it is situated next to fences and back walls of the school, leading to almost no surveillance. This can be viewed in comparison to the composition of the private schools where outdoor space has been carefully designed in terms of

different uses, scales, and quality. The interior arrangement of the buildings also dialogue with the exterior spaces, creating thresholds where learners can socialize and play.

Another factor which evidently expresses how the schooling models are unequal, is the infrastructure and resources they possess. The public schools in previously disadvantaged areas lack basic services. This refers to a lack of sanitation infrastructure in place-but also educational infrastructure to support learning such as desks, books, and teaching spaces, for example laboratories and libraries.

The final aspect where there is a clear disparity, is in the cultural life of the schools, both during teaching hours, as well as after school life where learning opportunities should continue.

Between the ex-Model C schools and private schools, they both offer a focus on recreational and cultural activities. Therefore, learners able to attend either of these schooling models would be exposed to a range of opportunities and other means of dialogue and exchange. The only difference regarding the private schools, is the space allocated for this kind of activity is at the forefront, with more resources and sqm allocated for it.

The comparative table above, shows

how the schools during apartheid for those of colour, did not consider any cultural activity in the model, as there was the clear conception that people of colour should be exposed to different opportunities, specifically with education being focused on the manual labour force.

Therefore, how can we speak about transformation for the new generations of youth in South Africa, when the most informative years of ones education already hinder and shape the opportunity structure one is exposed to?

2.4 COVID-19: FOSTERING EDUCATIONAL SEGREGATION

As analysed above, the dualist school system is still evident in South Africa. Living through times of a global pandemic of COVID-19, it is important to understand its impact on the South African education system. Although all members of society are impacted or susceptible to the virus- one cannot ignore that there are prevailing structures in place which impact how the virus is experienced unequally within different spheres of society.

The current inequality facing South African schools in relation to the pandemic, is borne out of President Cyril Ramaphosa's announcement on 23 July 2020, stating that public schools will close for 4 weeks from the 27 July till the 24th of August, as safety precautions in response to the virus²⁴.

The issue lies in this announcement making no mention of how the private schools may function- meaning that they could choose to remain open and assist learners to graduate with a higher grade at the end of the year, which consequently helps in setting up post-school opportunities for students.

"Education in South Africa is in crisis", stated Tshepo Motsepe, General Secretary of Equal Education, which is a social movement fighting for 'quality and equality in South African schools'²⁵. In the light of the crisis of the COVID-19

pandemic, there has been much discussion on the issue of education in the country, as decisions made by state have brought the inequality levels faced by schools to the forefront. The governments response to the pandemic has highlighted how the legacy of apartheid education is still intact. Currently, the response to 'the right to basic education' as stated in the democratic constitution, seems to only benefit, yet again, those who can afford to attend the expensive independent or private schools, in comparison to the majority of the population who rely on the public education system²⁶. The response to COVID-19 in South Africa is fostering another educational segregation. Although the governments response has not emanated from the same paradigm as apartheid, it is still creating a divide, with a prejudice mainly impacting on the educational opportunities in place largely affecting children of colour, previously disadvantaged by apartheid laws.

²⁴ Fiona Anciano, "COVID-19 exposes South Africa's unequal schooling system", *London School of Economics*, last modified May 29 2020, accessed 9 March 2021, <https://blogs.lse.ac.uk/africaatlse/2020/05/29/covid-19-south-africa-unequal-schooling-education-system-inequality/>

²⁵ Ibid

²⁶ "CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA", *STATUTES OF THE REPUBLIC OF SOUTH AFRICA-CONSTITUTIONAL*, NO. 108 OF 1996, last modified 18 December 1996, accessed 9 March 2021, <https://www.gov.za/sites/www.gov.za/files/images/a108-g6.pdf>

2.4 COVID-19: FOSTERING EDUCATIONAL SEGREGATION

UNEQUAL ACCESS TO EDUCATIONAL RESOURCES

The closure of public schools only highlights the wide gap that exists between the rich and poor, and perpetuates the inequality levels. Implementation of the states COVID-19 rules means that children in public schools have no clear indication of how they will remain on par with their peers in private schools. This segregated approach will impact learners in public schools opportunities and future enrolment into higher education programs²⁷. The strong divide in pass rates when completing school, as well as drop out rates of students is already in stark contrast between public and private institutions. Although, the impacts from decisions undergone during COVID-19 will make it even more challenging to bridge the gap of inequality in future years to come.

Allowing private schools to continue, created multiple contradictions: as those learners attending independent institutions actually have the physical resources and socio-economic support to be able to continue 'learning from home'. When in contrast, the students attending public schools, often do not have the resources to maintain a distant learning model. This is both in terms of the schools resources to support "E-learning" but also the environment

at home of many learners, as majority of students attending public schools are from previously segregated areas. Within these conditions, homes barely posses basic living resources, let alone the infrastructure to support learning: such as lacking electricity, Wi-Fi or access to a computer.

One needs to consider the social needs of learners as well. The reason learners want to be at school is beyond what happens inside the classroom. It is linked to wider processes of access to food, mediated support and blended learning. These are aspects that cannot be overlooked when stating learning will take place in distant modes. Another important aspect is the psychological and economic strain this decision puts on learners. Many households don't encourage a mental support for studies, as when students are at home there is a need to help out economically to support the family. There is also important physiological support that comes from the school environment such as life guidance from teachers or role models, as well as peer support.

One can see the stark contrast in responses to the 'E-learning" model

²⁷ Nicole Breen, "OPINION | A (new) lockdown tale of two school systems: Segregation in the right to basic education", *News 24*, last modified 29 July 2020, accessed 9 March 2021, <https://www.news24.com/news24/columnists/guestcolumn/opinion-a-new-lockdown-tale-of-two-school-systems-segregation-in-the-right-to-basic-education-20200727>

2.4 COVID-19: FOSTERING EDUCATIONAL SEGREGATION

through 2 entry's in the "Lockdown Diary Project"²⁸. This project, initiated by researchers at the University of Edinburgh and University of the Western Cape used the medium of Whatsapp to track individual experiences of Cape Townians and the larger impact lockdown had on their community.

One entry from a mother in Khayelitsha, an informal settlement in Cape Town set up during apartheid, wrote how without schools and public libraries open in the area there is no other supportive space to continue learning as many homes only contain one room. She stated, "those that live in homes where the environment is not conducive for studying, are likely to see their academic results suffer"²⁹.

Another entry post from a mother in the more affluent area of Newlands close to the city centre in Cape Town, stated how she was not worried about her children learning from home, as "they are playing board games, which will improve their skills. Their computer skills are improving from using Google classrooms, they are learning to touch type and have kept up with practicing their musical instruments"³⁰.

²⁸ "Lockdown Diaries" (blog), last modified July 2020, accessed 9 March 2021, <https://lockdowndiaries.org/>

²⁹ Ibid

³⁰ Ibid

RISKS ASSOCIATED WITH PUBLIC SCHOOL CLOSURE

Risks associated with closing public schools affects the time currently being lost during the pandemic, as well as the impact these decisions will hold on the immediate future. There could also be long term damages in choosing to only close state schools, as it already feeds into a system where previously disadvantaged schools have already lost. The repercussions of this decision creates new risks that children in public schools will be exposed to, when those in private schools will remain to be unaffected.

Within informal neighbourhoods, the schools act as the main formalized public infrastructure in the urban fabric. They create networks within the community, specifically for social relief and food security. On the backdrop of COVID-19 the country already faces a huge humanitarian crisis around the issue of food security. Especially during lockdown, this resource is incredibly important to maintain so that children can continue to have access to food during this time. It is therefore very important for government to work with school nutritional programs already in place, to ensure that the school can still be used as a distribution site, even if learning is on hold.

2.4 COVID-19: FOSTERING EDUCATIONAL SEGREGATION

The choice in government avoiding to control private schools was motivated by these institutions being in a better position to implement social distancing and hygiene protocols. Although, this divide in the rules between public and private schools, doesn't account for the former Model-C government schools which do hold the resources able to ensure learners are kept safe.

It seems it was easier to ensure a blanket term statement of public vs private, instead of implementing a more localized and contextual approach which addresses individual schools on a more case by case basis.

COVID-19 BRINGING EDUCATIONAL INEQUALITY TO THE FOREFRONT

The decision to close public schools was implemented after negotiations with various stakeholders in education, even though they possessed differing views. These stakeholders included unions, parent bodies, school governing bodies, educator organizations, independent schools and civil society formations. It seems that the states actions were not in the best interests of its young citizens, but rather were politically motivated. As stated by the Congress of South African Students (COSAS), "We have been fighting for equal education; we have been fighting for equal opportunities, but yet the government decides to continuously put inequality within our

education system. Yes, we understand that private schools are independent schools and the salaries of teachers come from the school fees of the learners, but when we talk about equal education, we need to speak from one voice and that means we need to speak from one point"³¹.

This divide during COVID-19 is important to acknowledge because it heightens existing segregation, and places further divide between private and public schools, when the contrast was already so high to begin with.

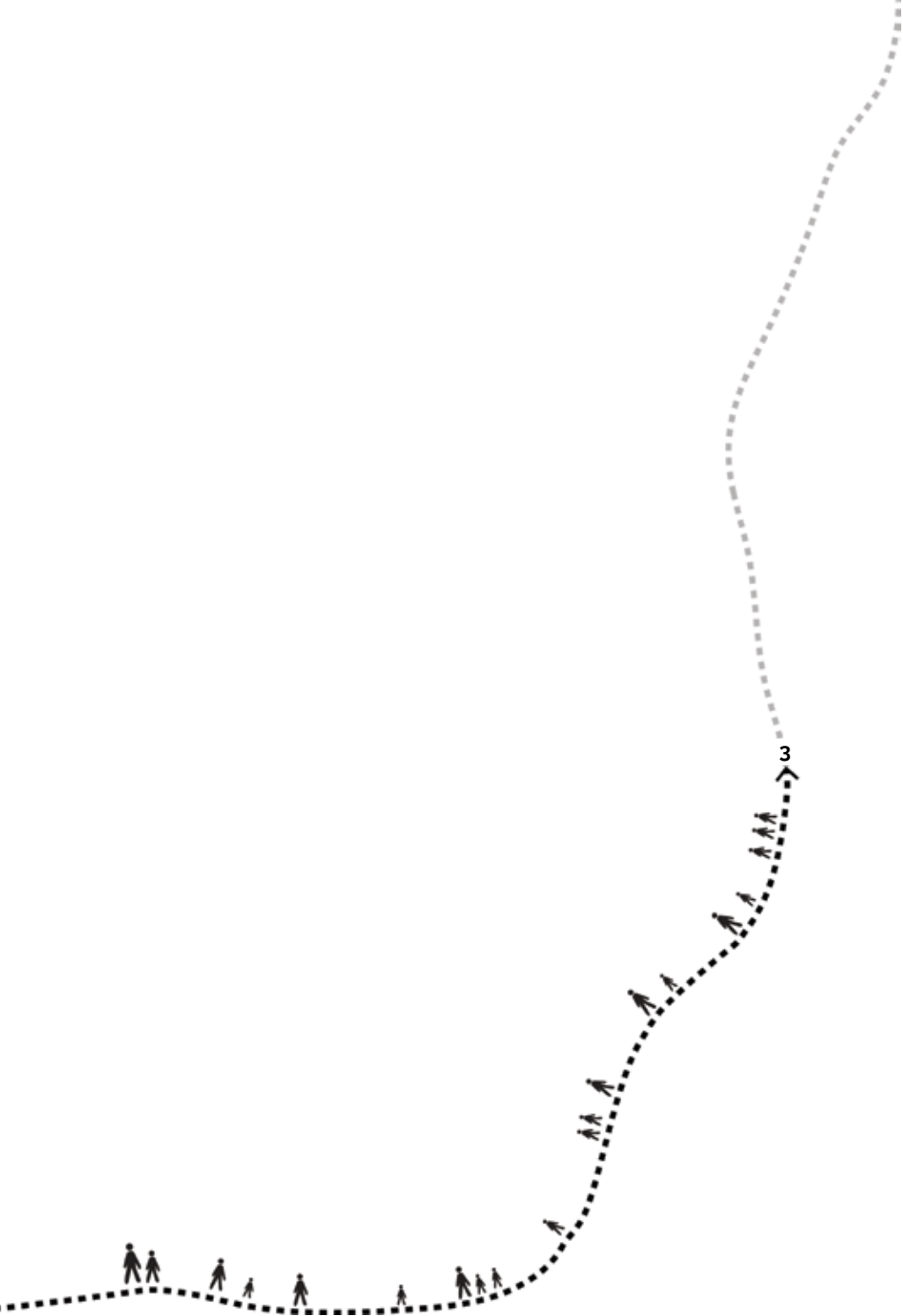
On the one hand, one can see the logic in closing public schools, as the existing provision of water systems, adequate sanitation and classroom size for learners is not infrastructure that can support the 'social distancing' requirements. The fact that the public schools cannot meet these needs is not only an issue related to the pandemic. Rather, it is a larger issue affecting the everyday life of learners that needs to be addressed: responding to the overcrowding of classrooms and poor health and safety infrastructure. The pandemic should be seen as an opportunity to push for dignified working environments within

³¹ Qodashe, Zoleka, 2020, "All schools must close: Cosas", *SABC News*, 27 July 2020, accessed (March 2021, <https://www.sabcnews.com/sabcnews/all-schools-must-close-cosas/>

2.4 COVID-19: FOSTERING EDUCATIONAL SEGREGATION

school communities; and to bring to the forefront educational inequality as a key issue affecting the country's transformation and development.

This issue lies beyond the physical opening of private school property. One can argue whether public vs private schools should remain open or not, but the reality is that regardless of private schools being physically open or closed- they possess the resources for learning to continue for their students during this uncertain period. Therefore, the country experiencing COVID-19 has perpetuated the inequality gap in an already segregated education system.



3

THE SITE:
DELFT, CAPE TOWN

Schools in Delft are no different to the apartheid school model studied, as their design is closed off to work in an insular nature.

In contrast to the insular school plots, on site research shows the functioning of Delft Main Road as a vibrant and activated road running through the neighbourhood, and connecting it to surrounding areas and the city centre. Due to the under-resourced school grounds, modes of learning, play and exchange take place outside school boundaries and extend into the public realm, especially along Main Road. This shows that learning is not an isolated spatial phenomenon taking place only in a classroom or a school, but rather exists as a network throughout the neighbourhood.

The main research question of ***“How can the role of education promote social mobility and spatial transformation in post-apartheid South Africa cities?”*** is explored through analysing the case study of Delft.

In looking at the relationship of the school and educational infrastructure in place within Delft, one can pose the following questions:

How can schools be transformed from isolated enclaves, to networks of educational resources?

What is the network of public infrastructure that supports learning and exchange?

Which educational resources and programs spill out into the public domain, and which resources cease to exist?

How can this network be enforced to create equal opportunity for all?

3.1 LOCATING THE SITE: DELFT, CAPE TOWN

Delft is an informal settlement located on the outskirts of Cape Town, South Africa. In order to understand its scale in relation to a familiar environment, Figure

13 shows the size of the settlement placed over Milan, Italy. One can therefore tell it is a similar scale to Milan's Historic City centre and inner ring.



Figure 12: Understanding the scale of Delft settlement

3.1 LOCATING THE SITE: DELFT, CAPE TOWN

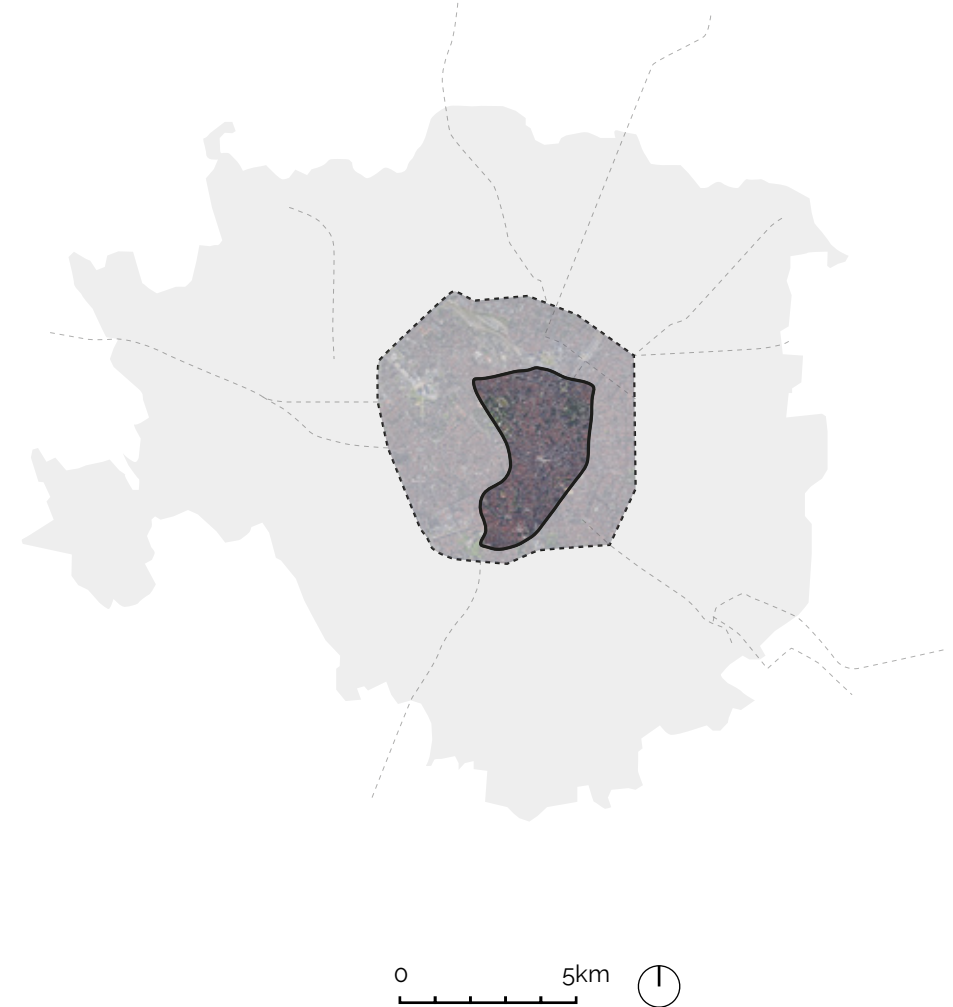


Figure 13: The scale of Delft in comparison to Milan, Italy

3.1 LOCATING THE SITE: DELFT, CAPE TOWN

During apartheid forced removal of black and coloured communities was from the city centre in an eastward direction. Figure 15 is not a depiction of apartheid time, but rather a collection of census

data from 2011 showing current race distribution in the city. This map alone, clearly shows how little transformation has taken place post-apartheid, with majority of coloured and black people

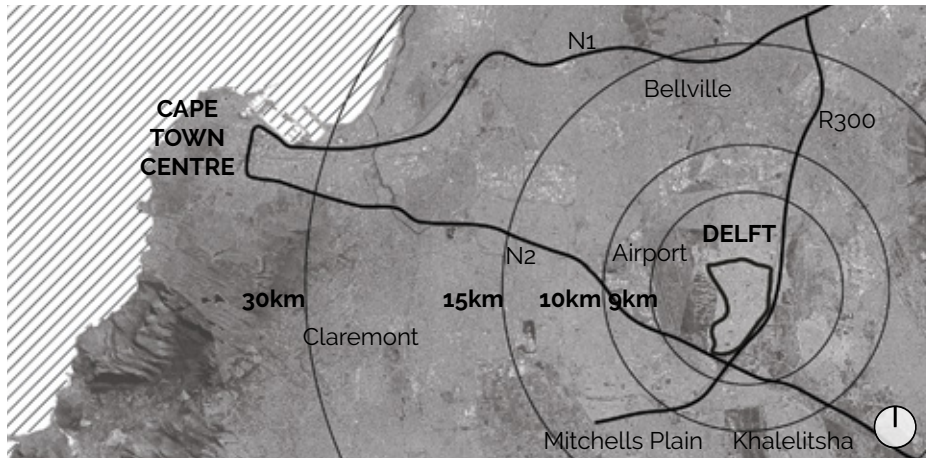
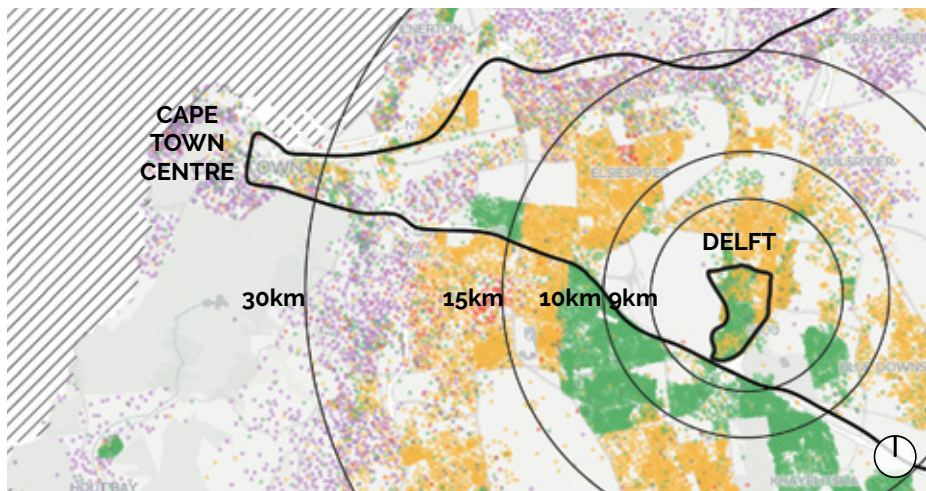


Figure 14: Map locating Delft within Cape Town



Apartheid classified population: ■ White ■ Indian/Asian ■ Coloured ■ Black

Figure 15: Census mapping locating Delft and showing distribution of racial groups in 2011 in Cape Town

3.1 LOCATING THE SITE: DELFT, CAPE TOWN

still remaining on the city outskirts, while the city centre remains dominated by white populations, with a much lower density³². This shows how the legacy of apartheid is still present in Cape Town, as its structure still affects social mobility, which has a direct impact on spatial mobility³³.

Delft is a rapidly evolving settlement located 40km outside of Cape Towns City Centre, in South Africa. Near the end of apartheid in 1987 the government started the planning of Delft township for coloured people with low incomes.

This spatial planning on the city's periphery was a result of the 'Group Areas Act' during apartheid regime, that separated people by race, usually to the area outside the city known as the "Cape Flats".

The character of Delft is enclosed by highways on 3 sides, such as the Stellenbosch Arterial, the N2 Highway, the R300 Highway; and on the other side sits the Cape Town International Airport.

³² 'White, Indian/Asian, Colored and Black' were the 4 main racial categories under apartheid rule

³³ Douglas S. Masey and Nancy A. Denton, *American Apartheid: segregation and the making of the underclass*, (Harvard University Press, 1993).



Figure 16: Map of Delft surrounded by barriers

3.1 LOCATING THE SITE: DELFT, CAPE TOWN

These boundaries result in Delft's physical expansion being virtually impossible.

When the settlement was completed, the inadequate houses located here were sold with a government subsidy to the residents, in order to encourage private house ownership. The oldest part of Delft in the North, consists of four areas: Voorburg, Roosendaal, The Hague and Eindhoven. These northern houses have three or four small rooms. The more recent part of the settlement in Delft South, contains even smaller houses, about 25 square meters living

space. This southern part of Delft was planned just after apartheid ended, and is mainly characterized by black Xhosa speaking residents.

Today, the demographics in Delft have remained rather consistent, with predominantly coloured population (52%) speaking Afrikaans within the North due to the initial conception of the neighbourhood, and black African population (46%), mainly speaking Xhosa in the South due to the post apartheid expansion of the settlement³⁴.

³⁴ MLH Architects & Planners, *Blue Downs-Delft: Structure Plan*, Cape Town (1987).

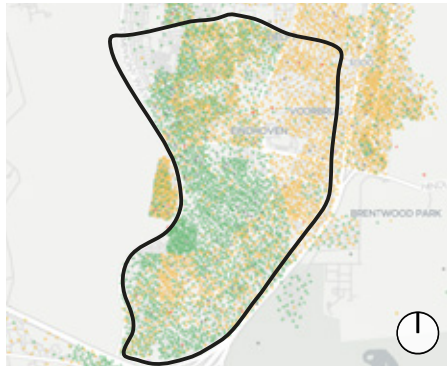


Figure 17: Population groups (apartheid racial classifications)

Key: 1 dot = 25 people

- Black African
- Coloured
- Indian/Asian
- White
- Other

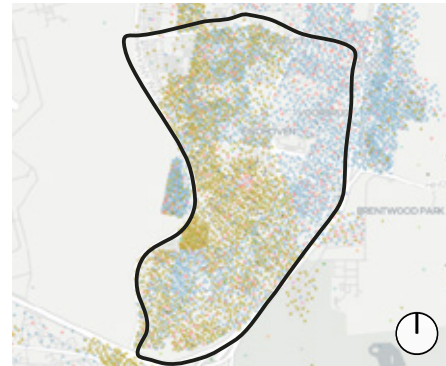


Figure 18: South Africa 11 official native languages

Key: 1 dot = 25 people

- Afrikaans
- isiNdebele
- isiZulu
- Sesotho
- siSwati
- Xitsonga
- English
- isiXhosa
- Sepedi
- Setswane
- Tshivenda
- Other

3.2 STRUCTURING OF DELFT

1. ACTIVITY SPINE CONCEPT

The plan of Delft, being the 1st post-apartheid settlement, was designed to have a Main Road running through it from North to South- connecting it to the surrounding highways linking to the city. The concept of the "Activity Spine" is a linear high street acting as an incubator of social and economic activity³⁵. The primary infrastructure implemented along this route consisted of housing, public buildings and street front businesses that maximize trading opportunities.

2. RESIDENTIAL CELLS

Extending off the Activity Spine, there are secondary Loop Roads. These loops create "Residential Cells" with a lesser degree of traffic, and an open system for freedom of pedestrian movement³⁶.

3. NODES

At main points of accessibility, where secondary Loop Roads intersect along the primary Activity Spine, it becomes a concentrated "node" of community and social activities³⁷.

³⁵ MLH Architects & Planners, *Blue Downs-Delft: Structure Plan*, Cape Town (1987).

³⁶ Ibid

³⁷ Ibid



Figure 19: Activity Spine running through Delft

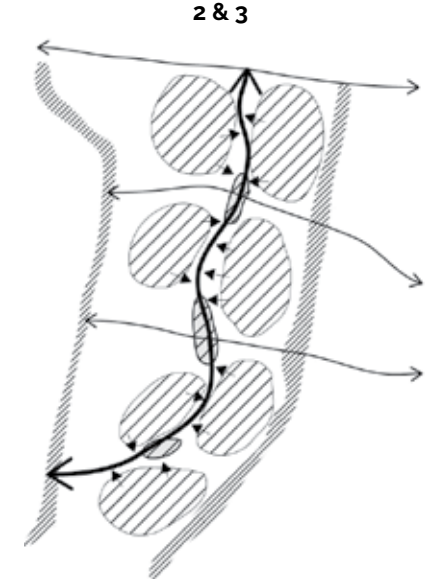


Figure 20: Branching off the Activity Spine, Loop Roads create Residential Cells

3.3 HOW SCHOOLS ENGAGE WITH THE CURRENT URBAN FABRIC

There is an important presence the schools hold when viewing the urban fabric of Delft. The following research will investigate the relationships existing between the schools, and the broader educational infrastructure within the settlement, as both equally contribute to the notion of learning. Understanding the importance of an educational network at an urban scale, creates a more holistic view on education amongst learners and between the community at large.

A DYNAMIC PRIVATE AGENCY VS A STATIC PUBLIC AGENCY

When analysing Delft, its restricted boundary is apparent as it is surrounded by highways, which stunts its physical expansion beyond its initial planned borders. This spatial constraint has characterized the settlements housing market, as the large influxes of people, into the already dense area, has resulted in a great demand for the small plot sizes designated by state funded houses. Residents have used this issue of scarcity of land, as an economic opportunity, resulting in new additions and expansions, a thriving rental market, as well as integrating commercial activity into their property.

Figure 22-25 focuses on a sample neighbourhood in Delft South, mapped collectively in 2018 by the Spaces of Good Hope Studio³⁸. These maps

show how the settlement has densified rapidly from the original homes of 1996 (in orange) compared to the residential expansion by homeowners over 20 years (in black).

³⁸ Collective Mapping from Space of Good Hope Studio at University of Cape Town, 2018

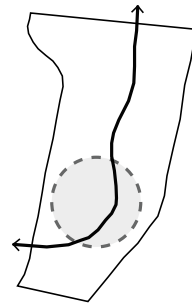


Figure 21: Area in the South of Delft focused on to show the settlements expansion

3.3 HOW SCHOOLS ENGAGE WITH THE CURRENT URBAN FABRIC



Figure 22: 1996-2000 | original planning configuration



Figure 23: 2005 | Additions by residents



Figure 24: 2013 | N2 Gateway Expansion



Figure 25: 2016 | Additions by residents

3.3 HOW SCHOOLS ENGAGE WITH THE CURRENT URBAN FABRIC

These new residential additions range economically from small aesthetic changes, means of permanence and protection through changes in materials, alterations, additions both vertically and horizontally, as well as a semi-public threshold of retail activity within the front of the houses, contributing to the public activity on Delft Main Road. This commercial activity found on Main Road, acts successfully as an 'Activity Spine' within the community- the primary social space for dialogue, exchange, and economic opportunity.

While small informal businesses located on Main Road have helped in its activation, the large scale public institutions along it have ignored the social opportunities it can offer. These institutions, mainly being schools, are static buildings in the urban landscape which are fenced off and turn their backs to the street. One can see this contrast in Figure 28, in the dynamic private agency compared to the static public agency. These public buildings make the streets less safe and undermine the vitality of Delft Main Road.



Figure 26: Activity along Main Road

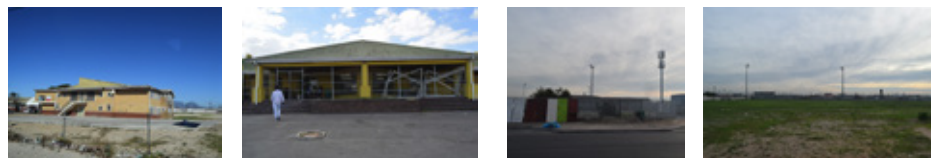
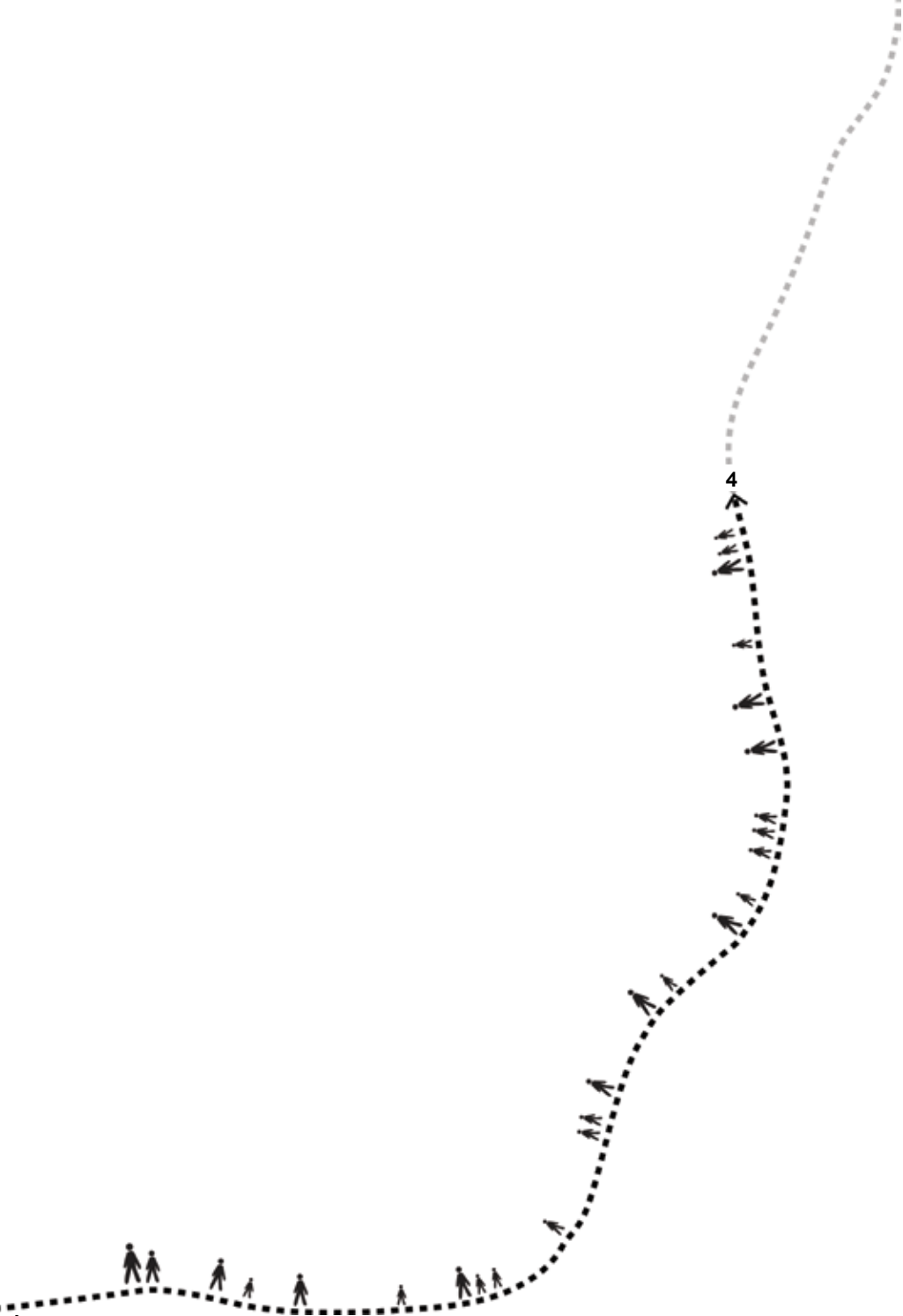


Figure 27: Public investments along Main Road

3.3 HOW SCHOOLS ENGAGE WITH THE CURRENT URBAN FABRIC



Figure 28: Map highlighting the dynamic private agency VS static public agency



**ENABLING YOUTH AS ACTIVE AGENTS
IN THE URBAN ENVIRONMENT**

METHODOLOGY

As a method of investigation, these networks of education are understood through data reports, historical maps, on the ground fieldwork techniques, ethnographic studies, and satellite investigations. Another key method of research was the workshop run with the Space of Good Hope (SoGH) studio at the Delft Library with learners ranging from age 7-15. This method of a participatory workshop was very important to really engage with the community, and understand the nuances that make up the urban everyday for the youth in Delft.

4.1 WHY YOUTH? A SPATIAL AND DEMOGRAPHIC ANALYSIS

As part of the Space of Good Hope (SoGH) Studio research mapping in 2018, the existing school infrastructure in Delft was analysed using data obtained from the WCED find-a-school website³⁹ and a report from the department of education⁴⁰. This research included the number of existing schools, the amount of learners found within each grade (1-12) as well as the final year pass rates for the secondary schools.

PRIMARY SCHOOLS FINDINGS

The current number of primary schools in Delft is 14, and each span between grade 1-7. In grade 1, 2680 pupils were enrolled, and at the end of primary school in grade 7 there were only 1826 pupils left. This means that only 68%

of the total primary school pupils were eligible to continue to secondary school.

SECONDARY SCHOOL FINDINGS

There are only 6 secondary schools in Delft, which is a big contrast to the 14 primary schools. This seemed like a large gap at first, although, when studying the data, it became apparent that out of the 1826 pupils who are eligible for secondary school only 1782 pupils enter into grade 8, and only 869 continue to finish secondary school till grade 12. Therefore, within the schools in Delft there is a 51% drop out rate. Out of the ones that finish school only 73% pass and graduate, meaning that in total 32% of students who enter first year of secondary school end up graduating.

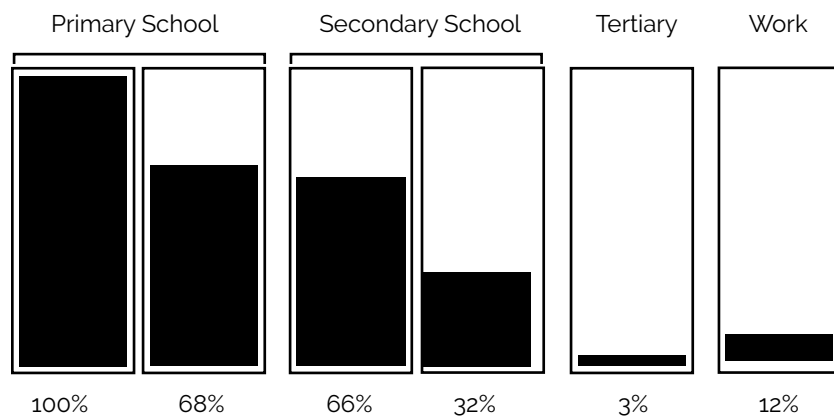


Figure 29: Learners fall out rate in the education system, in relation to tertiary education and work

4.1 WHY YOUTH? A SPATIAL AND DEMOGRAPHIC ANALYSIS

Figure 29 highlights the number of students within the education system in Delft, relative to the various stages of education. It becomes apparent that there is a large decline in the amount of youth actively involved in the education system.

ENABLING YOUTH

It is important to analyse Delfts spatial conditions in order to understand why this decrease continues to happen and what is in place to facilitate its change. This is important, not only as a current solution but a future strategy. The settlement is rapidly increasing in density and if one classifies youth ranging from age 0-24 (comprising of Early Childhood Development Centres,

primary school and high school learners, and young adults entering tertiary education), they make up 51.4% of the Delft population. There is a clear need to prioritize the youth and bridge this gap in the education system. By enabling youth as active agents within the urban environment, means of social and spatial transformation can begin to take form.

³⁹ "WCED Find-a-School", *WCED Education Management Information System*, last modified March 2018, <https://wcedemis.westerncape.gov.za/wced/find-a-school.html>.

⁴⁰ "The 2017 National Senior Certificate Schools Performance Report", *Department of Basic Education RSA*, last modified, 2018 March, <https://www.naptosa.org.za/whatsnew/2381-2017-national-senior-certificate-analysis-reports>.

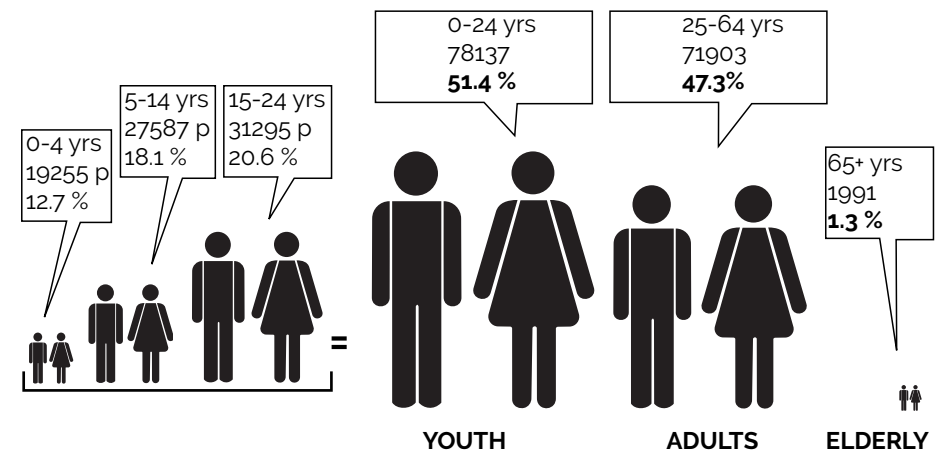


Figure 30: Delft age groups

4.2 SPATIAL STRUCTURING OF SCHOOLS

SCHOOL FACILITY DISTRIBUTION: PLANNED VS REALIZED

In analysing the “1987 Blue Downs-Delft Structure Plan”⁴¹, as well as the “1995 Delft South: An amendment to the Blue Downs Delft Local Structure Plan”⁴², one can understand the process of planning in relation to schools and the amount of facilities which should have been provided.

The map from the structure plan, shows the provision of school facilities, based on the standards of the Western Cape Regional Services Council. This is understood through a ratio comparing the developmental site area, relative to the average gross density. After analysing this data, the structure plan for Delft recommended the provision of 18 primary schools and 8 high schools to be allocated.

⁴¹ “MLH Architects & Planners”, *Blue Downs-Delft: Structure Plan*, Cape Town (1987).

⁴² “MLH Architects & Planners”, *Delft South: An Amendment to the Blue-Downs Delft Local Structure Plan*, Cape Town (1995)

4.2 SPATIAL STRUCTURING OF SCHOOLS

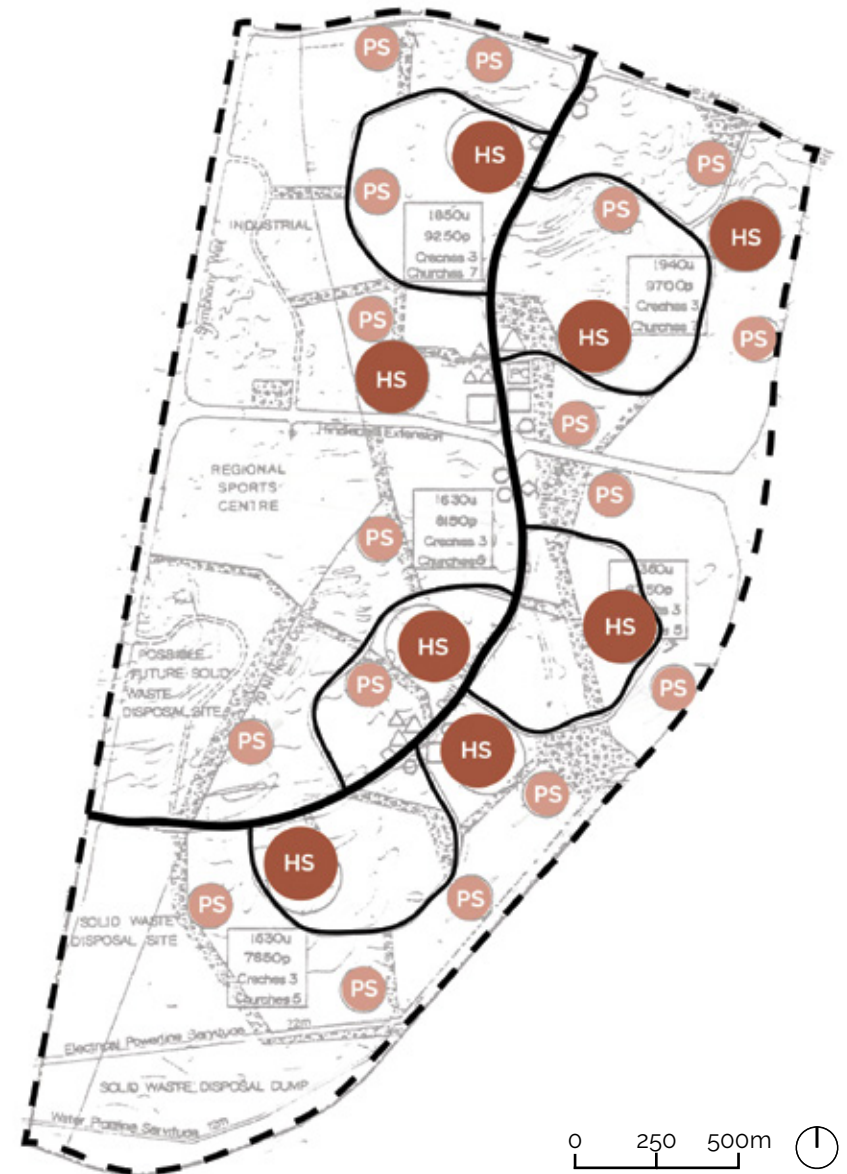


Figure 31: Planned location and number of schools in Delft

The following map shows the current school facilities which are available in Delft today. What becomes clear is the contrast in the number of school facilities initially planned, versus the amount which were realized⁴³. Instead of 18 primary schools which were deemed necessary for the area, only 14 primary schools were actually built. Similarly, to the 8 high schools planned, only 5 were realized. Since the development plan of school facilities for Delft was calculated to respond to a ratio of being developed relative to population density- it is inadequate the amount of schools that were actually allocated. Furthermore, since this document has been published, a huge increase in density in the area has taken place, leaving the demand for school facilities in even more of a crisis.

⁴³ "MLH Architects & Planners", *Blue Downs-Delft: Structure Plan, Cape Town (1987)*.



Figure 32: Realized location and number of schools in Delft

STRUCTURE OF PRIMARY SCHOOLS

The Delft Structure Plan considered the allocation of schools in relation to the structural model of the main Activity Spine and secondary Loop Roads⁴⁴. Primary schools were conceived to be located on the Loop Roads, as they are the local roads internal to the neighbourhood cells. This strategy was to protect primary schools from high traffic volumes of the Main Road, and to allow

their function to be more internalized to benefit the local community. When analysing Figure 33 and 34, one can see that the majority of primary schools are orientated towards the Loop Roads, although the rule does not always apply, as some schools are not well connected to the loops, or they are situated directly on the public Activity Spine.

⁴⁴ "MLH Architects & Planners", *Blue Downs-Delft: Structure Plan*, Cape Town (1987).

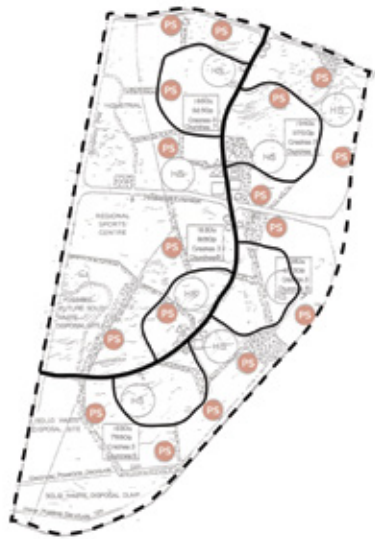


Figure 33: Planned location of 18 primary schools along Loop Roads



Figure 34: Realized location of 14 primary schools along Loop Roads

STRUCTURE OF SECONDARY SCHOOLS

The secondary schools were conceived to be located on higher order roads, such as the central Activity Spine⁴⁵. This strategy allows secondary schools to be accessible for the local neighbourhood through its residential cells, as well as the greater Delft community and the external links to the main transport systems on the Activity Spine. Out of the 5 secondary schools realized, only

2 follow the structure to be situated on Main Road. The other 2 are along the secondary loops, and another is not well connected to any mobility network.

⁴⁵ "MLH Architects & Planners", *Blue Downs-Delft: Structure Plan*, Cape Town (1987).

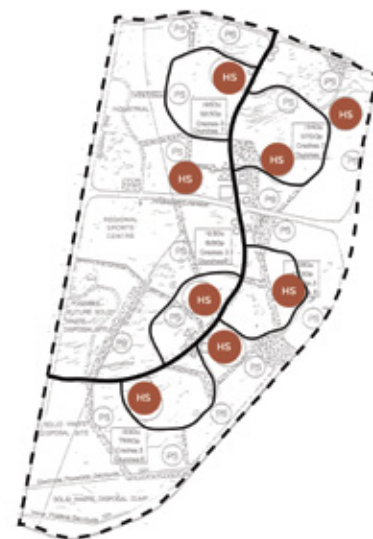


Figure 35: Planned location of 8 high schools along Delft Main Road



Figure 36: Realized location of 5 high schools along Delft Main Road

THE SCHOOL SITE: CLUSTERING

The spatial layout of schools in Delft, were conceived to follow the approach of clustering and sharing of facilities. The clustering of school sites was intended for the following benefits:

- It provides a sense of enclosure
- It improves access to facilities
- It reduces maintenance costs

When viewing the current layout of Delft, it is clear that this planning strategy has not become a reality on the ground. Instead of forming educational clusters, schools in Delft sit as spatially isolated elements in the neighbourhood. The current layout of schools lack

spatial cohesion, making connections and shared resources amongst schools rather weak. Therefore, posing the following question:

Q.

HOW CAN SCHOOLS BE TRANSFORMED FROM ISOLATED ENCLAVES, TO NETWORKS OF EDUCATIONAL RESOURCES?

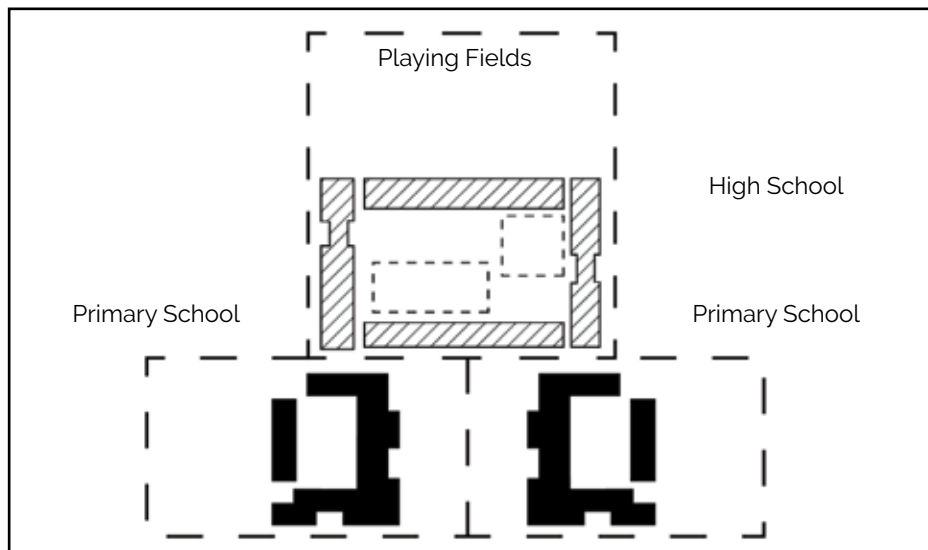


Figure 37: Conceptual diagram of school clustering based off Blue-Down Delft Structure Plan



Figure 38: The isolated nature of schools currently existing in Delft

Q.

WHAT IS THE
NETWORK OF
PUBLIC
INFRASTRUCTURE
THAT SUPPORTS
LEARNING AND
EXCHANGE?



Figure 39: Collage made from photographs taken during the workshop run in Delft

THE WORKSHOP | METHODOLOGY

This idea of the everyday and the (re)imagined was explored through a workshop run at the Delft South Library hall in 2018, where learners from local schools in the area could participate. The group of children involved included students from both primary and secondary schools in Delft. The event was organized by the Space of Good Hope (SoGH) research group from the University of Cape Town, of which I was apart of⁴⁶. The day consisted of a number of interactive games for the learners, followed by a snack break and a final ceremony at the end of the day, where certificates were handed out for the

students participation. The workshop consisted of interactive magnetic infographics, where the selected school children ranging in age from 8-14 years were able to visually map what they do throughout the day in Delft, specifically focusing on their life after school.

THE WORKSHOP | FINDINGS

The workshop investigated what is the life of youth after school, and how children occupy themselves. Findings showed how the schools in Delft do not offer extra-mural activities beyond classroom hours. This results in many

⁴⁶ Collective Mapping from Space of Good Hope Studio at University of Cape Town, 2018

children leaving the school grounds immediately to go home.

A main conclusion drawn from the workshop was that the youth do not occupy one site during the afternoon. Rather, various activities take place throughout the spaces in the settlement, as well as the routes between them.

This highlights the importance of the network of larger open spaces within Delft, as well as the active presence of the youth within their urban environment. Another key finding from this activity was that there is a lack of safe spaces available to youth in Delft- with the three safe places regarded by the students

being their home, school and the library.

The second aspect of the workshop was to map out dreams, desires and (re)imagined opportunities which ceased to exist for youth in Delft. The aim of this second phase was to understand what resources and infrastructure do the youth in Delft want and need, as well as what spaces within the community currently extend as informal sites of education beyond the school boundaries.

The game adapted through the workshop as the students asked if they could write down what they wish their

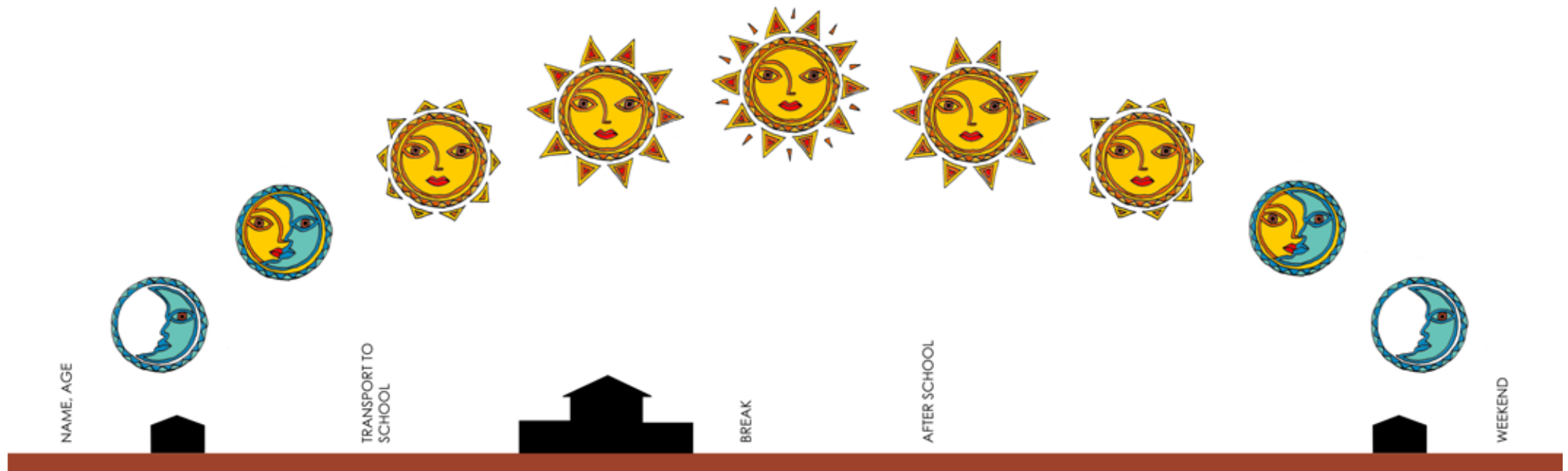


Figure 40: The workshops backdrop where students could map their daily route

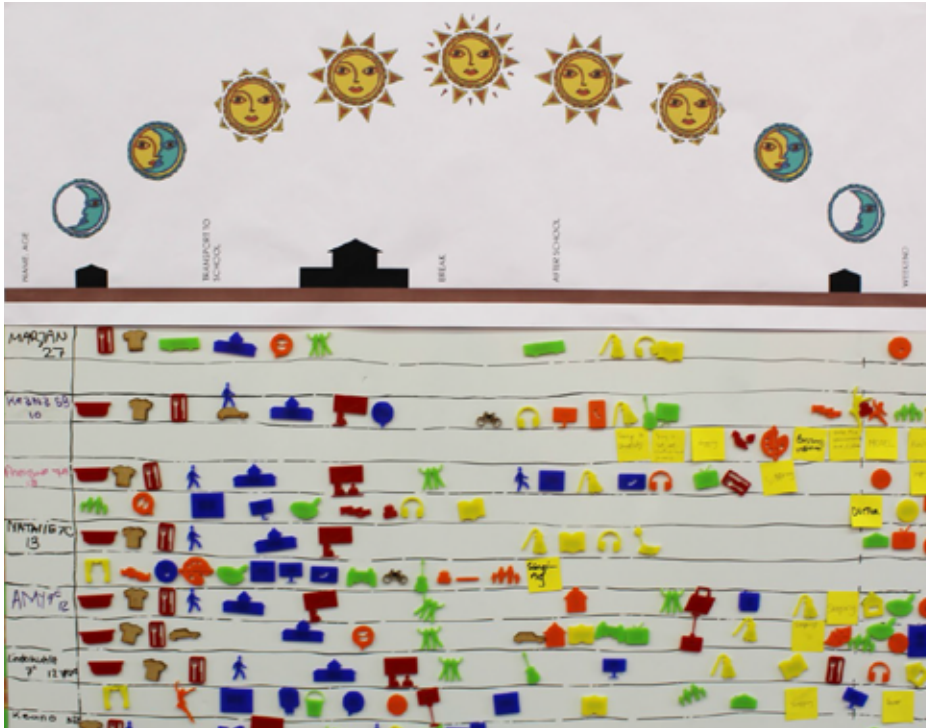


Figure 41: Photograph during the workshop of students mapped-out route



Figure 42: Workshop photograph



Figure 43: Learners discussing routes

future profession to be. This initiative coming from the students, lead to narratives which were more layered and thought out- as the majority of pupils did not have access to the resources or activities needed to contribute towards their future goals and dreams. Therefore highlighting how architecture can spatially set up tools that can enable youth to engage with new opportunities, shifting from an imagined space to a material space.

For instance, one girl who aspired to become a successful business woman, wanted to have a quiet space to work after school in order to achieve good grades, as well as be able to access computers and free Wi-Fi as she wanted to research innovative projects to show at school. She also wanted a space where she and her friends could have celebrations or share special occasions besides in their home. This space to her could be social but also practical when thinking about presenting her future business endeavours. Other careers that were written down from the students were doctors, lawyers, graphic designers, fashion designers, actresses and artists, as well as professions within social support, as two learners voiced their passion in wanting to help their community with safety and crime prevention.

THE WORKSHOP | REFLECTION

The workshop was a key moment in the research, as it was a unique opportunity to get feedback and understand how the urban environment is used in reality.

The ambition, thought and engagement from the students future desires and dreams, emphasized the challenges, needs and struggles youth in Delft are exposed to. At the same time, it highlighted an importance of (re) imagining the opportunities that could be created. This workshop brought about questions of, what are these spaces in Delft which can support the youths' ambitions and development? An amazing finding of the workshop, was how the students perceive future possibilities- exceeding the challenging lived conditions and inadequate environment for youth development within Delft.

Q.

WHAT IS THE NETWORK OF PUBLIC INFRASTRUCTURE THAT SUPPORTS LEARNING AND EXCHANGE?



One can see through the photographic collages collected from site visits, the unsafe conditions in which the youth move through and play in after school. Therefore it is vital to investigate what are these potential spaces of education in the community that can support them.

Firstly, it is important to situate the schools, and understand their surrounding network in terms of accessibility, safety and ease of movement to their grounds. This is important to map in terms of transport routes, mainly on the Activity Spine and Loop Roads, but also to understand the pedestrian routes taken, as most students (as seen by the workshop and ethnographic interviews) move to school via foot.

The public life of the streets in Delft is largely characterized by youth moving through it. In contrast, the same dynamic streets and routes are quiet during school hours. This highlights that public space currently works as a network, largely activated by the use of learners. The public space, mainly refers to streets themselves, as they adopt this role due to the unsafe and neglected conditions of parks and sport fields in Delft.

Figure 44: 3 Collages showing the unsafe play conditions in Delft

Q .

**WHICH
EDUCATIONAL
RESOURCES AND
PROGRAMS SPILL
OUT INTO THE
PUBLIC DOMAIN,
AND WHICH
RESOURCES
CEASE TO EXIST?**

Q .

**HOW CAN THIS
NETWORK BE
ENFORCED TO
CREATE EQUAL
OPPORTUNITY
FOR ALL?**

4.4 AN EDUCATIONAL NETWORK

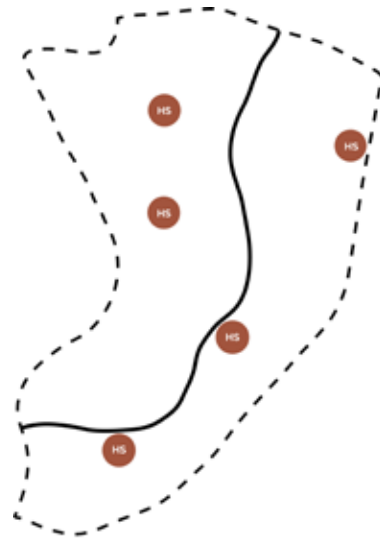
3 LAYERS OF MOVEMENT

It is important to analyse the following palimpsest of movement routes between schools in Delft. The 3 movement networks explored have different spatial hierarchy's, and differ in user priority. They consist of (1) The Activity Spine, (2) Loop Roads, and (3) Open Spaces.

1 THE ACTIVITY SPINE

Delft Main Road, acting as the 'Activity Spine', is the main corridor of movement through means of bus and taxi systems and via pedestrian movement. It is the most public road in Delft, and is characterized through its economic activity.

The Activity Spine was planned to engage directly with high schools along its axis. It can therefore support educational activity bridging the gap between high school and early adulthood, as well as engage with broader processes of learning for the community such as workshops and adult educational programs.



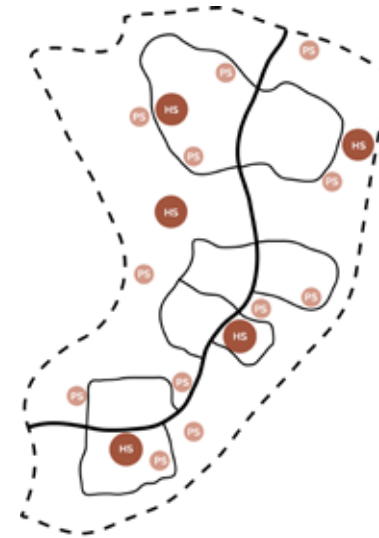
4.4 AN EDUCATIONAL NETWORK

2

LOOP ROADS

The secondary Loop Roads, link the public activity of Main Road, and the more local activity within the neighbourhood cells. This was the route planned to dialogue on a less public scale with primary schools.

Since majority of primary school learners walk to school, often with friends or siblings, it is vital for these routes to be safe, well lit, and well connected to a larger network of other schools and necessary educational facilities. Additionally, resources situated along these routes can respond more directly to neighbourhood and community needs within the residential cells.



3

OPEN SPACES

What is the connection of the schools within the permeability of the open urban fabric? This investigates the finer movements and links between desire paths in main open spaces, and schools. These open spaces consist of under developed parks, neglected sports grounds, indeterminate void spaces and detention ponds. These desire paths are key in giving insight into the everyday life in Delft. Navigating these in-between spaces, is the movement layer which is the most private, yet also responds most intimately to the residents routine. This layer engages with present and missing attributes within the urban fabric, which facilitate these short-cut routes.



Q.

HOW CAN SCHOOLS BE TRANSFORMED FROM ISOLATED ENCLAVES, TO NETWORKS OF EDUCATIONAL RESOURCES?

MAPPING

The following maps, each explore a theme which highlights networks of activation and connectivity, surrounding the schools.

1. TRANSPORT ROUTES

Main transport routes include the informal bus and taxi system. These routes activate some of Delft Main Road and the Loop Roads, which majority of the schools are situated on.

2. NAVIGATING THE IN-BETWEEN

The open spaces in Delft are mostly unsafe, unlit and neglected. Although, as seen through pedestrian desire lines off Google Earth and on-site photographs, they are the common routes taken as priority 'short cuts' by residents in Delft.

This movement route explores the connection of the schools within the permeability of the open urban fabric, in order to understand the way in which schools are reached by the community and how they dialogue with one another.

3. COMMUNITY EDUCATIONAL FACILITIES

Current public educational infrastructure and main attractors, are important in gathering the youth and the community. These community facilities form a network of existing formal and informal educational initiatives, and extend the notion of learning beyond the boundaries of the school. This mapping also brings to light potential spaces of education which are neglected, as well as underutilized sites and edges which are currently unsafe. Due to scarcity of land in Delft, these sites have the potential to be reactivated and form part of a new educational network.

Apart from formal public facilities set up by government, a lot of the community functions are situated along Main Road or the Loop Roads, further enhancing their importance. The most public functions such as library's, healthcare and civic programs are situated along Main Road, whereas the more intimate educational facilities are within the residential fabric or along the Loop Roads.

1. TRANSPORT ROUTES

Map Highlighting Accessibility to Schools via Transport (Bus & Informal Minibus Taxi)



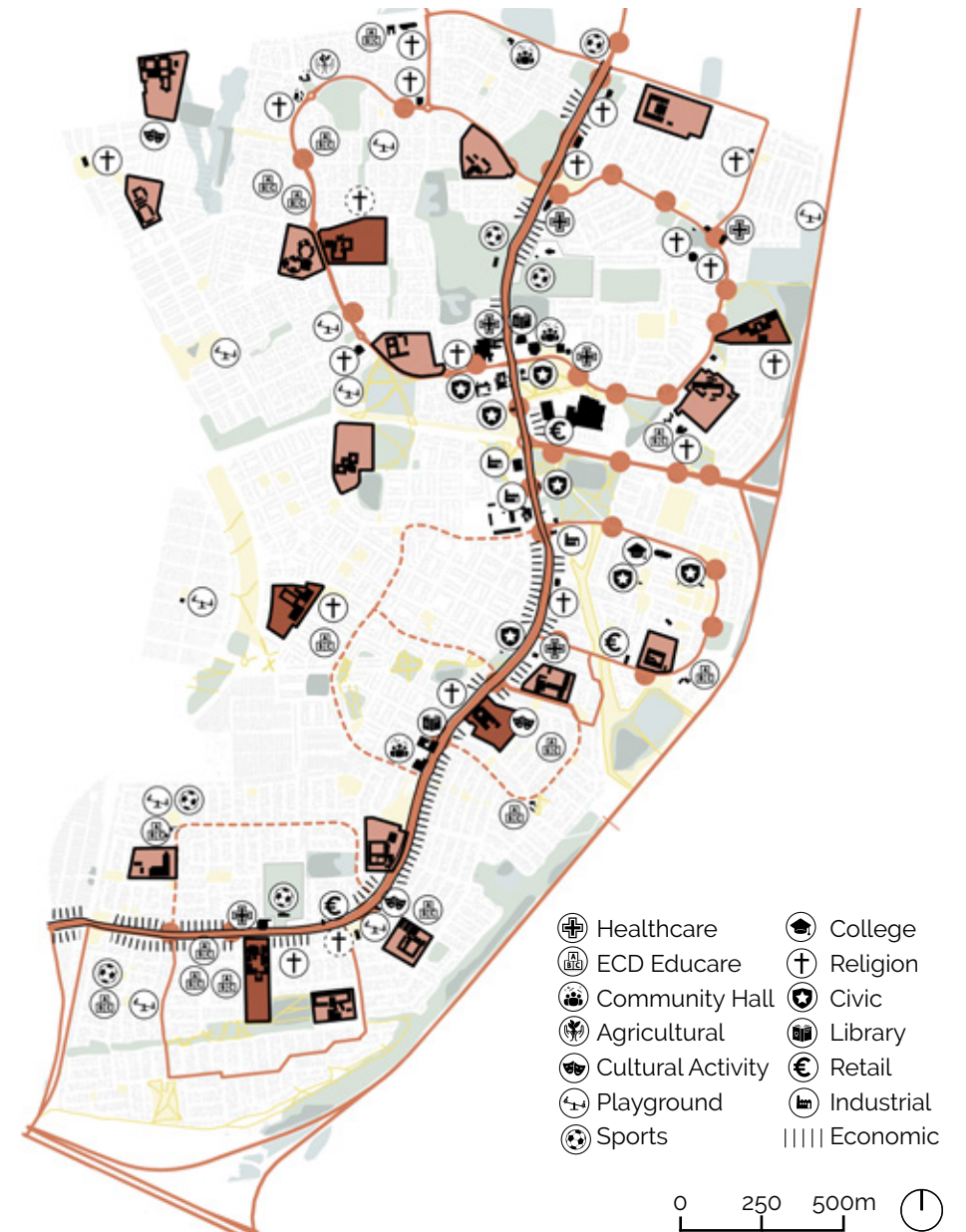
2. NAVIGATING THE IN-BETWEEN

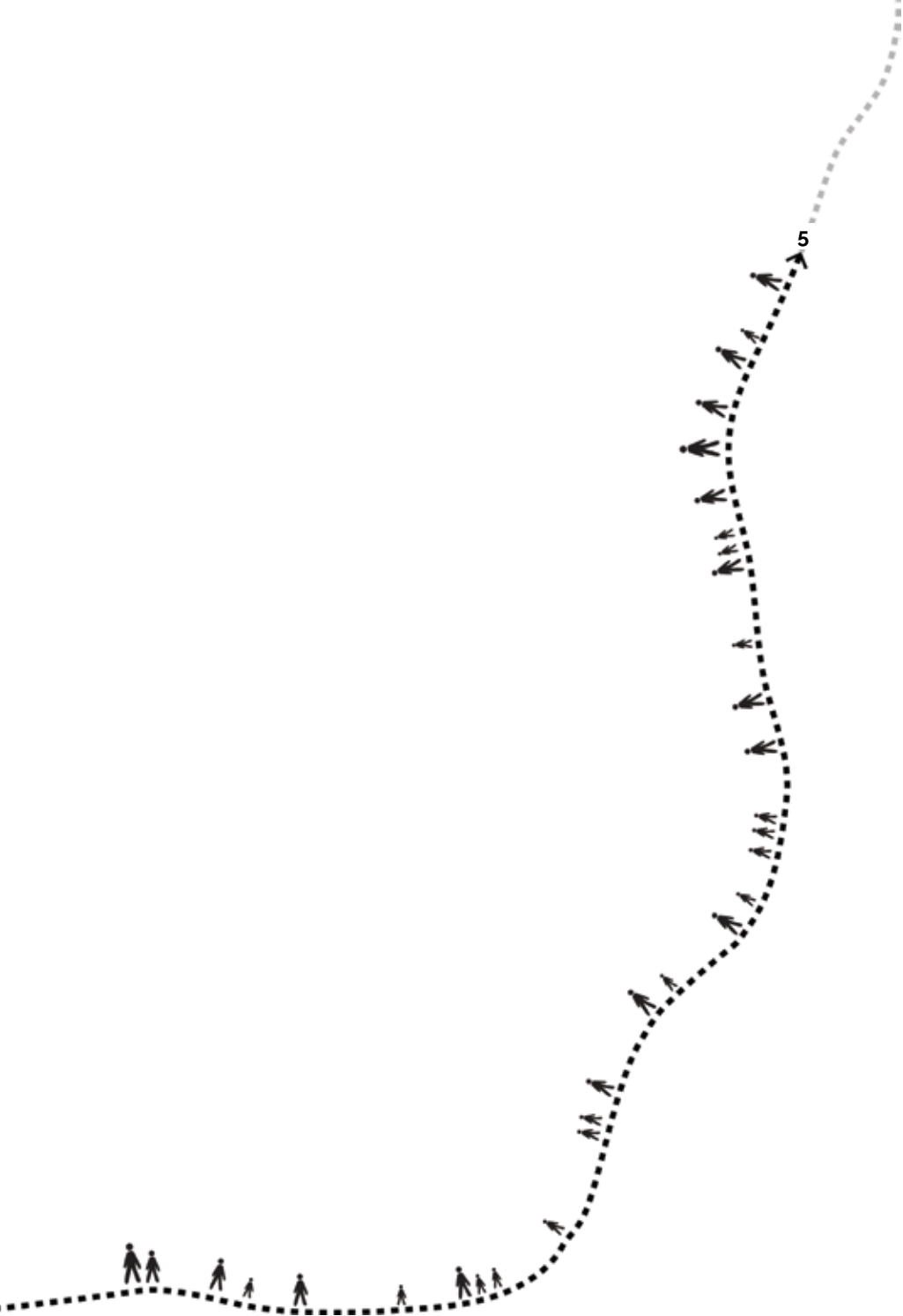
Map Highlighting Open Fabric and Desire Lines Linking Schools



3. COMMUNITY EDUCATIONAL FACILITIES

Map Highlighting Public Educational Infrastructure





A LEARNING ARCHIPELAGO | DELFT
YOUTH CAMPUS

5.1.1. VISION:

SCHOOLS AS A VEHICLE FOR COHESION

Delft has a 14 primary schools, and 5 high schools. The school grounds are one of the most vulnerable places in terms of crime, gangster-ism and drug-related activities. From the study on school typology models, one can see how majority of schools in Delft follow apartheid planning logic; being introverted, isolated enclaves, lacking interaction with their soundings.

MOST OF THE SCHOOLS HAVE THE FOLLOWING ISSUES:

- Although schools are situated along activated roads (Main Road or Loop Roads) the schools are fenced and disconnected to their surroundings.
- The edge conditions of the schools are characterized by void, inactive edges, poor housing conditions, and broken fences, that create a prime condition for crime activities.
- Most school buildings are made up of inappropriate badly maintained prefabricated structures.
- The school buildings are usually located in the centre of the site, creating undefined leftover space surrounding it. They also lack sporting facilities on their grounds.
- School sites don't engage with one another, and are not safely linked.

5.1.2 STRATEGY:

SCHOOL GROUNDS AS URBAN ACTIVATORS WITHIN AN EDUCATIONAL NETWORK

A LEARNING ARCHIPELAGO

Instead of only viewing issues present within the individual school sites, one could view the schools as a potential active network. Viewing education beyond the boundaries of a school, can create a stimulating Learning Archipelago: shifting the school from an introverted and isolated educational enclave, to an urban activator within an educational network. This could change the notion of schools as mono-functional elements, to schools as multi-functional places benefiting the whole community.

WHY ARCHIPELAGO?

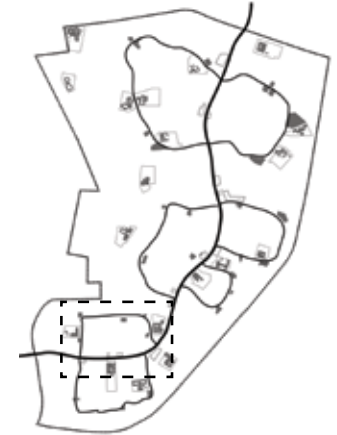
By definition, an archipelago consists of a collection of islands or entities that contain specific identities, yet all work together as a larger system and network. In focusing on the youth and understanding the structural location of schools in the settlement, an urban intervention which connects and expands these isolated school spaces-will benefit both the youth and the community at large, through creating safe learning spaces and programs. Therefore, a strategy which shifts school sites from acting as introverted islands and entities, to a network of shared resources and facilities.

This urban approach of a learning archipelago, could shift Delft towards a neighbourhood that's safe, stimulating, attractive, lively, well connected and sustainable. It is an educational strategy of shared resources and facilities that can represent a great opportunity for spatial transformation, social mobility and socio-economic change in Delft.

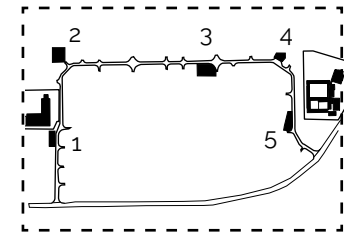
SCALE OF STRATEGY

The multi-scalar project consists of 3 scales of focus:

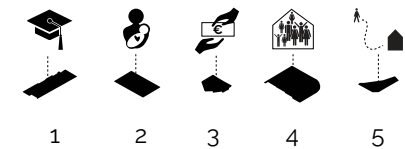
(1) MASTERPLAN | DELFT SETTLEMENT



(2) LOOP ROAD | NEIGHBOURHOOD SCALE



(3) LOOP ROAD | ARCHITECTURAL SITE INTERVENTIONS





- Main Road
- Loop Roads
- ... New Connections

A | SLOW MOBILITY ROUTE: A SAFE PEDESTRIAN AND CYCLE NETWORK

The current transport network is activated through the bus and informal taxi system running through Delft, connecting it to surrounding settlements and the city centre. There needs to be a greater focus on the movement within the settlement itself which is mainly experienced by walking. Majority of pedestrian movements take place within the (1) Loop Roads, or through (2) neglected and unsafe open spaces. A new slow mobility route would allow for these 2 systems of pedestrian movement to overlap and dialogue with one another. This route will act as the structural backbone

allowing youth to move between schools, educational programs and play spaces in a safe manner. Elements which can enhance the routes safety are public facilities and programmatic activation points, adequate lighting, demarcated cycle lanes, and elements defining the networks legibility such as tree planting, urban furnishings and change in paving to slow down vehicles. These physical changes would allow for pedestrians to read and experience this route differently, increase its safety, and allow an activation by different users throughout the day.



- Public Infrastructure
- School Grounds

B | NETWORK OF EXISTING LEARNING FACILITIES

The Learning Archipelago is to be made up of a system of diverse and connected nodes along the new promenade, which will provide safe and stimulating learning spaces; both for the youth and the community at large.

It is important to identify existing attributes within the community and utilizing them. Working with existing public facilities such as churches, mosques, community centres, libraries and health facilities, allows for the notion of "lifelong learning". These existing facilities are integral community assets as they serve as spaces that provide passive surveillance and activation

during certain hours. By enhancing or reactivating these facilities, and their connection between one another, it will allow for new opportunities to arise in their use, specifically regarding time and user.



- New Facility on Main Road
- New Facility Activating Loops

C | PLACEMAKING: NEW EDUCATIONAL FACILITIES

This placemaking along Main Road and the Loop Roads can be achieved through a new system of educational activation points, as well as redefining inactive edge conditions in existing public infrastructures. These new buildings are important physical elements in the urban landscape as they become visual symbols to improve perceived dangerous spaces. They should be well-connected and in close walking distance to one another. Since the overall urban density of the settlement is 1 story high, these spaces would be roughly 3 stories in order to act as safe visible beacons through their constant

activation and surveillance ability. These facilities will either be "large" along Main Road, having a specific program relating to a precinct or responding to an existing program in the area. Along neglected open spaces within the Loop Roads, the interventions will be "medium" or "small". Depending on each scale and location, these buildings will have an active ground floor presence responding to the needs of the community. It is important for these spaces to have extended operational hours, as once the school day ends, there is very little infrastructure in place to support means of learning.



- New Trees- Main Road
- ⋯ New Trees-Slow Mobility Promenade
- - - Ecological Corridor

E | SUSTAINABLE DESIGN PRINCIPLES: ENVIRONMENTAL EDUCATION

What is evident from the mapping, is that Delft has an existing open space network that lacks in activation and safety. The current green infrastructure in place consists of parks (mainly neglected), and abandoned greenfield sites which have become dumping grounds with a high quantity of pollution. These open spaces, mainly situated around the Loop Roads are part of the everyday spaces passed by the community. They have the opportunity to transform through landscaping and built intervention into community spaces, urban parks, vegetable gardens, and sports fields. The new slow mobility route will also

act as a green corridor, lined with trees, activating the unsafe open spaces already well used by pedestrians on site.

The mapping of Delft highlights how majority of transport stops and public infrastructures are situated on the primary network of Main Road. Although, this condition is not shared in the sub network structure which supports Main Road- the Loop Roads.

In the Loop Roads, public transport only navigates on some of the loops. What is also highlighted in the mapping, is that Delft has an existing open space network that lacks in activation and safety. This network can be enhanced by intervening at strategic nodes along the Loop Roads, where the void spaces are mainly located.

If one activates these points along the Loop Roads, each site and its immediate surrounding will have greater safety, surveillance and ownership by the community. Furthermore, these safe nodes along the route will feed into a larger network of the settlement, enhancing the movement between sites within the neighbourhood cells, and towards Main Road. It will also contribute to the Loop Roads being more comfortably frequented.

URBAN CONSIDERATIONS

There are 3 main considerations which define the new network of "A Learning Archipelago". These are explored at both urban scale of the masterplan, and neighbourhood scale of the Loop Roads. They consist of (1) Mobility, (2) Surveillance, and (3) Programmatic Activation.

1. MOBILITY

The issue of mobility in Delft became most apparent during the Workshop with the youth. It lead to exploring the site by means of transport routes and main pedestrian routes, as majority of people move through the site via walking. Therefore, the most frequented routes of Main Road, the Loop Roads as well as prominent desire lines through open spaces, will be activated through a new slow mobility promenade. Mobility will also be improved through an increase of public activation. This will enhance peoples presence, and subsequently increase the perceived safety felt in the space. This will allow for the community to move more freely in their urban environment.

2. SURVEILLANCE

It is important to have presence on the streets throughout the day, extending towards the evening. Both active surveillance through direct programme

use, and passive surveillance through indirect activity, passers-by and nearby residents in their homes, will create an increased perception of safety. It is this perception which largely affects whether urban spaces are used or not.

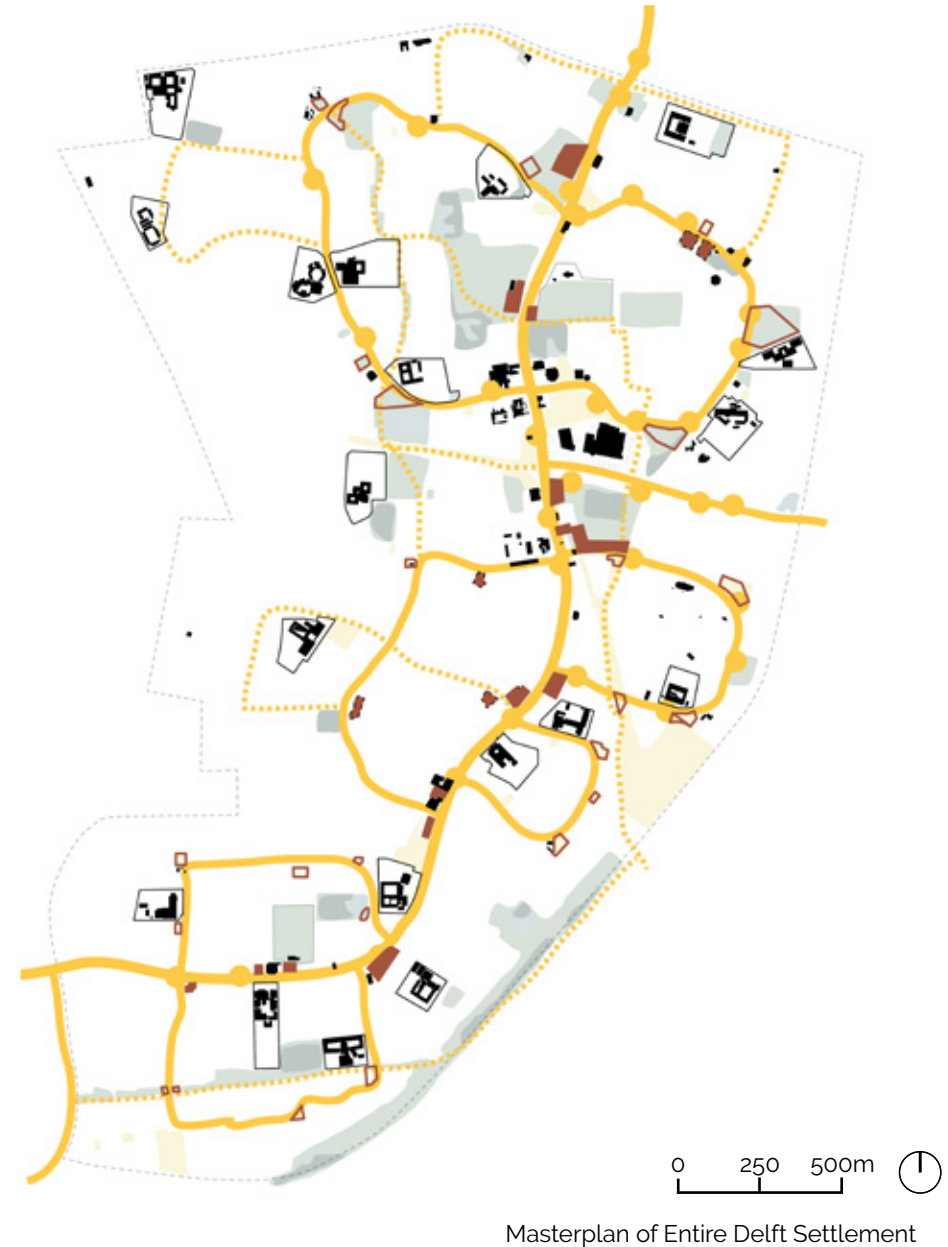
3. PROGRAMMATIC ACTIVATION

While mobility and surveillance create the journey, the points of programmatic activation make concentrated nodes of specific interest along a route. The chosen programmes dialogue with existing neighbourhood functions and activities found on site, as well as respond to needs coming from ethnographic studies, and workshop interviews with the youth. These points of intervention can extend the lifespan of activity on site. While programmes will be specified, it is also important to allow for user flexibility, so that it can be adapted according to community needs.

Programmatic activation will differ between Main Road and Loop Road.

Key:

- Main Road
- Loop Roads
- ... New Connections
- Existing Public Infrastructure
- School Grounds
- New Facility on Main Road
- New Facility Activating Loops
- Open Space Network



3.1 MAIN ROAD PROGRAMMATIC ACTIVATION:

Sites of programmatic intervention along Main Road are chosen public attributes which already hold an importance in the community, yet need to be enhanced or upgraded to serve their full potential. The strategy works with their existing function and network to strengthen its character and to form a programmatic precinct for the learning campus. The masterplan will consist of 4 precincts, responding to current facilities working in the area.

The **(1) Sports and Wellness Precinct** responds to 2 large sporting grounds off Main Road and a swimming pool facility. A new intervention on Main Road between these sites could be a vertical gym which has additional sports and recreation resources to support neighbouring schools. Moving South on Main Road there is a community hall and well used Public Library. Many learners come here to study and use the only 5 computers in the area. Due to the demand and interest in technology- a new **(2) Technology and Media Precinct** can work with the Delft Library. Heading towards Delft South, the next area is characterized by the daily market, with a lot of economic activity lining the streets. Therefore, by creating an **(3) Economic and Skills Development**

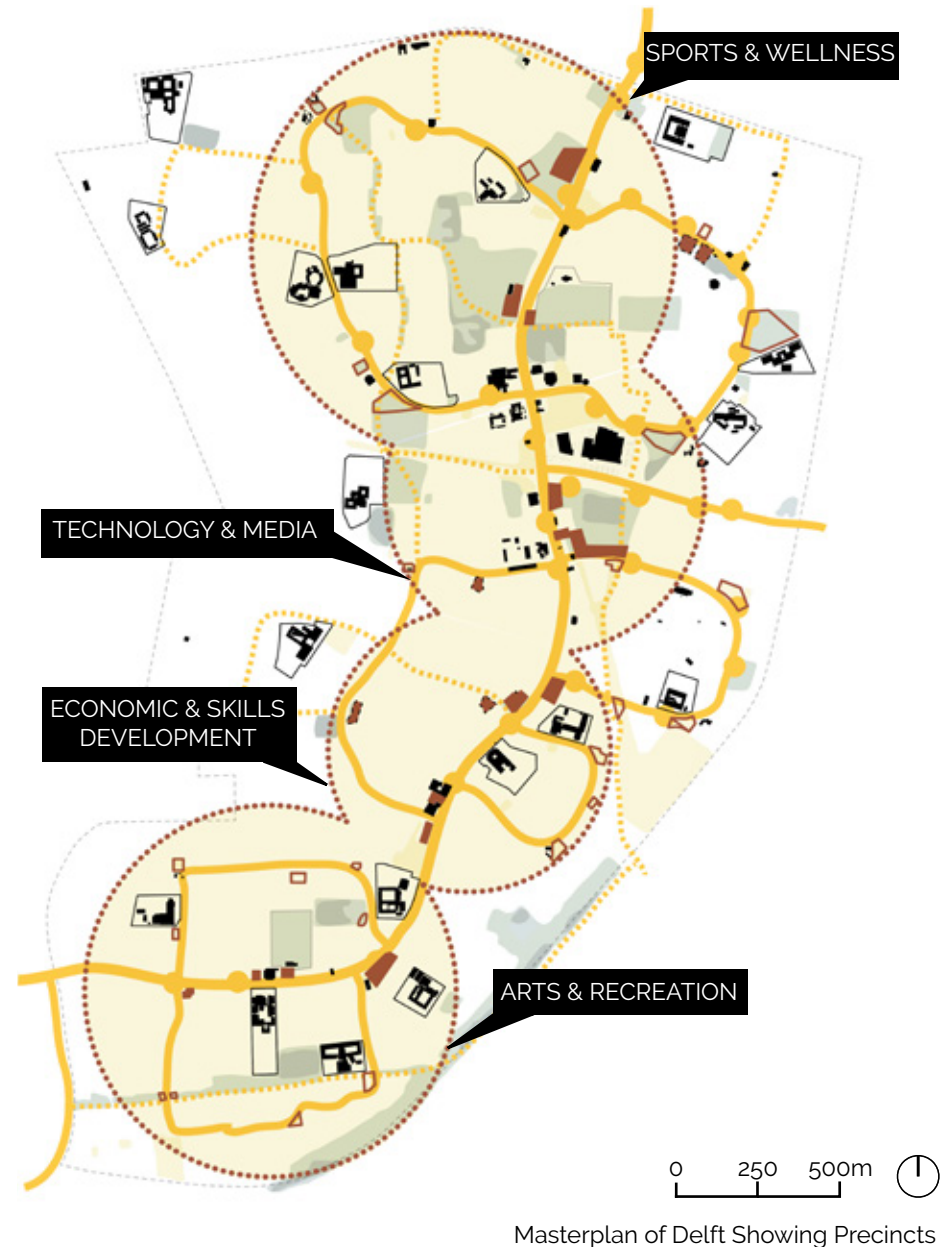
Precinct, additional workshops and training spaces can provide new learning opportunities, and create a bridge between high school learners, and the upcoming working world. Lastly, in Delft South, there is the Rainbow Arts Centre which is a one room building for theatre and performance. Due to its small size it spills out onto the nearby playground for showcases and talent performances. By creating more studio spaces to support different cultural activities, an **(4) Arts and Culture Precinct** can be created.

3.2 LOOP ROAD PROGRAMMATIC ACTIVATION:

Along all the Loop Roads in the settlement, many neglected open spaces were identified. These unsafe sites can be upgraded through new urban and architectural interventions to form activated nodes along a journey. These interventions can have programme benefiting learners moving between schools, while also serving the community in the surrounding residential fabric. Since the conditions of Main Road have an already strong presence, the following work will focus more on the network conditions of the Loop Roads and their sites of activation.

Key:

- New Facility on Main Road
- New Facility Activating Loops



Masterplan of Delft Showing Precincts

5.4 PROGRAMMATIC ACTIVATION: 'ACTIVE BOX'

ACTIVE BOXES AS NODES

Within Kevin Lynch's, *The Image of the City*, he speaks to "5 elements of the city", being paths, edges, districts, nodes and landmarks⁴⁷. Lynch defines nodes as "strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is traveling"⁴⁸.

As an example, Lynch describes the famous Italian node of Piazza San Marco in Venice. It is highly differentiated and stands out amongst the character of the city. Yet, it ties integrally to the major feature of the city- the Grand Canal- and has a shape which orientates the direction from which one enters.

Lynch's description of nodes and landmarks has influenced the work of *Violence Prevention for Urban Upgrading* (VPUU), a multidisciplinary South African non profit community development

organization, funded by the German Development Bank. VPUU's strategy is a bottom up approach rooted in the local community's needs. The hypothesis of their work is that through reclaiming space in the public domain, and positively occupying dangerously labelled spaces, there will be a reduction of opportunities of crime⁴⁹.

VPUU have translated the idea of "nodes" into singular buildings known as "Active Boxes". Active Boxes are nodes of intervention which allow people to get together and access social services and needed programs in their community⁵⁰. Active Boxes are designed to tackle issues of crime, poverty and exclusion in

⁴⁷ Lynch, Kevin. *The Image of the City*. The MIT Press, 1960

⁴⁸ Ibid

⁴⁹ "Active Boxes", *Violence Prevention Through Urban Upgrading*, accessed 10 March 2021, <http://vpuu.org.za/safe-node-area/active-boxes/>

⁵⁰ Ibid



Figure 45: Piazza San Marco, Venice as a node

5.4 PROGRAMMATIC ACTIVATION: 'ACTIVE BOX'

bringing economic, cultural, and social programs. They are strategically placed within a public open space, such as a square, park, sports field, or neglected site, along a main pedestrian route⁵¹. Active Boxes are therefore seen as safe nodes in informal settlements, as they concentrate activity, and function to deter crime and promote a sense of community safety.

The strategy of VPUU also look to Lynch's 5th element of "landmarks", which he defines as elements that can be seen from afar and become a local symbol used for orientation, direction, and clues of identifying along a journey⁵². Lynch's notion of landmarks are a reference which the observer does not enter within as they are defined as simple physical objects such as a building, a sign or a mountain.

VPUU's Active Boxes can also be defined as a landmark due to their 3 story height,

amongst a monotonous single story environment, such as the one in South African informal settlements. Active Boxes can help with navigation, and act as a symbol easy to spot from afar.

Currently, 10 Active Boxes have been built across deprived communities in Cape Town over the last few years. They differ in impact and size, from a 200m² Neighbourhood Centre to a 3000m² Regional Library⁵³. Due to the success in projects where VPUU have implemented this strategy in informal settlements, their theory of Active Boxes will be used as a principle for site interventions in the case of Delft.

⁵¹ "Active Boxes", *Violence Prevention Through Urban Upgrading*, accessed 10 March 2021, <http://vpuu.org.za/safe-node-area/active-boxes/>

⁵² Lynch, Kevin. *The Image of the City*. The MIT Press, 1960

⁵³ "Active Boxes", *Violence Prevention Through Urban Upgrading*, accessed 10 March 2021, <http://vpuu.org.za/safe-node-area/active-boxes/>



Figure 46: Active Box as a node and landmark by VPUU, located in Cape Town, South Africa

ADAPTING VPUU STRATEGY TO DELFT LEARNING ARCHIPELAGO

VPUU defines an Active Box as a node of activity and visual landmark for people living within a typically unsafe, monotonous single story environment, such as informal settlements⁵⁴. Active Boxes are strategically placed within a public open spaces, such as parks, sports field, or neglected sites, along a main pedestrian route.

The specific location, function and size of an Active Box depends on the local needs of the specific community⁵⁵. The impact of an Active Box is determined by its location and network, as multiple Active Boxes along a route, can engage with one another and increase overall safety across a neighbourhood.

SIZE OF ACTIVE BOXES

VPUU states that the level of impact felt from an Active Box (through its activation intensity and distance reached in the community) is what determines its physical size⁵⁶.

⁵⁴ "Active Boxes", *Violence Prevention Through Urban Upgrading*, accessed 10 March 2021, http://vpuu.org.za/wp-content/uploads/2018/02/180109_VPUU_ACTIVE-BOX-PACKAGE.pdf

⁵⁵ Ibid

⁵⁶ Ibid

1. SMALL ACTIVE BOX

A Small Active Box is a building roughly 200m², acting for its immediate soundings of about 5000 people. This scale is economically practical in terms of investment in costs, maintenance and surveillance in an informal settlement context. This scale of intervention will take place along the Loop Roads.

2. MEDIUM ACTIVE BOX

A Medium Active Box is a building ranging between 200-500m² that meet the needs for up to 30000 people, extending its services to surrounding neighbourhoods. This scale of intervention will take place on Loop Roads, where coming into contact with surrounding neighbourhoods.

3. LARGE ACTIVE BOX

A Large Active Box is a building, with a civic presence, between 500-3000m² that impacts a suburban node and acts as an anchor for a precinct. This scale of intervention will take place on Delft Main Road, and work with existing resources in place to define a precinct identity.

SMALL ACTIVE BOX



Figure 47: VPUU Small Active Box: Neighbourhood Centres in Lotus Park and Monwabisi Park.

MEDIUM ACTIVE BOX



Figure 48: VPUU Medium Active Box: Safe Hub and Resource Centre at Nyanga Junction serving Gugulethu and Manenberg.

LARGE ACTIVE BOX



Figure 49: VPUU Large Active Box: House of Learning Library in Khayelitsha.

5.5 MASTERPLAN STRATEGY | ARCHITECTURAL CONSIDERATIONS

ARCHITECTURAL CONSIDERATIONS:

(1) ACTIVATE OPEN SPACE

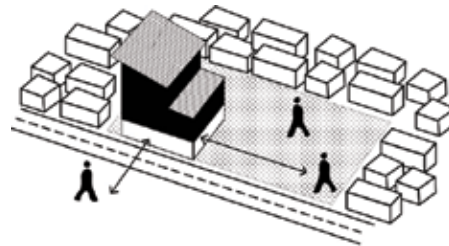
(1) ACTIVATE OPEN SPACE

(2) VISUAL LANDMARK

The following section discusses principles which should be incorporated in each of the chosen sites in Delft. It is important to first understand there are 2 groups of chosen sites:

The sites along Main Road, are existing educational programs which are very important to the area and already have a network of players. These sites are under-resourced and do not meet their full potential. They will become reactivated to form a node in a precinct, as they are already established.

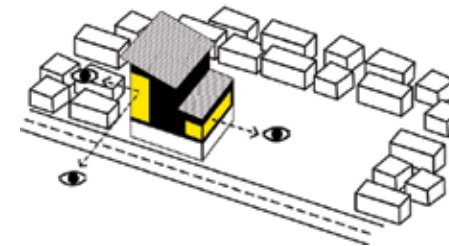
The sites along the Loop Roads, are neglected open spaces. They are smaller than interventions along Main Road, and therefore multiple sites on the Loop Roads will function together, while connecting larger educational infrastructure. Their chosen program will be determined through specific site investigation and by looking at nearby community needs.



Since there are not many open spaces within Delft, the ones that exist in the urban fabric need to be seen as valuable. These neglected and unsafe sites need to be consolidated by defining a new active edge through a small building footprint. The insertion of a public building is to support and activate the adjacent open space. Hence, a small footprint facilitates this. Another reason for the building to have a small footprint is for ease in management, maintenance, costs and surveillance on site. The positioning of the building on each site is essential, as it should dialogue with the street edge and make users feel safe to use the space. The orientation of the site is also considered for economic and environmental purposes using passive design principles.

5.5 MASTERPLAN STRATEGY | ARCHITECTURAL CONSIDERATIONS

(2) VISUAL LANDMARK



The current urban landscape of Delft is extremely flat. There are only a few buildings within the area which are taller than a single story. The only vertical landmarks that exist in the urban fabric are the electricity and power towers. Therefore, there are no visual markers in place that can be seen when walking the streets.

The built interventions have the opportunity to provide a vertical and visual landmark within the area. This will allow people to navigate around the new network, especially the Loop Roads where the residential fabric is very monotonous.

Introducing vertical landmarks will help in the legibility of the area. Not only in terms of creating an identity, but also for safety purposes, as the interventions can be identified from far as "safe nodes". throughout the day, as well as lit beacons at night. The tallest element of each building will sit on the street edge, or corner if possible. This ensures

its visibility from a distance, as well as allowing for the higher floors of the building to be inhabited by a caretaker and looked out for passive surveillance.

STRATEGY FOR ALL 3 LAYERS OF INTERVENTION:

- Adequate and frequent spaced lighting
- Prioritize pedestrian and cycle movement through a defined slow mobility lane
- Landscape elements and tree planting strategy enhance the experience of the route for pedestrians

INDIVIDUAL STRATEGIES FOR EACH LAYER OF INTERVENTION:

(3) NEW CONNECTIONS

- Enhance legibility of the route through ground texture change

3

NEW CONNECTIONS

(2) LOOP ROADS

- 'Active Boxes' programatically reactivating void sites along Loop Roads
- Enhance legibility of route through ground texture change
- Ensure public transport reaches all the loops, and a transport stop sits where a Loop Road connects with the New Connection (Pedestrian Desire Line path)

2

LOOP ROADS

(1) MAIN ROAD

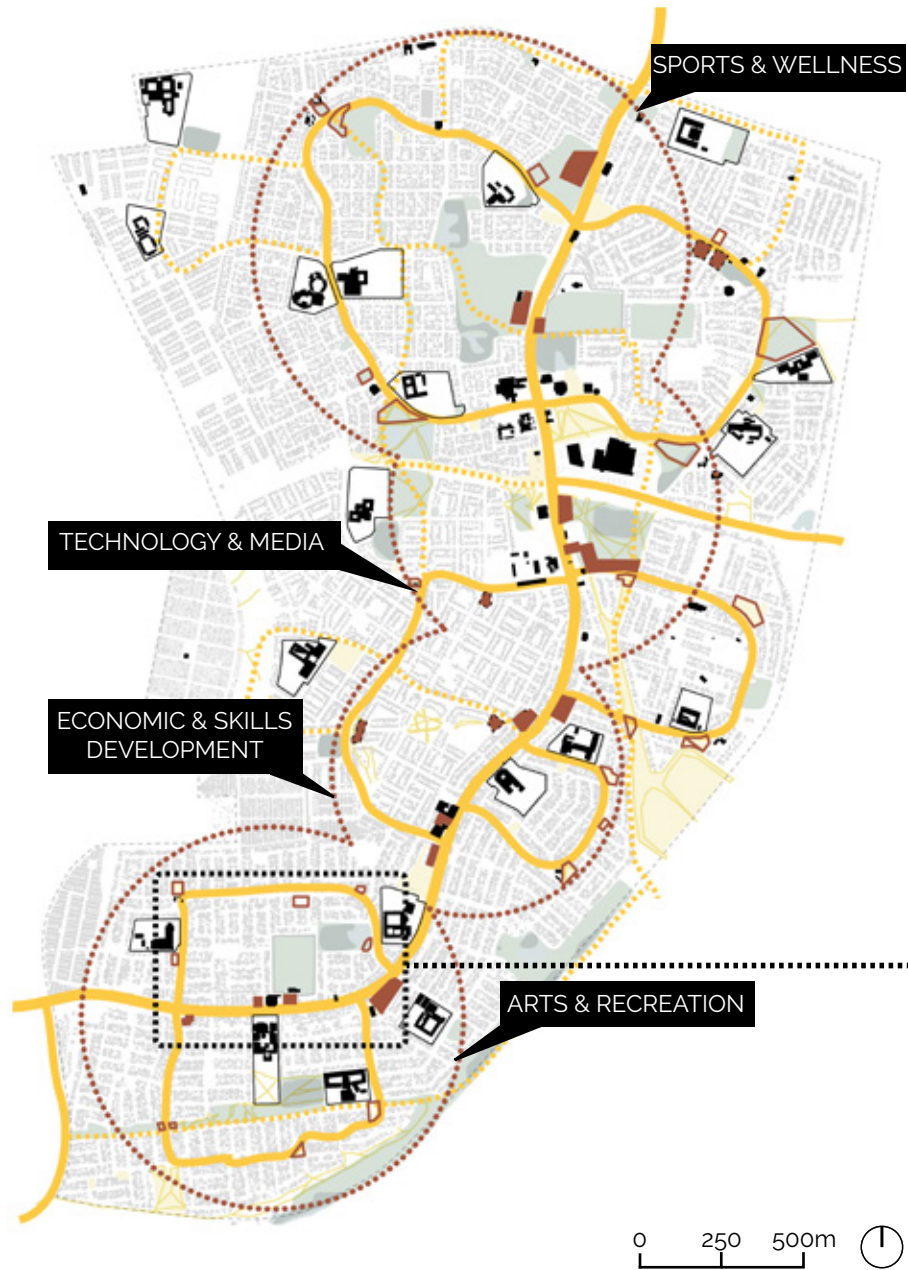
- 'Active Boxes' on Main Road create 4 Precincts

1

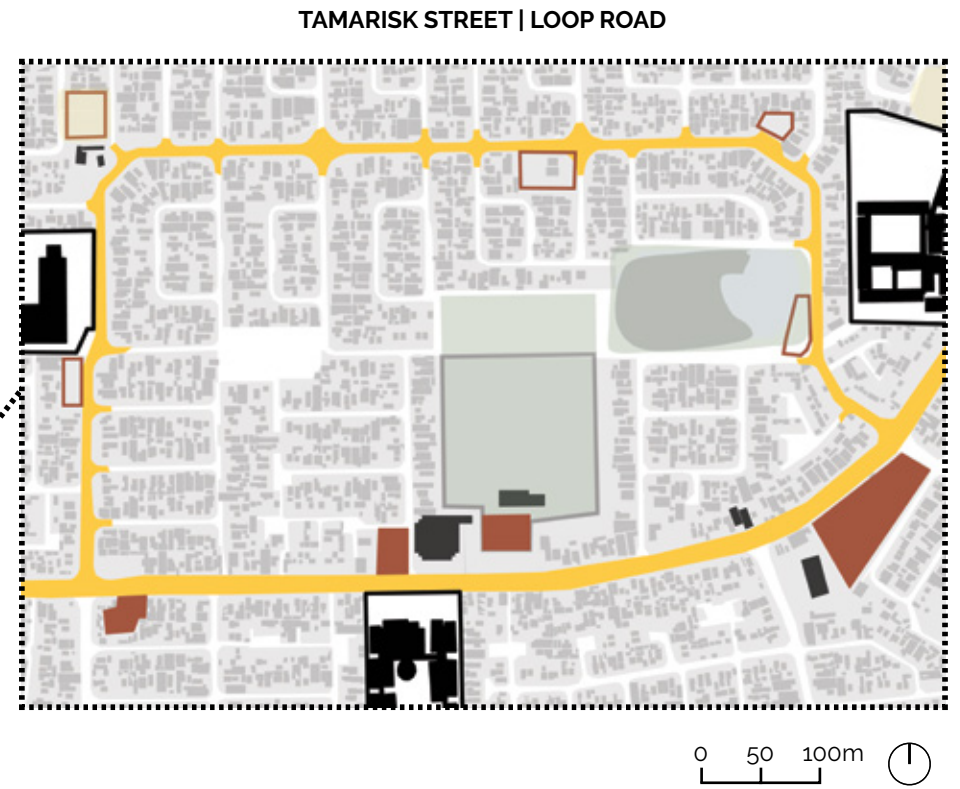
MAIN ROAD



5.7 MASTERPLAN LOCATING LOOP ROAD FOCUS



5.7 MASTERPLAN LOCATING LOOP ROAD FOCUS



5.8 LOOP ROAD STRATEGY

LOOP ROADS

Since densification and public activity is more commonly found on Main Road, due to its accessibility to the transport network and other planned facilities, there will be a focus on the Loop Roads which are less activated.

The strategy will transform these secondary structure roads so that they can also act as activity corridors for the youth and local residents, and enhance safety through frequented movement routes in open spaces.

As seen through mapping Delfts urban expansion, the densification further from Delft Main Road is drastically increasing although lacks the necessary amenities to support people in these areas. Along the Loop Roads there is nothing in place linking the schools, which are often at a far distance from one another. Therefore, community facilities, educational resources, transport network connections and safe routes need to be in place to support the livelihood of youth and local residents.

SITUATING SITES

Along all the Loop Roads in the settlement, the following open spaces for programmatic activation were identified and categorized into 5 reoccurring site conditions.

OPEN SPACE SITE CONDITIONS

1. Site adjacent to school plot
2. Site dialoguing with ECD (Early Childhood Development Centre)
3. Corner site by commercial activity
4. Site by community facility
5. Unactivated site along desire line movement route

In order to understand the settlement spatially at a more local scale, the following work will focus on 1 specific Loop Road along Tamarisk Street as an example of a Loop Road intervention. Tamarisk Street is chosen as it contains all 5 site condition groups, and has a primary school on either end of the loop structure, with no facilities between. The Loop Road is 1,25km long (a 14 minute walk), and only has street lamps on one side of the street spread out to an inadequate distance of 50-70m apart.

When situating the new interventions, they are spaced at a visual distance from one another, ranging from 170-350m apart which is no more than a 2-5 minute walk. This distance is important to ensure a safe, activated network.

In order to understand the routes, and the current condition of the neglected spaces along it, a photographic study will follow using Apple 3D Maps and Google Street View.

5.8 LOOP ROAD STRATEGY

The 5 chosen sites were all intended by initial government planning to be public points for the local residents, as seen by the government zoning map in Figure 50. Three of these spaces are zoned as 'Community Level 1', while another is

'General Business 1' as well as one being 'Public Open Space'.

57 "City Map and Zoning Viewer" City of Cape Town, last modified 2021, accessed 8 March 2021, <https://www.capetown.gov.za/work%20and%20>

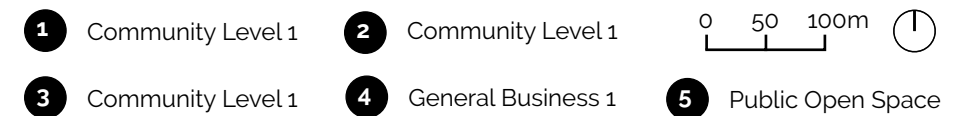
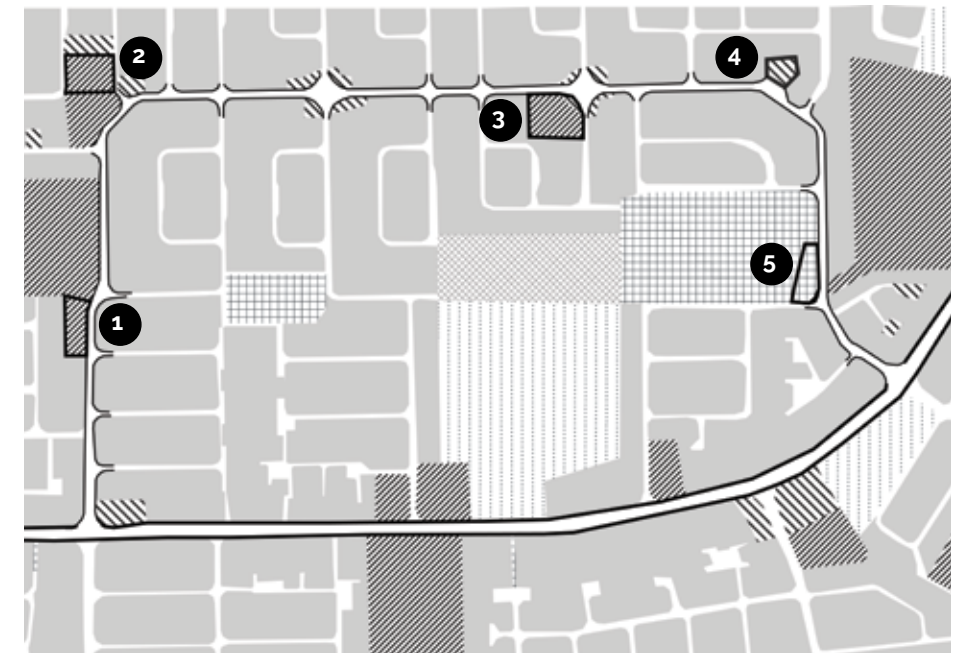
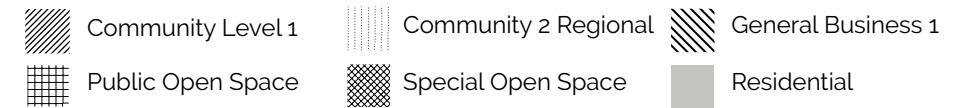
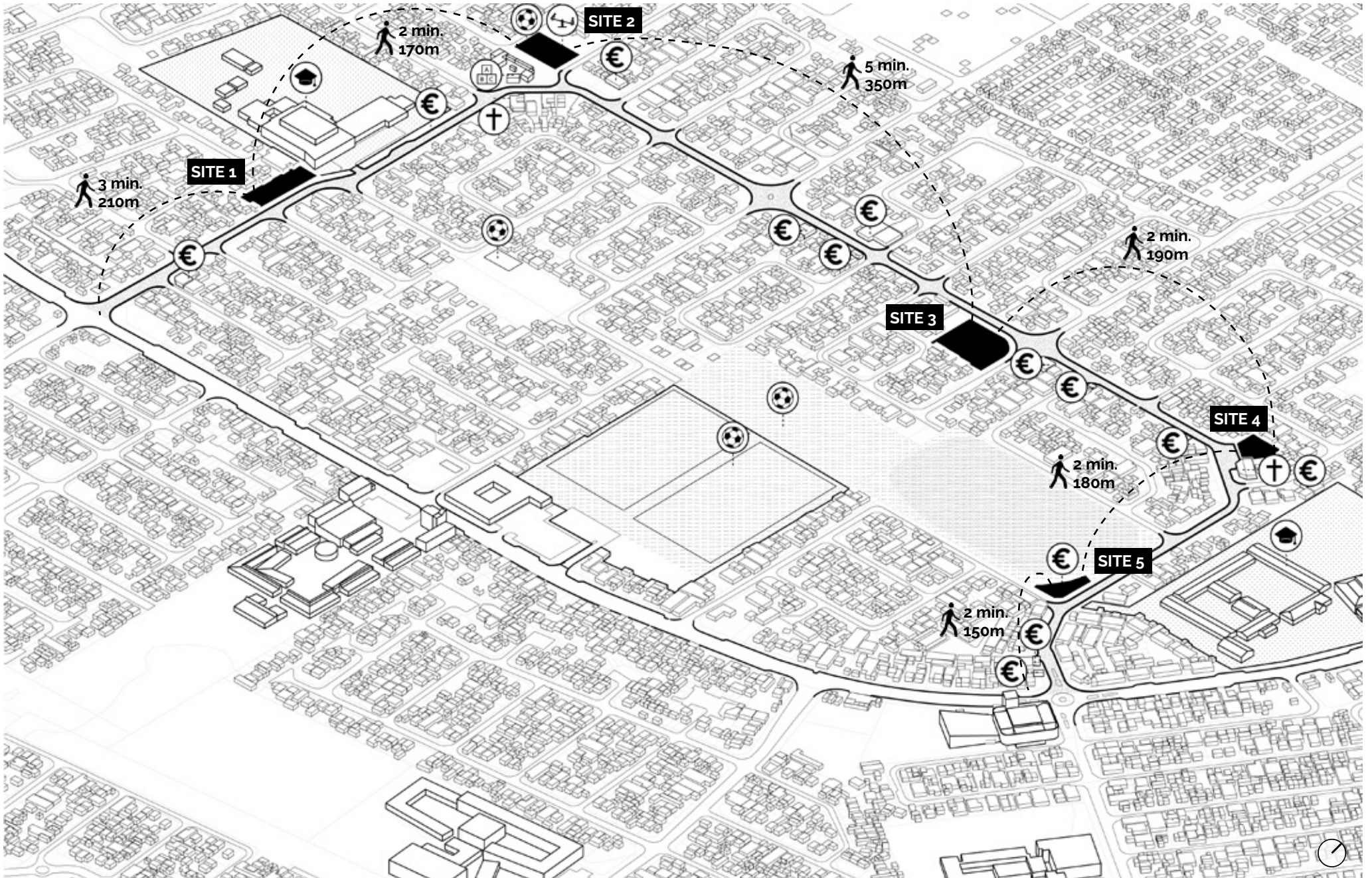
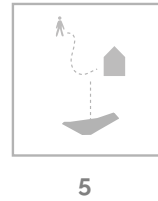
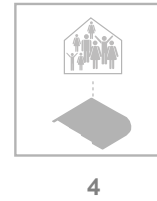
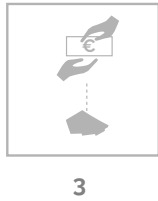
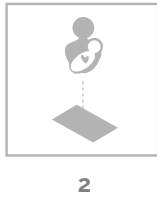
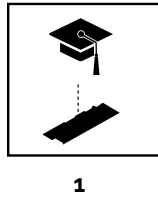
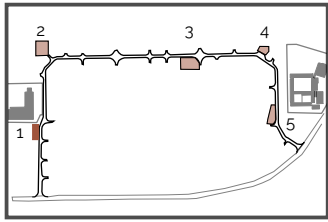


Figure 50: Government Zoning Map of Loop Road Focus



5.10 SITE 1: EXISTING CONDITIONS

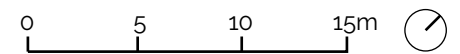


5.10 SITE 1: EXISTING CONDITIONS

SITE ADJACENT TO SCHOOL PLOT



Figure 51: Site 1 | Imagery sourced from Apple Maps 3D View



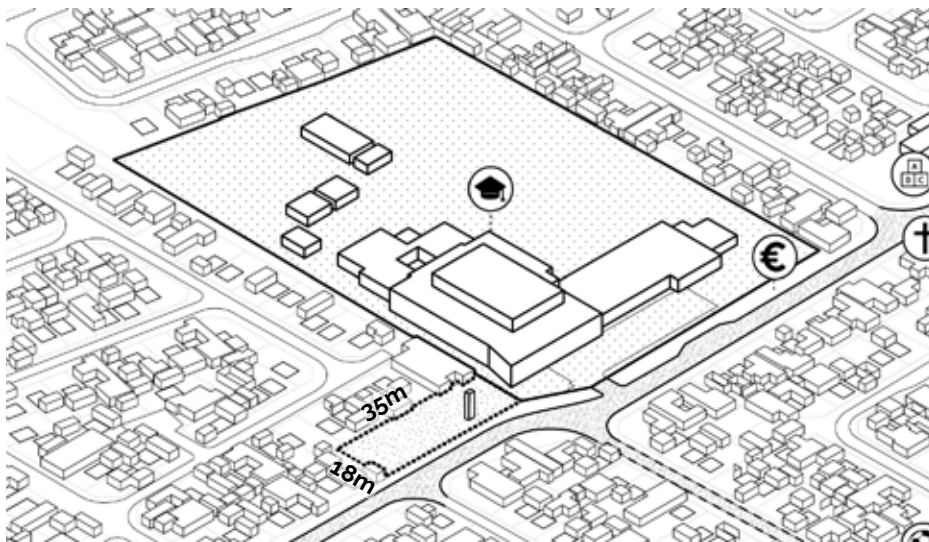
SITE 1

Location: 30 Tamarisk Street

Sqm: 630

Zone: Community Level 1

Current Condition: Demolished
Educare, next to Primary School



SITE CONDITION

1. **Site adjacent to school plot**
2. Site dialoguing with ECD (Early Childhood Development Centre)
3. Corner site by commercial activity
4. Site by community facility
5. Unactivated site along desire line movement route

SITE CHARACTERISTICS

- Left over rubble from previous daycare center
- Enclosed on three sides
- Adjacent to primary school
- Poorly lit space (only 2 lights 30m apart)
- No presence of green

EXISTING SITE IMAGERY FROM GOOGLE STREET VIEW



Figure 52: Noero Wolf Architects - Daycare Centre built in 2002

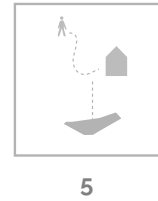
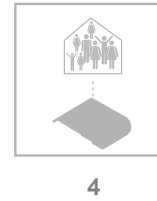
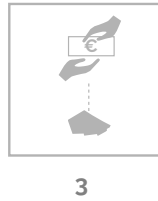
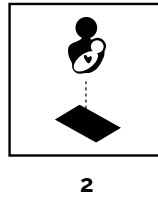
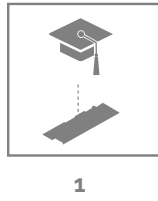
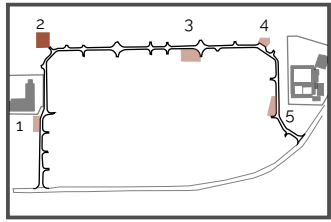


Figure 53: Current condition of site - Daycare destroyed in 2009



Figure 54: Site located next to Masonwabe Primary School

5.11 SITE 2: EXISTING CONDITIONS

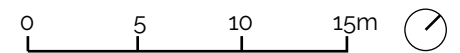


5.11 SITE 2: EXISTING CONDITIONS

SITE DIALOGUING WITH ECD (EARLY CHILDHOOD DEVELOPMENT CENTRE)



Figure 55: Site 2 | Imagery sourced from Apple Maps 3D View



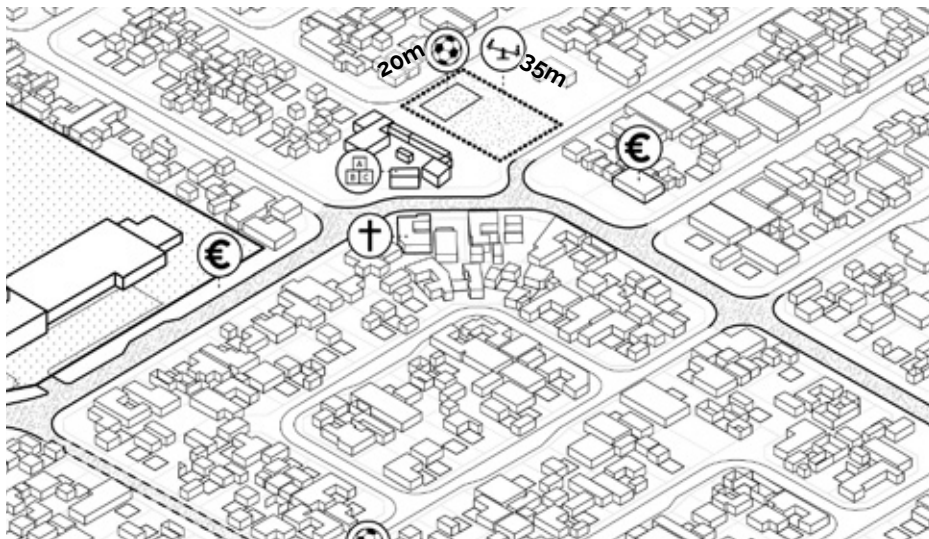
SITE 2

Location: 60 Tamarisk Street

Sqm: 700

Zone: Community Level 1

Current Condition: Under-resourced playground, next to Educare



SITE CONDITION

1. Site adjacent to school plot
2. **Site dialoguing with ECD (Early Childhood Development Centre)**
3. Corner site by commercial activity
4. Site by community facility
5. Unactivated site along desire line movement route

SITE CHARACTERISTICS

- Playground links two roads
- Insufficient lighting (20- 35m apart)
- Playground used as extension of the Educare to its one side
- Due to out of date Google Street View, the other edge of the site has now been built for private use
- Site acts as spill out space for the small church opposite

EXISTING SITE IMAGERY FROM GOOGLE STREET VIEW



Figure 56: Street interface: inactive edge of playground and church situated opposite

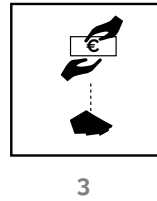
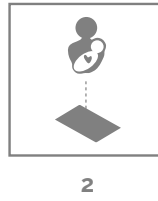
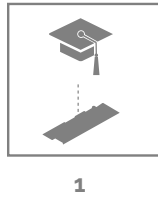
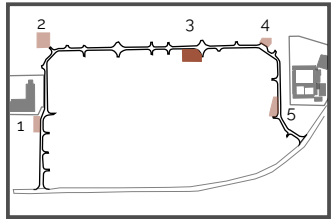


Figure 57: Site located next to an ECD (Early Childhood Development Centre)

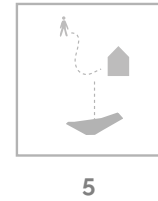
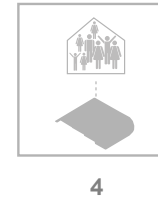


Figure 58: Under resourced community playground

5.12 SITE 3: EXISTING CONDITIONS



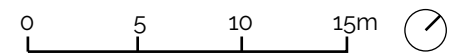
5.12 SITE 3: EXISTING CONDITIONS



CORNER SITE BY COMMERCIAL ACTIVITY



Figure 59: Site 3 | Imagery sourced from Apple Maps 3D View



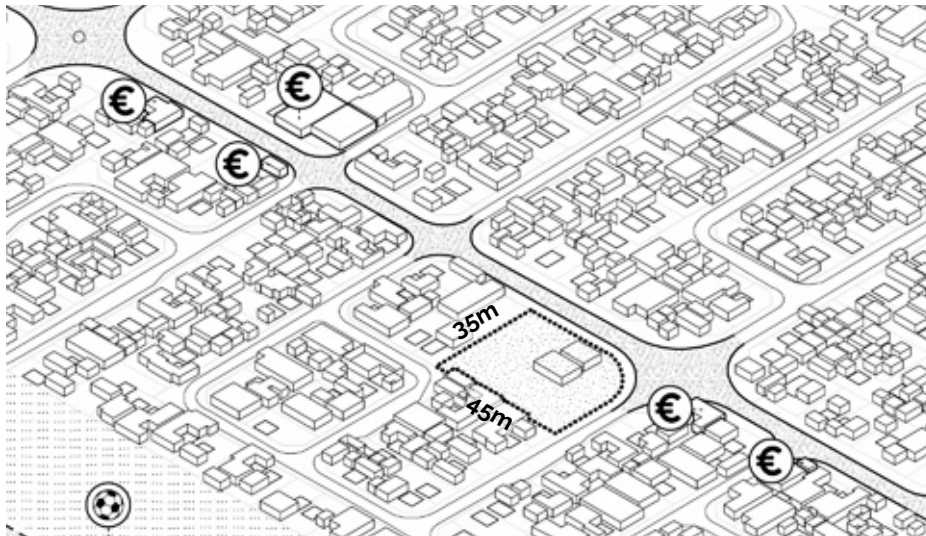
SITE 3

Location: 115 Tamarisk Street

Sqm: 1470

Zone: Community Level 1

Current Condition: Empty fenced site at corner intersection



SITE CONDITION

1. Site adjacent to school plot
2. Site dialoguing with ECD (Early Childhood Development Centre)
3. **Corner site by commercial activity**
4. Site by community facility
5. Unactivated site along desire line movement route

SITE CHARACTERISTICS

- Corner sites at intersections have strong economic presence
- Two sides are edged by residential, and two sides are exposed to the road
- Informal commercial activity is situated opposite the site
- In 2013, two small houses were erected. Although in 2016 both were removed, so now the site remains

EXISTING SITE IMAGERY FROM GOOGLE STREET VIEW



Figure 60: Fenced empty corner site at circle intersection

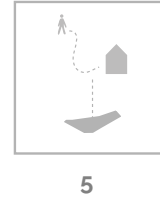
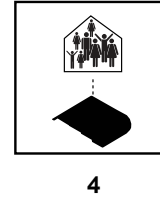
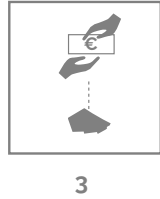
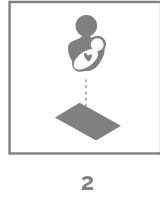
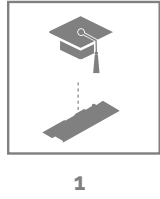
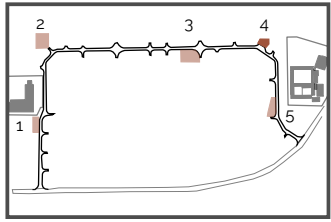


Figure 61: Out of date Google street view- the small building in 2016 was removed



Figure 62: Opposite the site there is informal economic activity of a local grocer

5.13 SITE 4: EXISTING CONDITIONS

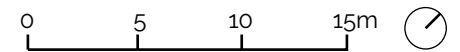


5.13 SITE 4: EXISTING CONDITIONS

SITE BY COMMUNITY FACILITY



Figure 63: Site 4 | Imagery sourced from Apple Maps 3D View



SITE 4

Location: 140 Tamarisk Street

Sqm: 505

Zone: General Business 1

Current Condition: Site embedded within residential tissue



SITE CONDITION

1. Site adjacent to school plot
2. Site dialoguing with ECD (Early Childhood Development Centre)
3. Corner site by commercial activity
4. **Site by community facility**
5. Unactivated site along desire line movement route

SITE CHARACTERISTICS

- Nestled within residential tissue
- Church, which is also a photocopy/print shop is situated next door
- Sign of shop shows “Cows accepted here”. This is a typical Xhosa tradition called “Lebola” by local residents, where cows have a very high monetary value for buying or trading purchases

EXISTING SITE IMAGERY FROM GOOGLE STREET VIEW



Figure 64: Unfenced site, full of litter/rubbish

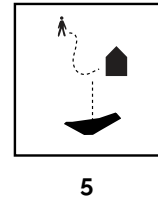
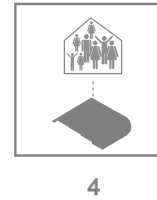
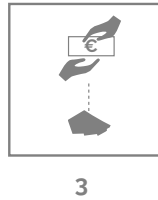
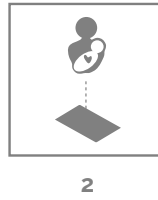
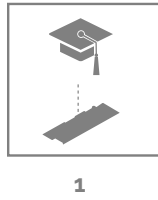
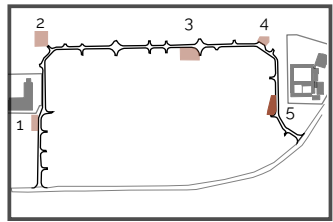


Figure 65: A shop and church are situated adjacent to the site



Figure 66: The site is offset from road, and nestled into residential fabric

5.14 SITE 5: EXISTING CONDITIONS

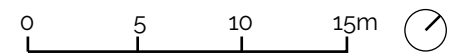


5.14 SITE 5: EXISTING CONDITIONS

UNACTIVATED SITE ALONG DESIRE LINE MOVEMENT ROUTE



Figure 67: Site 5 | Imagery sourced from Apple Maps 3D View



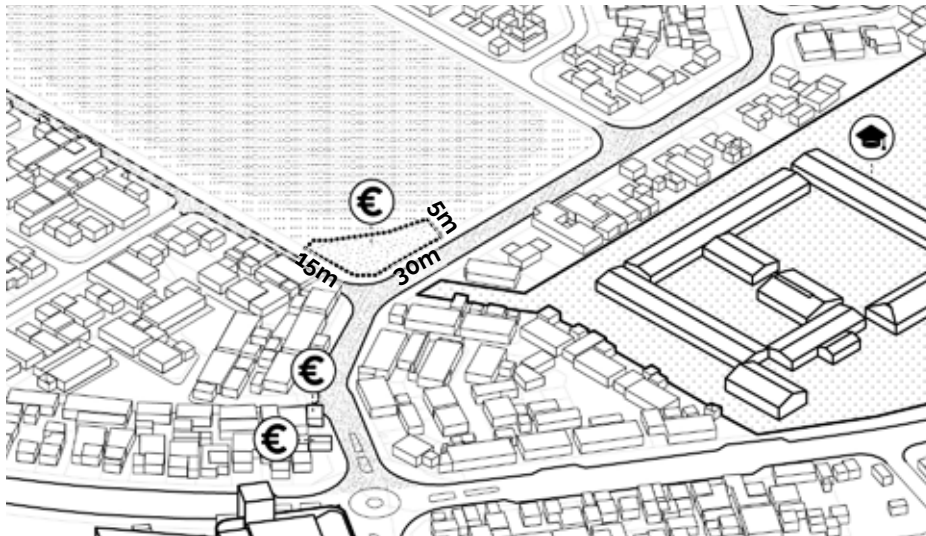
SITE 5

Location: 183 Tamarisk Street

Sqm: 432

Zone: Public Open Space

Current Condition: Site on corner of unsafe detention pond



SITE CONDITION

1. Site adjacent to school plot
2. Site dialoguing with ECD (Early Childhood Development Centre)
3. Corner site by commercial activity
4. Site by community facility
5. **Unactivated site along desire line movement route**

SITE CHARACTERISTICS

- Site on the corner of a detention pond, which is large, unsafe, and highly polluted
- Around the detention pond, the site is used as a shortcut, as seen through the prominent desire lines
- Even though these conditions are very unhealthy, children still play here due to its open site

EXISTING SITE IMAGERY FROM GOOGLE STREET VIEW



Figure 68: The site is on the edge of a large detention pond which is highly polluted- regardless children play here and move through the site



Figure 69: Intervention takes place on the corner where the soil is dry and raised



Figure 70: An intervention on the corner site could increase safety for the large open space

PRIMARY STRUCTURING ELEMENTS

All sites along the Loop Road consider the following structuring elements.

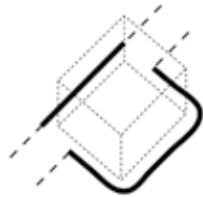
1



VISUALLY CLEAR & UNOBSTRUCTED SITE FOR SAFETY

There should be visibility when entering the site, so the user can determine if they feel safe to enter or not.

2



DEFINITION OF EDGES

The edge of the site interacting with the Loop Road should be activated with program to enhance public activity.

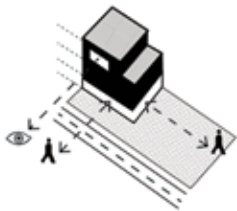
3



MULTIPLE USE OF SPACE

Cross collaboration of programs on site to ensure extended hours of use and varied range of users to enhance safety.

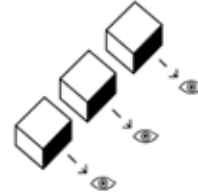
4



ACTIVE BOXES

Location of public buildings on the site, creates activation and surveillance. Active Boxes are always higher than the fairly monotonous single story landscape surrounding them in the informal settlement. They are programatically different depending on the site, although are characterized through their 3 story's high presence, always having a community space accessible from ground floor, and a caretakers apartment above, ensuring a 24hr presence on the site.

5



PASSIVE SURVEILLANCE

Designing and creating opportunities so that the surrounding houses can contribute to passive surveillance of the site.

6



SAFE SPACES FOR THE YOUTH

Play spaces and recreational areas located next to Active Boxes have a higher degree of surveillance and safety.

7



MATERIALITY THATS COST EFFICIENT AND ENABLES SKILLS TRANSFER

Buildings should use cost effective and robust materials to assist in its longevity. Artworks and urban features should utilize local trades and enhance skills transfer.

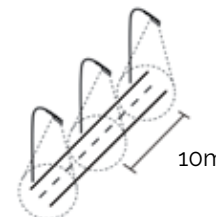
8



GREEN INFRASTRUCTURE

Green infrastructure should be implemented for environmental benefits as Delft is very sparse. Green areas will create spaces of leisure and gathering.

9



VISIBILITY AT NIGHT

A closely spaced pedestrian lighting grid of 10m apart, to ensure the area is well lit to increase its safety. High spotlights on play courts are also vital to facilitate an extended use of the facilities at night.

IDENTIFYING AND INTRODUCING ACTIVE NODES ON LOOP ROADS

Since the focus will look into the detail of the Loop Road Tamarisk Street as an example, its strategy is to be viewed as a replicable solution as similar conditions are found along all of the loops. The following considerations, both architectural and urban, can be implemented to all Loop Road conditions. This is why the 5 categories of site conditions are to be seen as a 'Kit of Parts'- to be adapted to respond to any of the Loop Roads.

EXISTING PROGRAM

Along Tamarisk Street, the existing everyday programs that surfaced will form part of the new interventions. The programs identified were:

- Church groups
- ECD (Early Childhood Development) Centres
- Children playing in playgrounds
- Children playing in polluted grass and water in the detention pond
- Economic Activity (kiosks, shops, informal groceries)
- Service Activity (hair salons, barbecue points, restaurants, print shops, car washes)

SCALE OF ACTIVE BOX

With a focus on the Loop Roads, the level of impact of an Active Box would be for the immediate or surrounding neighbourhoods. Therefore, the Active Box would be a small or medium size scale.

ACTIVE BOXES IN LOOP ROADS SHOULD ACHIEVE THE FOLLOWING:

- **Re-activate** neglected open spaces
- Introduce Active Boxes at strategic points on site to **enhance safety**
- Become a concentrated **node** of a certain activity for the local community
- Act as a **landmark** for a visual reference and passive surveillance

PROGRAM: ACTIVE BOX 'KIT OF PARTS'

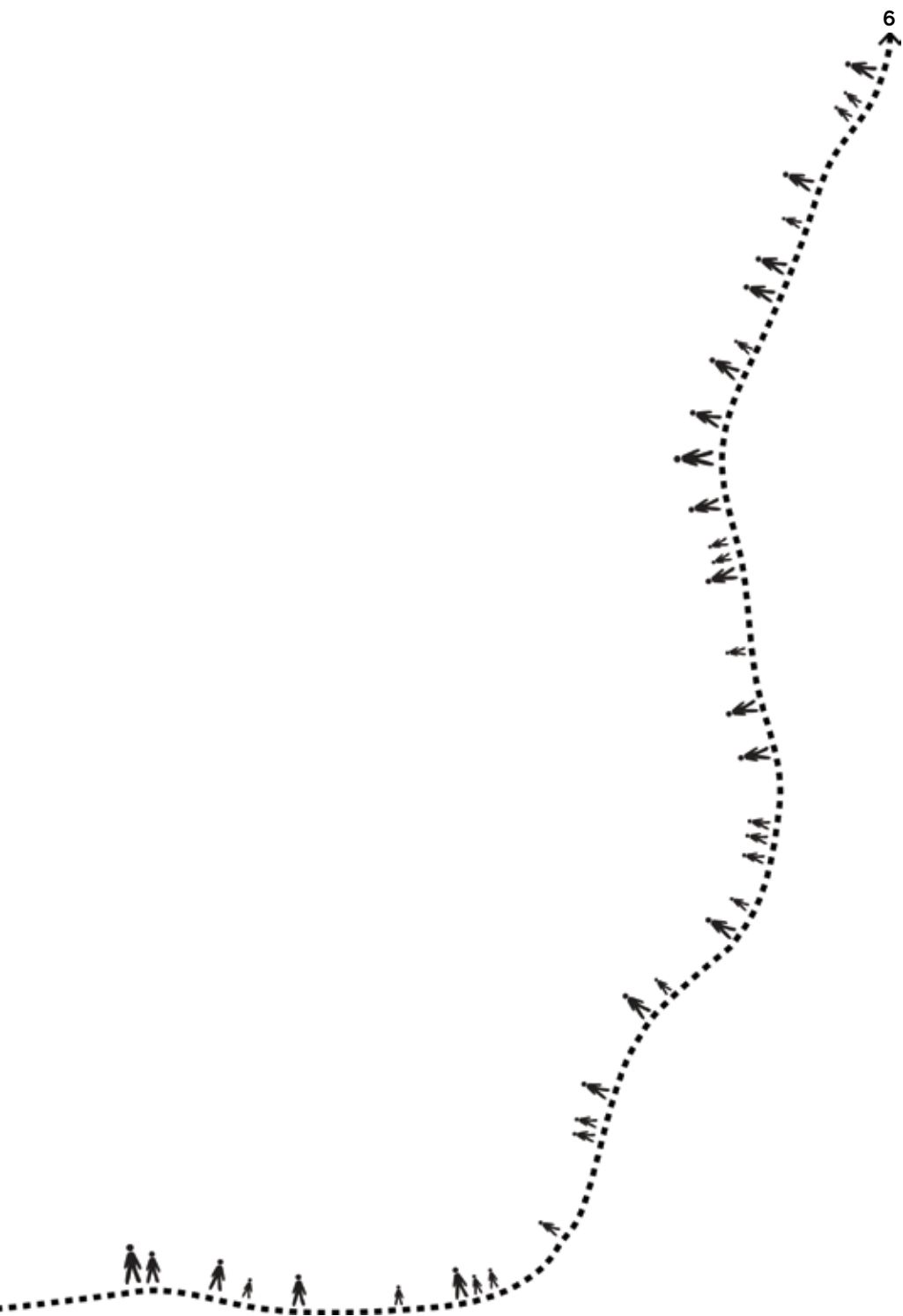
Each site will have varied programs, to ensure the node is activated by diverse users, and through a range of activities to extend its operational hours throughout the day. Since the Active Boxes within the Loop Roads, are embedded in the residential fabric, they must also respond to the needs of the community. Therefore, programmes can be seen as categorized between amenities, communal facilities, after school programme related to youth, as well as economic opportunities.

From this 'Kit of Parts', the relevant program will be chosen to appropriately respond to each of the 5 sites.

SITE CONDITION

1. Site adjacent to school
2. Site dialoguing with ECD (Early Childhood Development Centre)
3. Corner site by commercial activity
4. Community driven site
5. Unactivated site part of desire line movement route

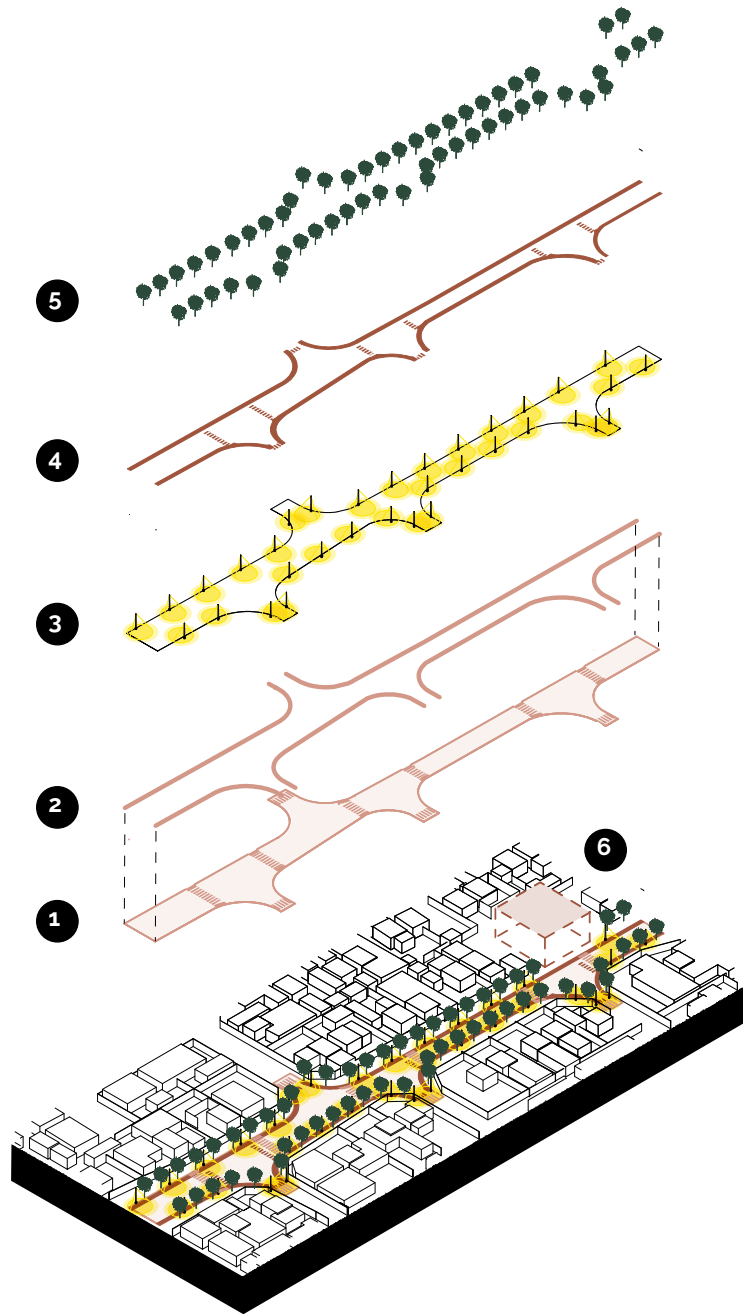




RESEARCH BY DESIGN

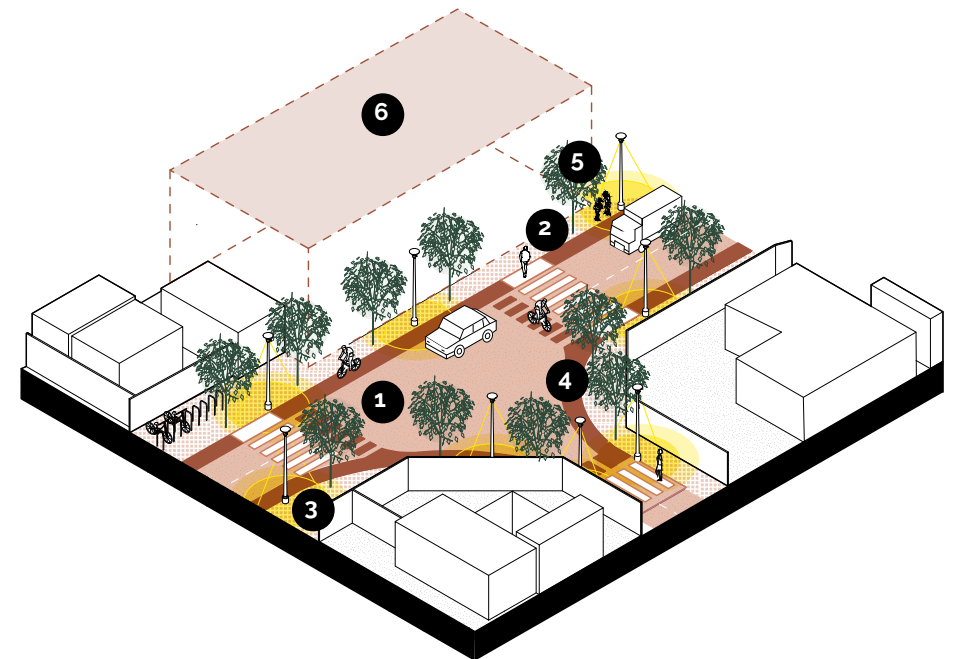


6.2 LOOP ROAD DESIGN STRATEGIES



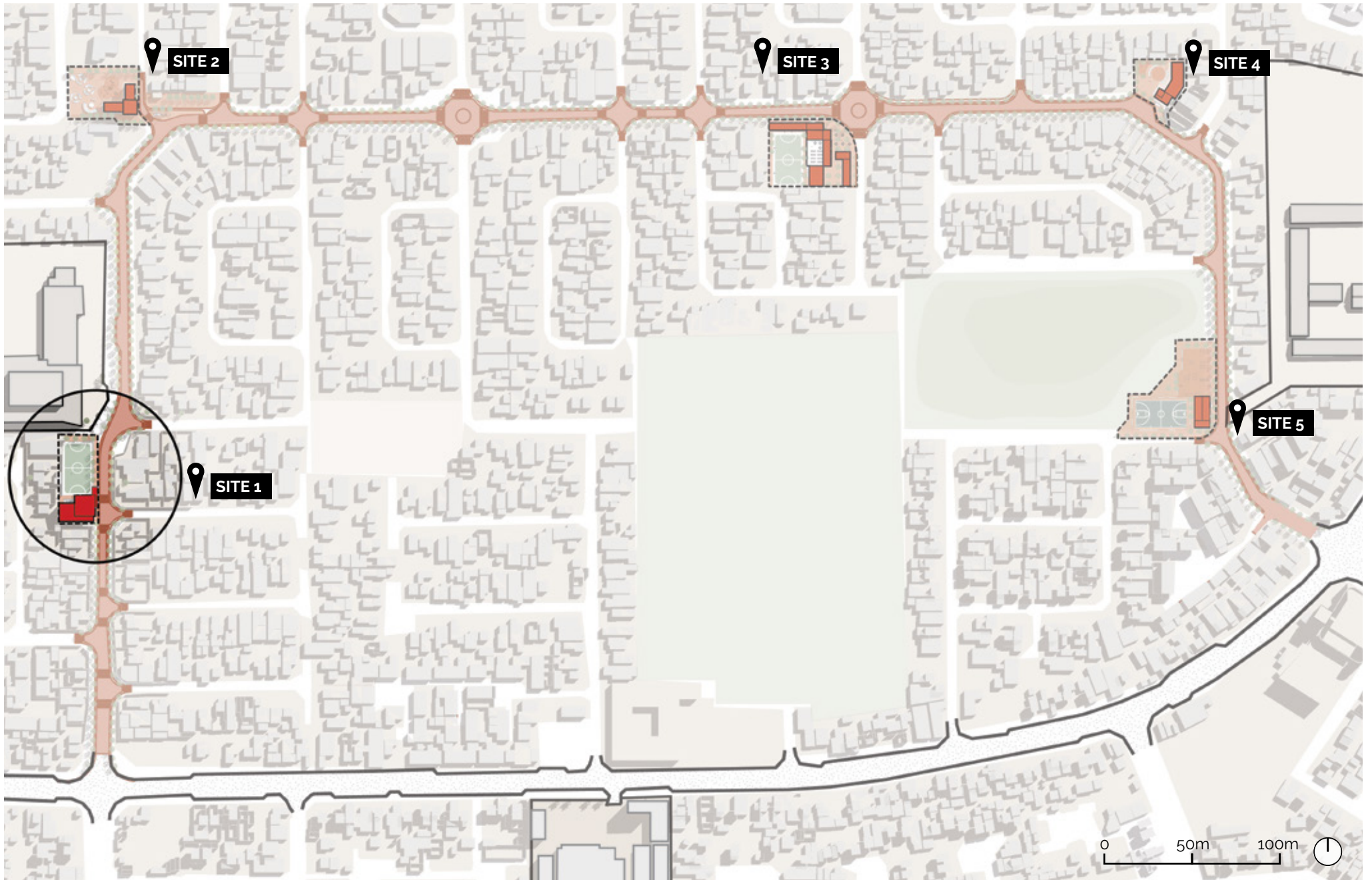
6.2 LOOP ROAD DESIGN STRATEGIES

- 1 **Textured Road Paving** to slow down vehicles, and indicate pedestrian priority
- 2 **Paved Pedestrian Pathway** and crossings well defined and safely lit
- 3 **Night Lighting** to create safer well lit streets after dark through a tight 10m grid
- 4 **Bicycle Route** defined along Loop Roads connecting to Active Boxes and transport stops
- 5 **Green Corridor** implemented through trees to create shading, fresh air and to enhance the quality of the space
- 6 **Active Box** situated along Loop Road activating previously neglected open spaces, and acting as a visual landmark from afar



6.3 SITE 1 LOCATION ALONG LOOP ROAD

6.3 SITE 1 LOCATION ALONG LOOP ROAD

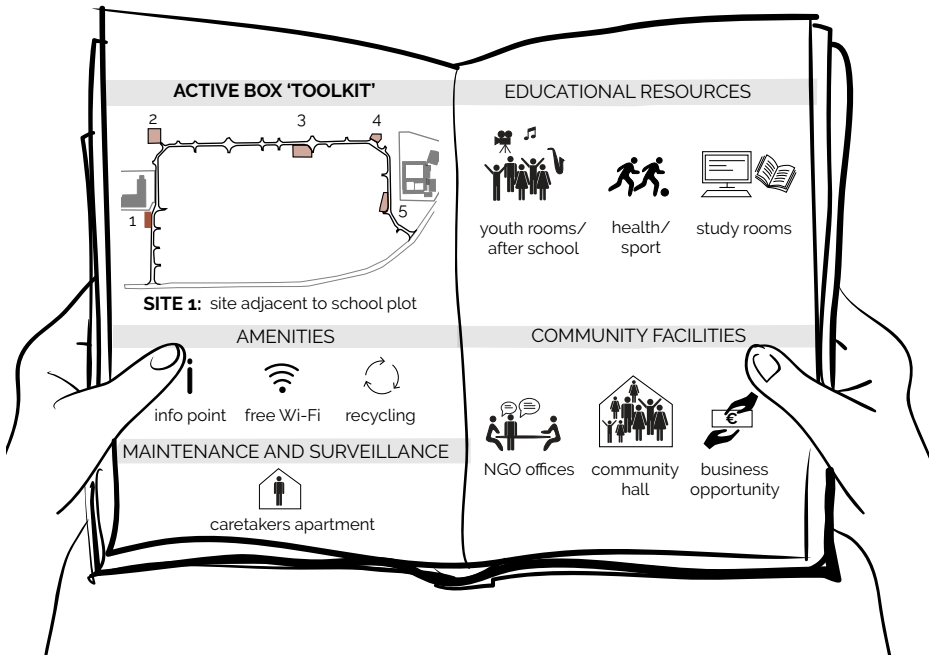


6.3.1 SITE 1: SITE ADJACENT TO SCHOOL PLOT

YOUTH SUPPORT CENTRE

The Youth Support Centre provides learners and the surrounding community with a safe and inclusive space where young people can find the support and services they need,

especially after school. This mainly includes an education and training centre, as well as a sports and recreation area.

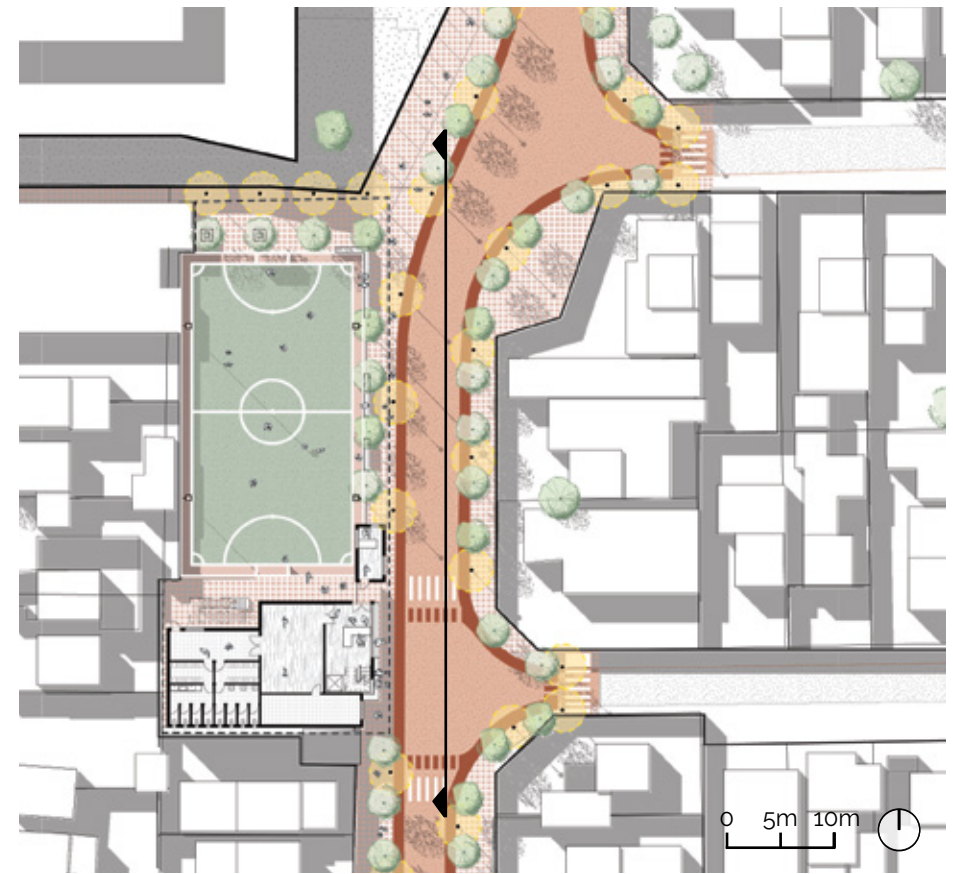


ELEVATION



6.3.1 SITE 1: SITE ADJACENT TO SCHOOL PLOT

PLAN



6.3.2 SITE 1: BEFORE

3D VIEW | APPLE 3D MAPS

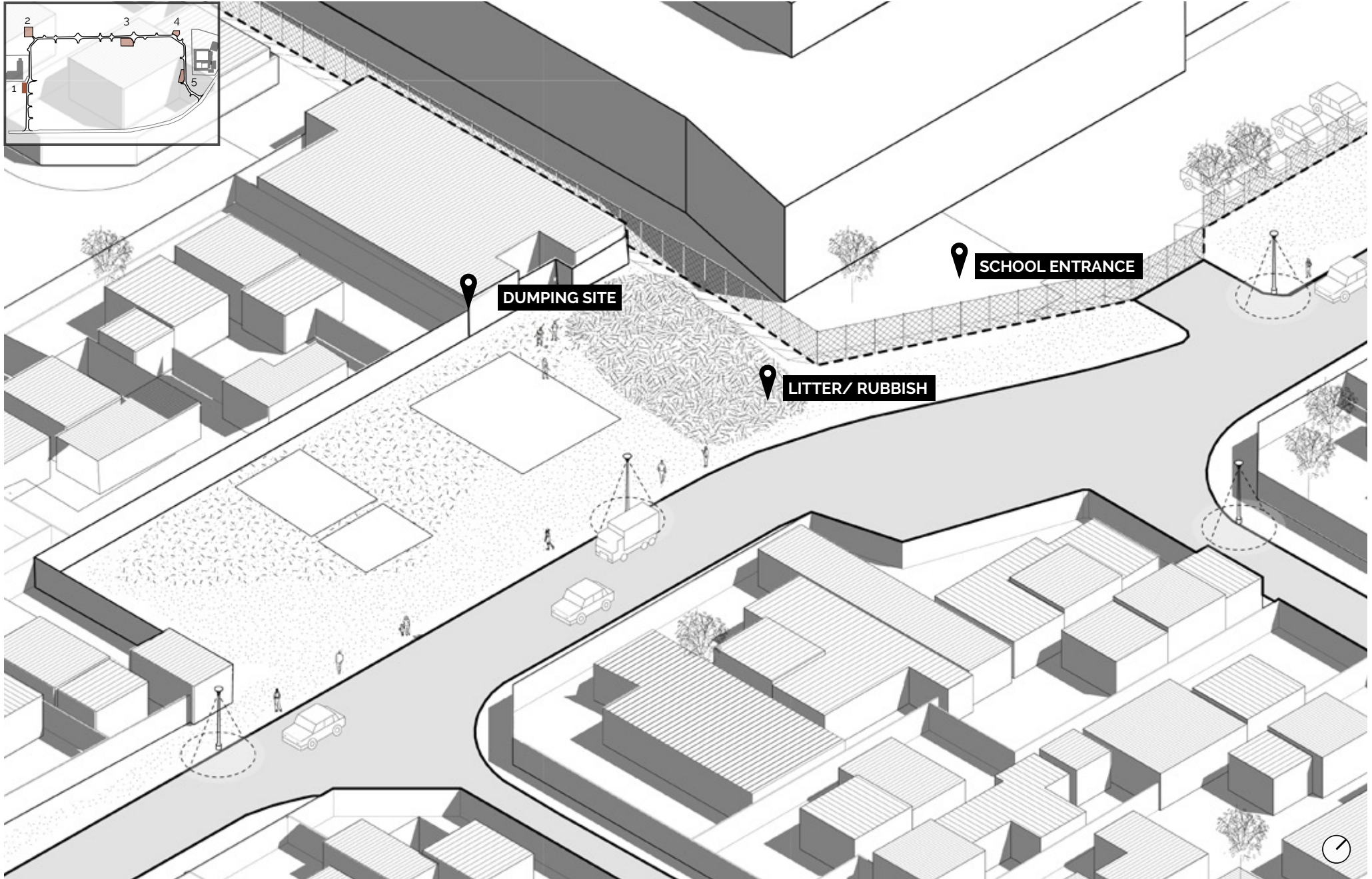


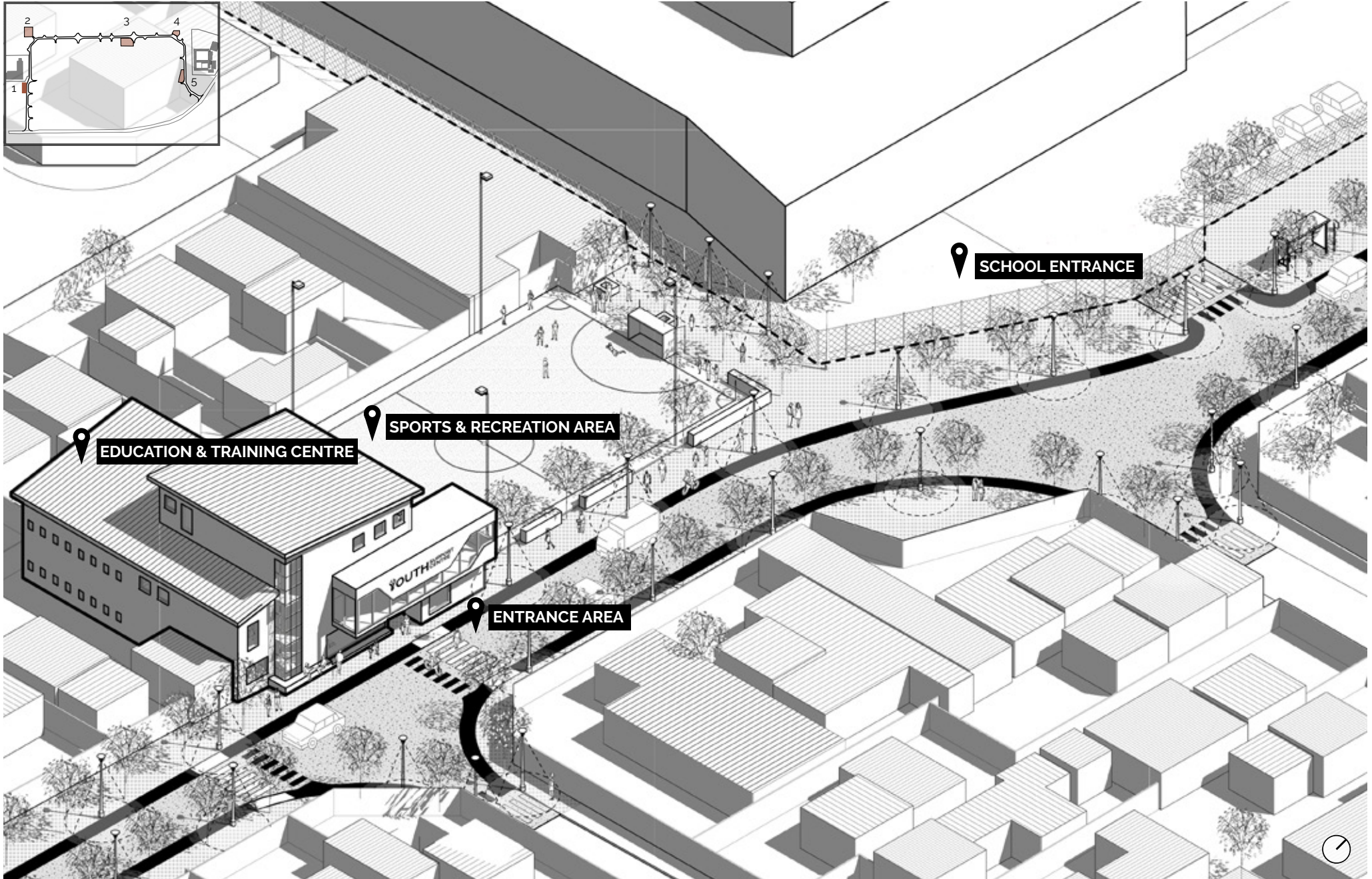
6.3.2 SITE 1: BEFORE

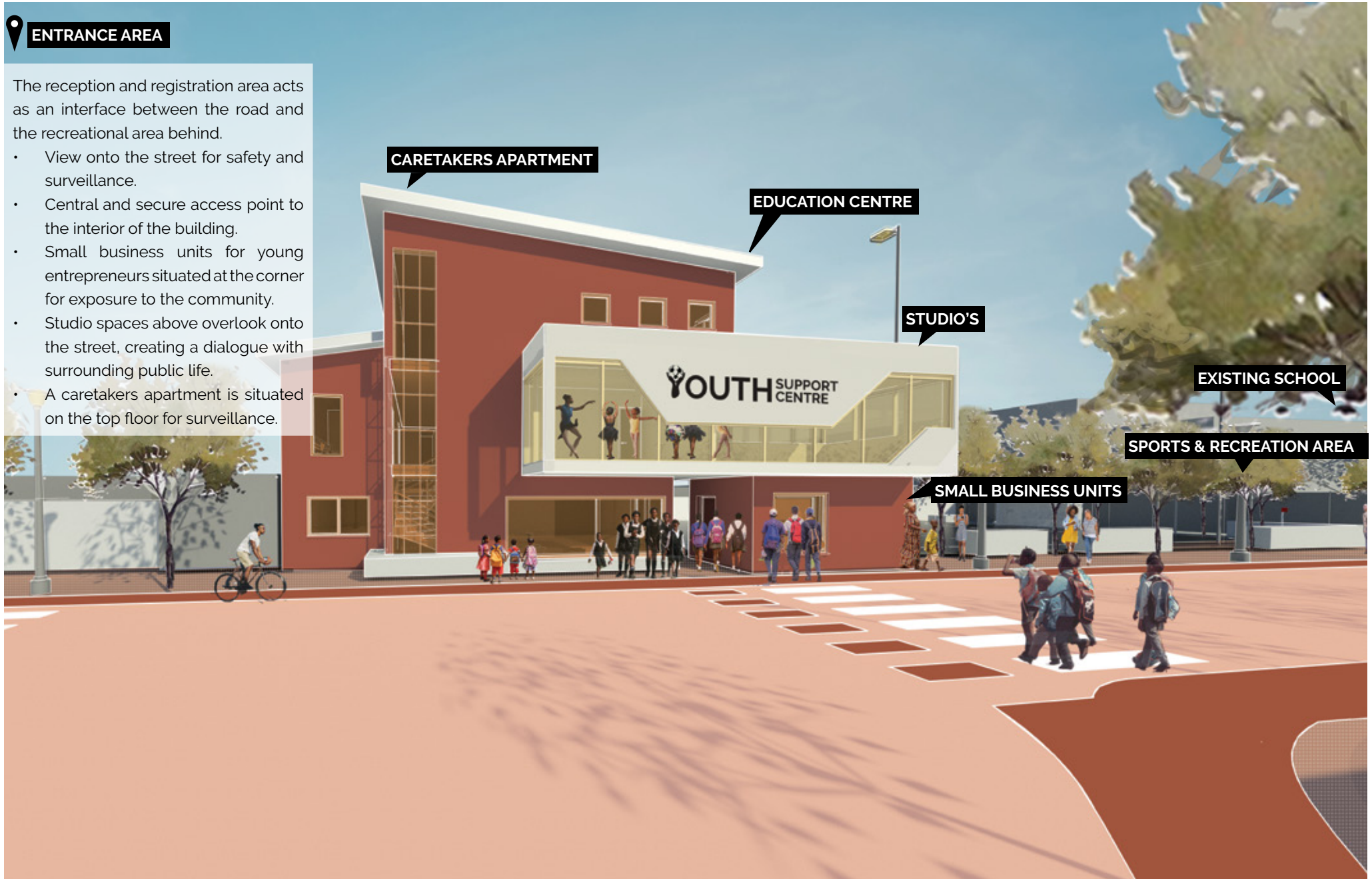
STREET VIEW | GOOGLE MAPS



Figure 71: Site located next to Masonwabe Primary School









SPORTS & RECREATION AREA

There is a 5-a-side field where football programs and trainings take place.

- Floodlights around the field extend hours of the site's usage, and enhance its safety.
- On ground floor, the support infrastructure includes a kitchen for catering purposes, changing rooms, showers and ablutions, and a storage facility.
- Studios for dance, theatre and karate overlook onto the street and sports field, creating passive surveillance.

EDUCATION & TRAINING AREA

Academic support and education programs include workshops, tutoring services, think tanks, innovation hubs and academic counseling which takes place in the various networking spaces.

- Study spaces with computer access
- Co-working spaces
- Quiet study rooms
- Meeting rooms on reservation

SMALL BUSINESS UNITS

STUDIO'S

EDUCATION CENTRE

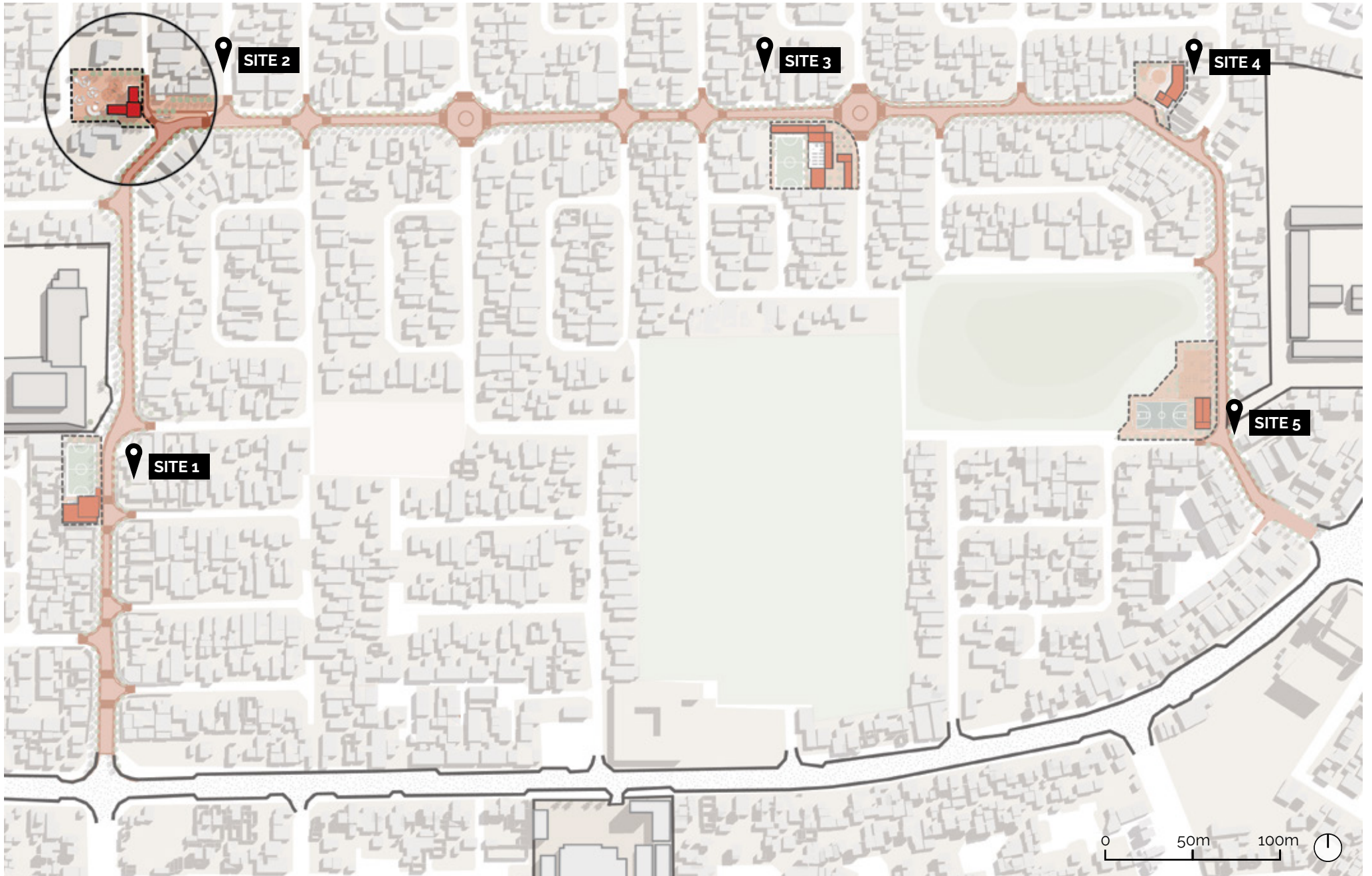
CARETAKERS APARTMENT

TRAINING SUPPORT

SPORTS & RECREATION AREA

6.4 SITE 2 LOCATION ALONG LOOP ROAD

6.4 SITE 2 LOCATION ALONG LOOP ROAD

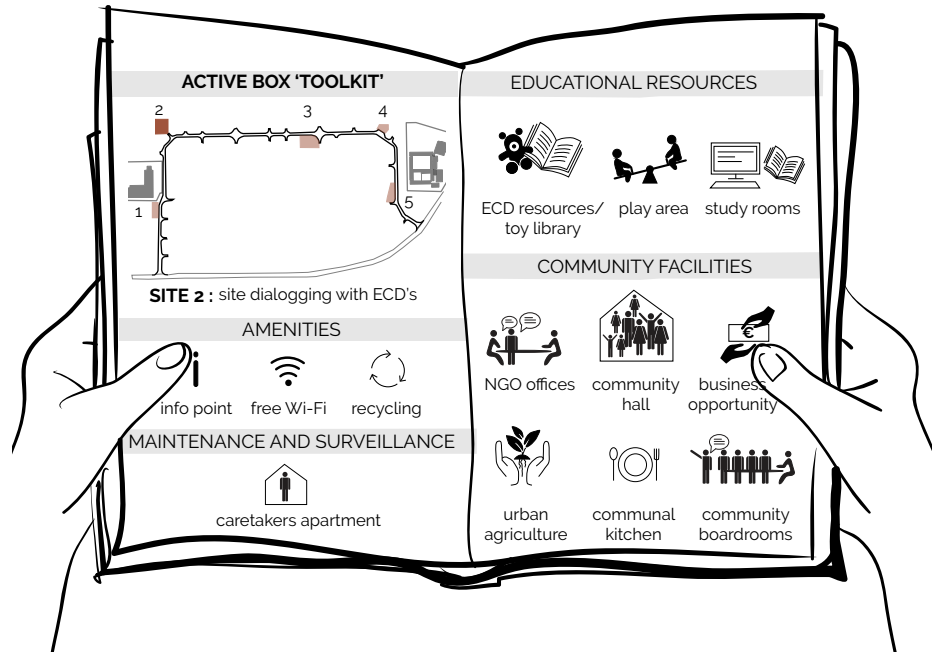


6.4.1 SITE 2: SITE DIALOGGING WITH ECD

COMMUNITY LIVELIHOOD CENTRE

The centre comprises of community based enterprises and urban livelihood initiatives. Community gardening and food waste management, allow the surrounding neighbourhood to become more sustainable and economically

resourceful. The urban gardening also contributes to feeding programs linked to the nearby ECD (Early Childhood Development Centre) where they can utilize the new toy library, playground and community kitchen.



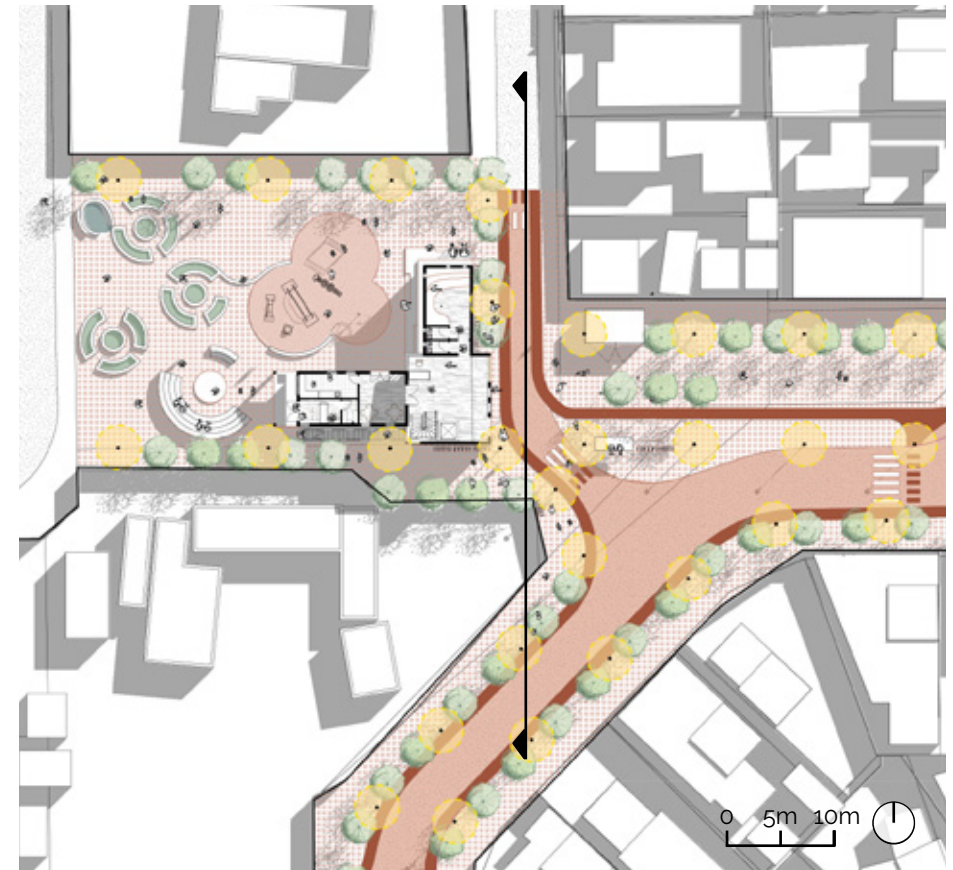
ELEVATION

0 5m



6.4.1 SITE 2: SITE DIALOGGING WITH ECD

PLAN



6.4.2 SITE 2: BEFORE

3D VIEW | APPLE 3D MAPS

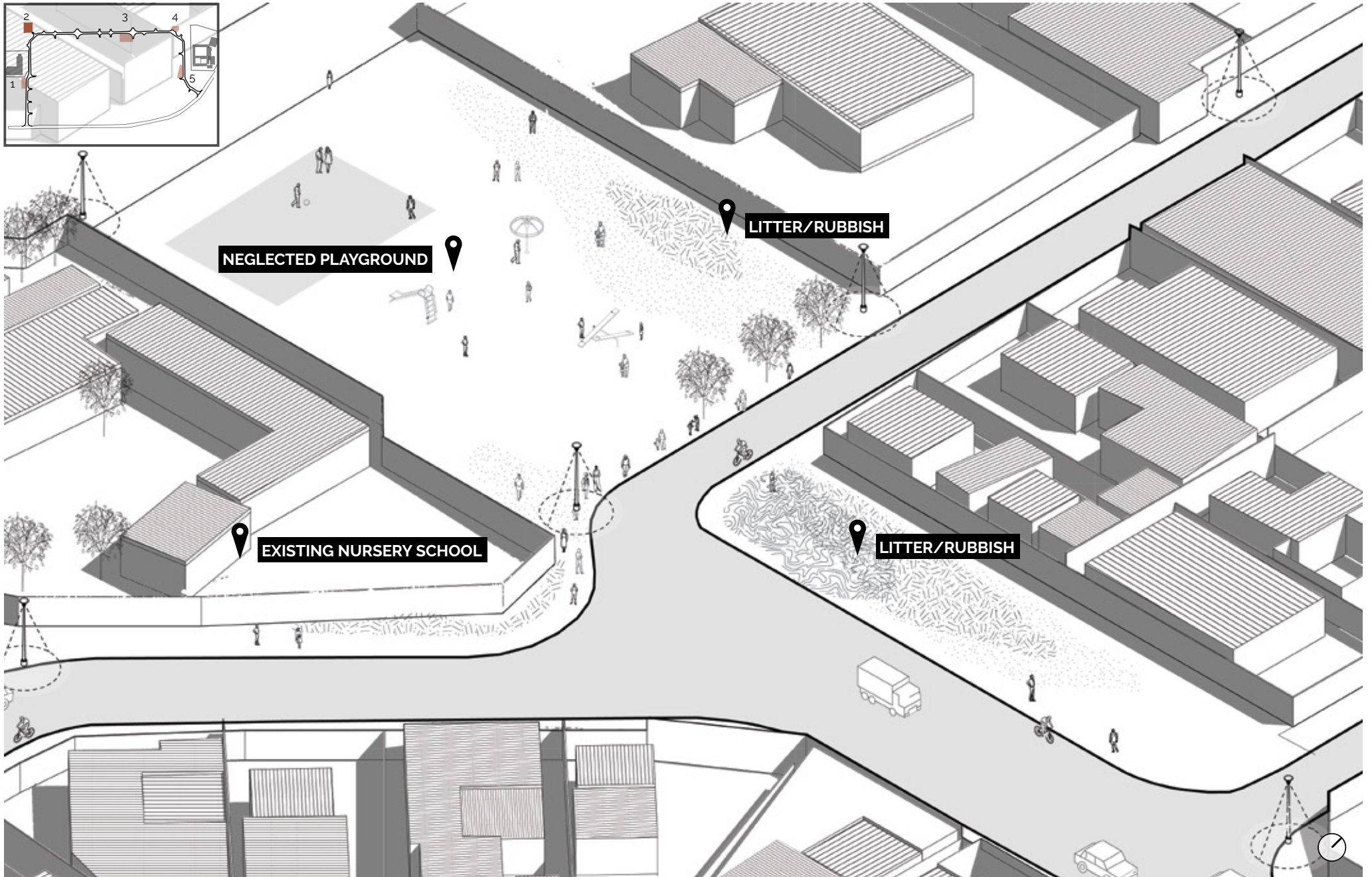


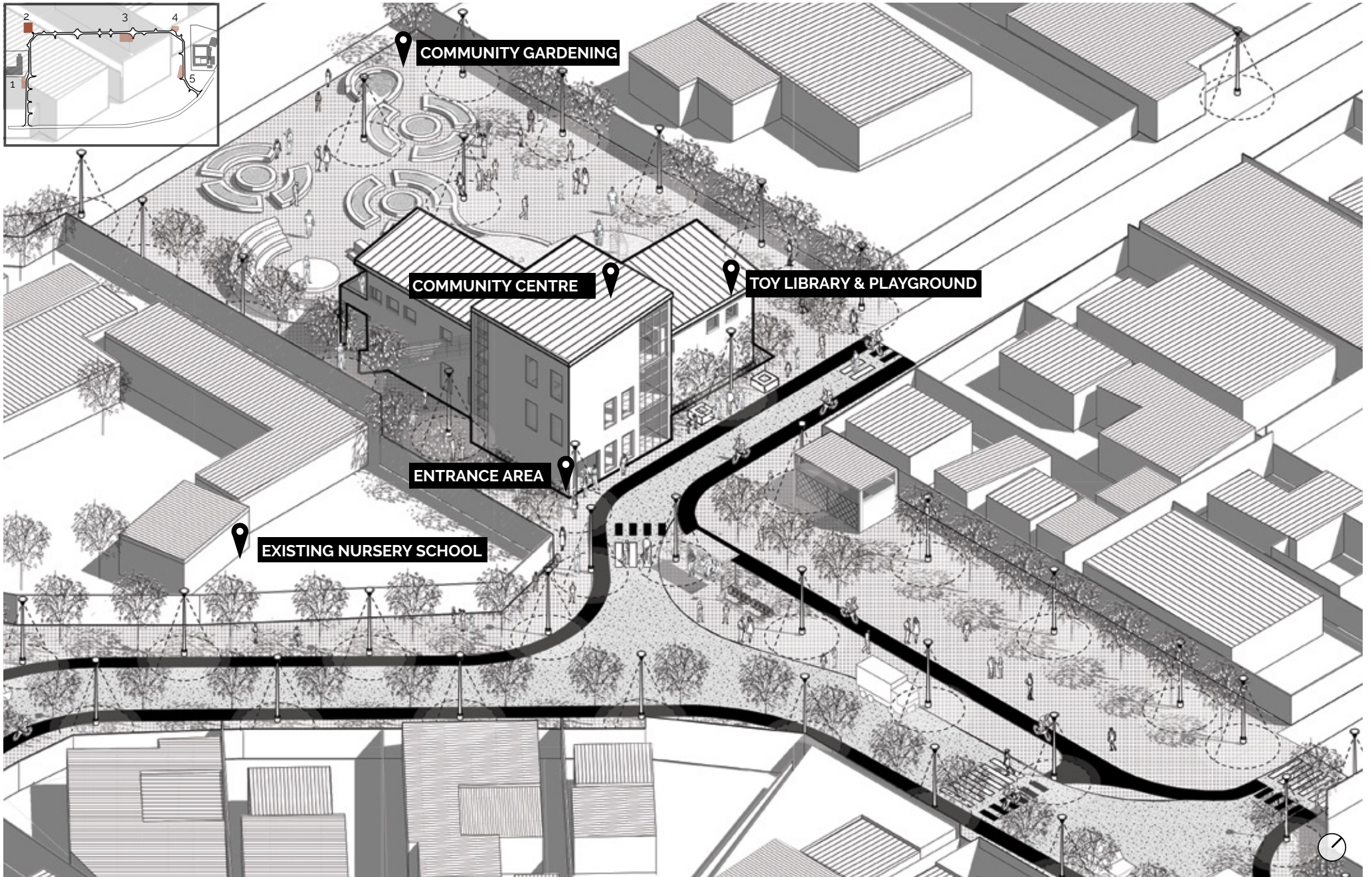
6.4.2 SITE 2: BEFORE

STREET VIEW | GOOGLE MAPS



Figure 72: Playground dialoguing with ECD (Early Childhood Development Centre)









COMMUNITY GARDENING

The community gardening initiatives comprise of urban farming, food waste management, and educational workshops.

- A recycling point, food waste and compost collection point are allocated on site.
- Community food gardens are accessible to all the neighbourhood.
- Workshops are to encourage at home gardening, and run with school learners and the community. They ensure skills development, and create economic opportunities.
- The food garden resources work with the community kitchen as part of a feeding program to the nearby ECD Centre, ensuring young learners get at least 1 meal a day.
- Inside the building, offices host healthy lifestyle guidance workshops.

TOY LIBRARY & PLAYGROUND

A toy library for ECD learners comprises of toys, books and resources for nearby pre-primary schools to utilize. There is also a well lit children's playground, surveyed by the adjacent reception area, community garden and outdoor amphitheatre. The playground is activated by various programs, therefore increasing its safety through varying times within the day.

TOY LIBRARY

COMMUNITY CENTRE

PLAYGROUND

COMMUNITY GARDENING

AMPHITHEATRE

6.4.5 MATERIAL STUDY

COMMUNITY GARDENING AND AMPHITHEATRE

The community garden is made from recycled sand bags to create raised planter beds. This construction technique is a cost effective method to create vegetable gardens as well as seating. This technique can enable skills transfer and be utilized by anyone in the community without a prior need of construction knowledge.

Building with sandbags also creates an amphitheater and staged platform, allowing members of the community to host showcases, performances and community meetings. This technique has been successfully utilized by residents in surrounding informal neighborhoods already, as seen by the photos of the amphitheater build by the community in Khayelitsha, Cape Town.



Figure 73: Construction of the raised planter beds in Khayelitsha, Cape Town



Figure 74: This same method created an amphitheatre and seating

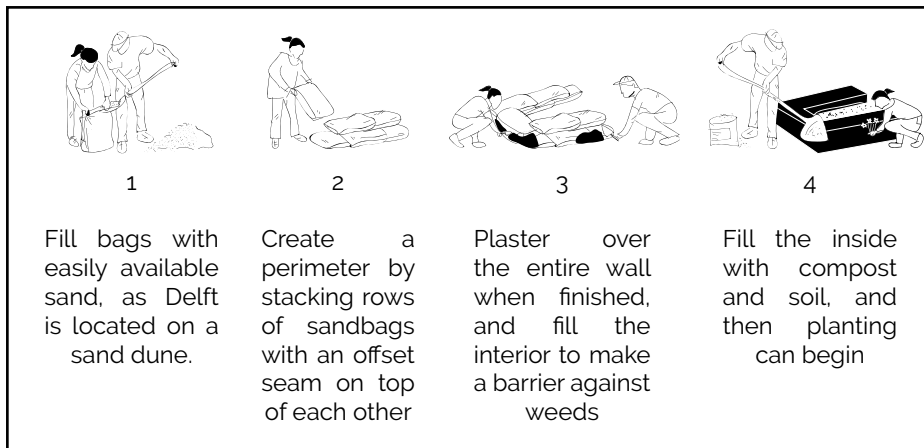
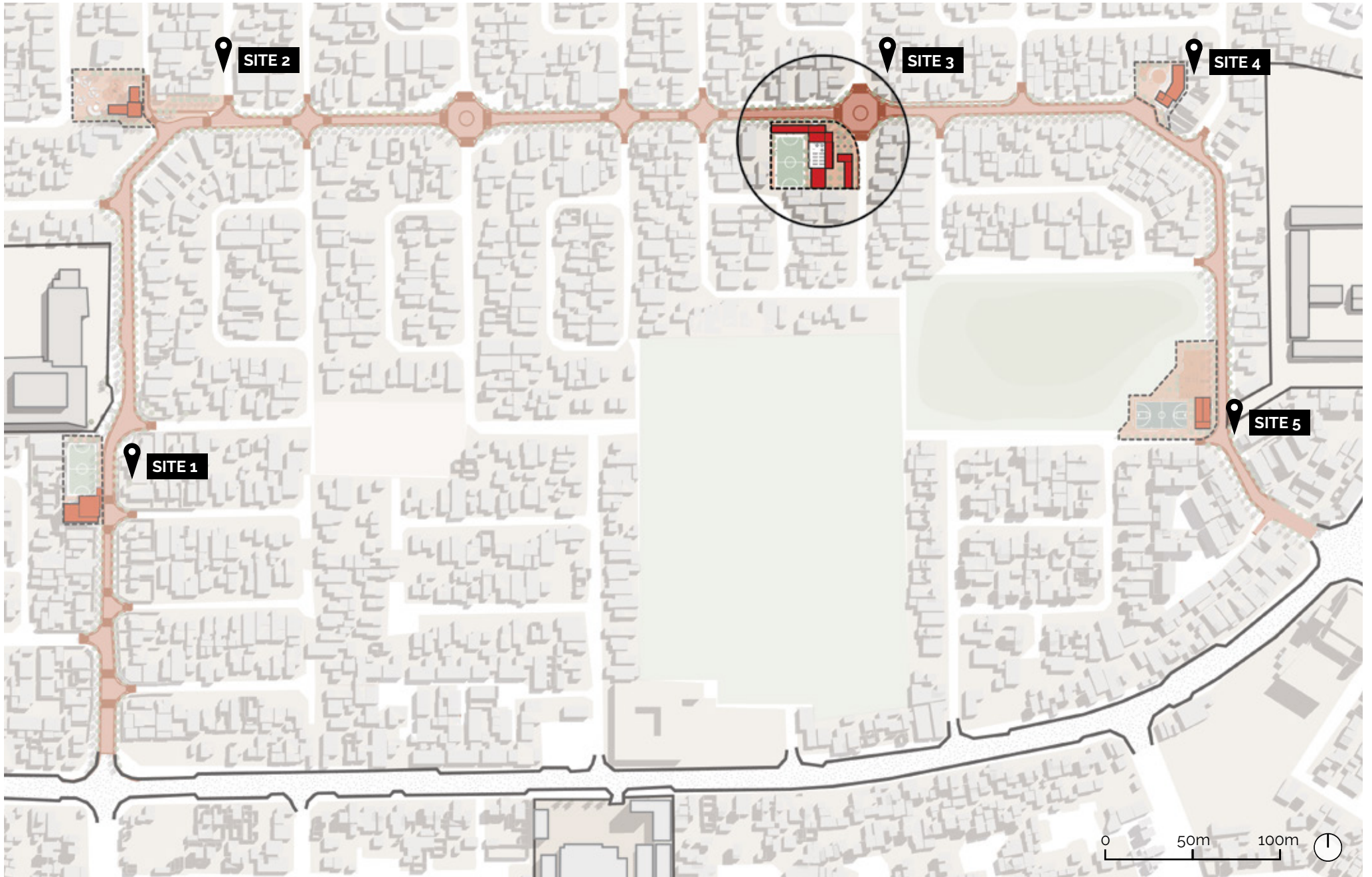


Figure 75: Cost effective method of construction by the community

6.4.5 MATERIAL STUDY



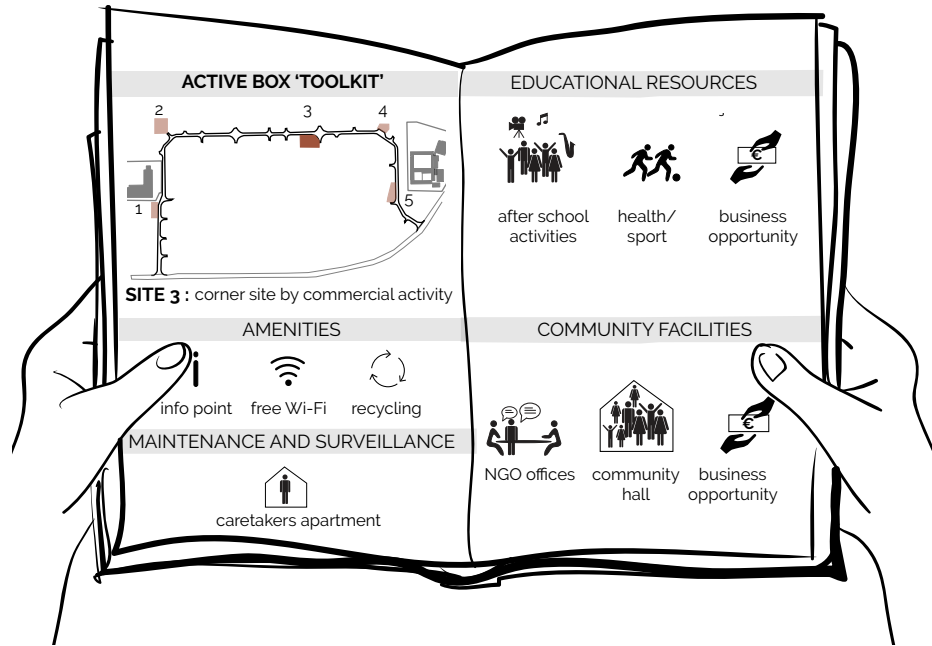


6.5.1 SITE 3: CORNER SITE BY COMMERCIAL ACTIVITY

TRADING & INNOVATION LAB

The facility houses workshops and trading spaces for start-up businesses, NGO's and think-tanks. This acts as a bridge of opportunities between high school learners, and the working world. These spaces spill out onto the

street and contribute to the economic activity already present. Apart from a community hall, there are also studios offering after school activities such as art classes, and tradesman skills.



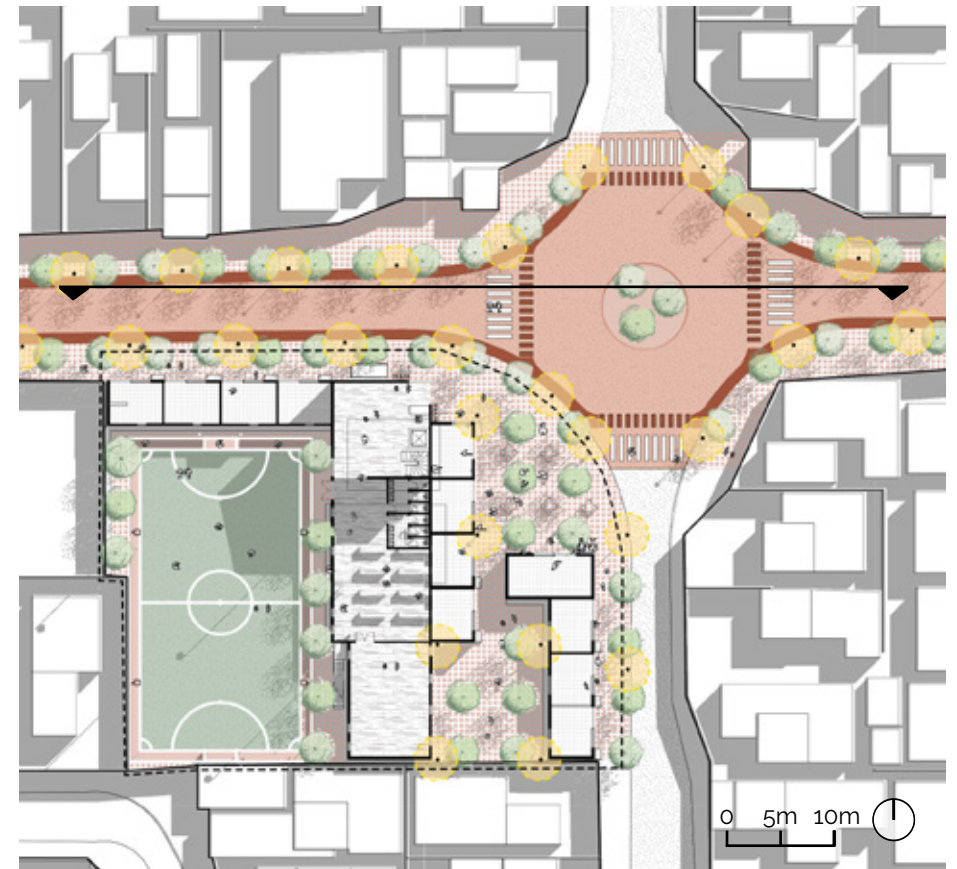
ELEVATION

0 5m



6.5.1 SITE 3: CORNER SITE BY COMMERCIAL ACTIVITY

PLAN



6.5.2 SITE 3: BEFORE

3D VIEW | APPLE 3D MAPS

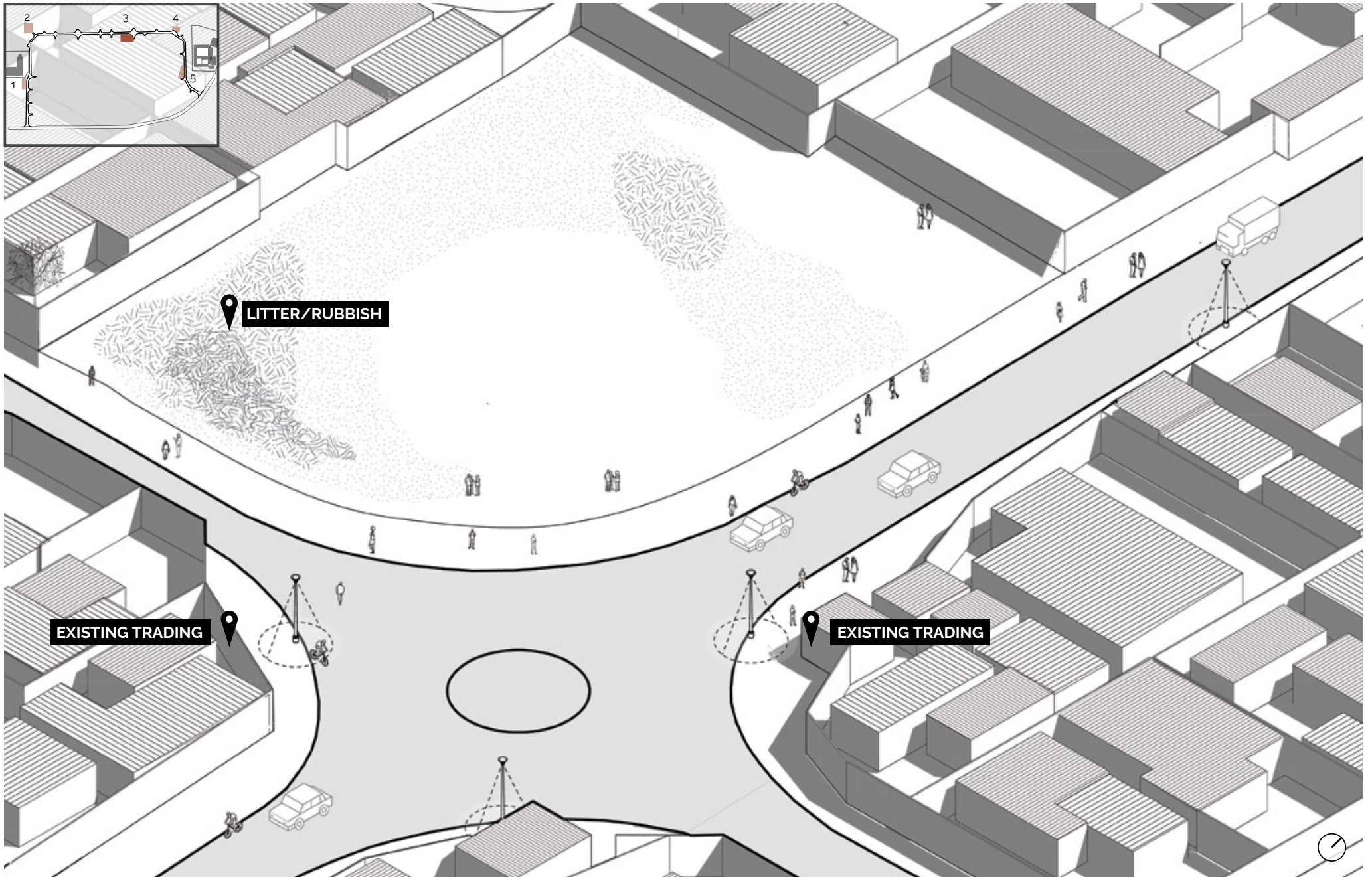


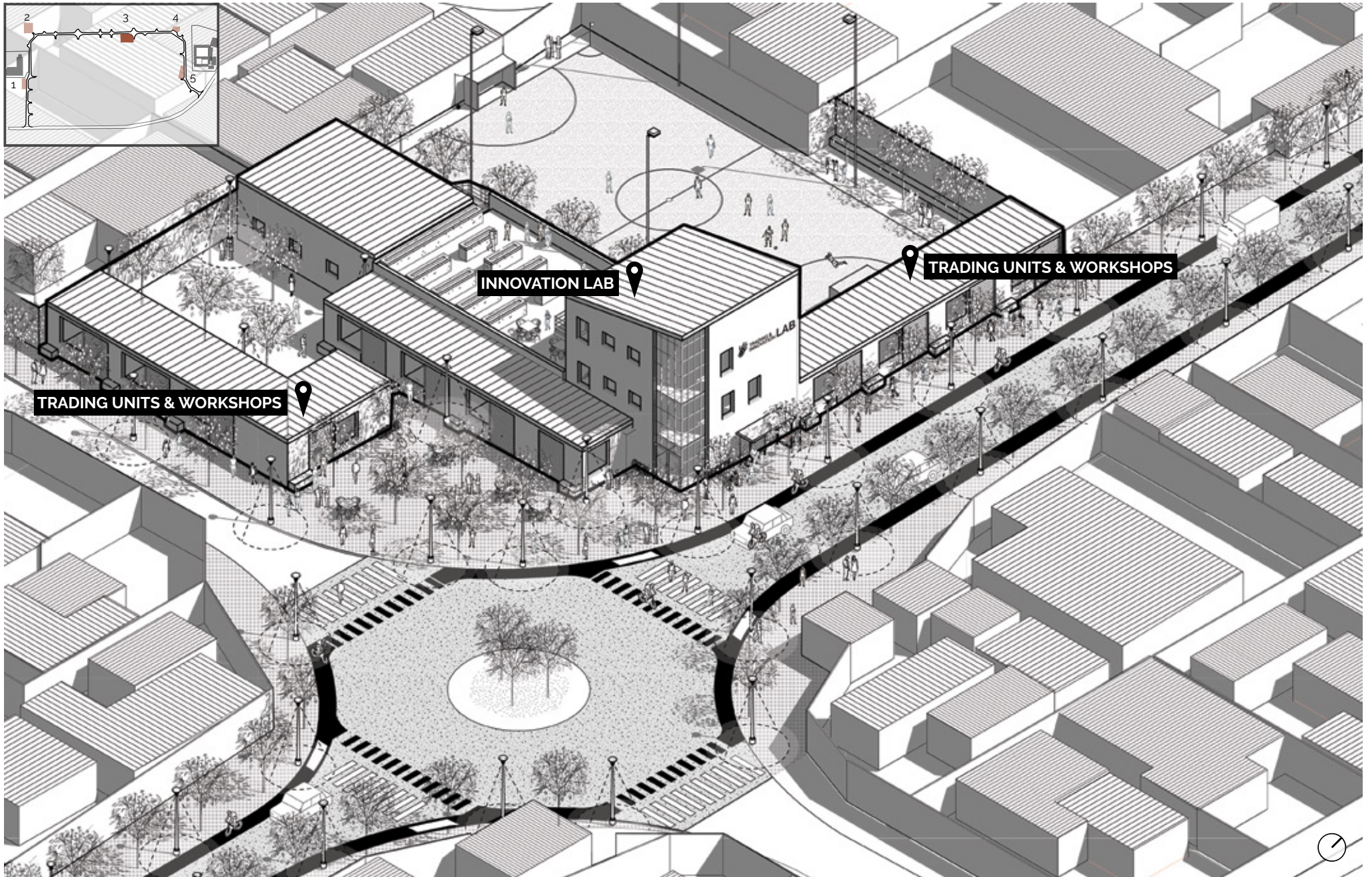
6.5.2 SITE 3: BEFORE

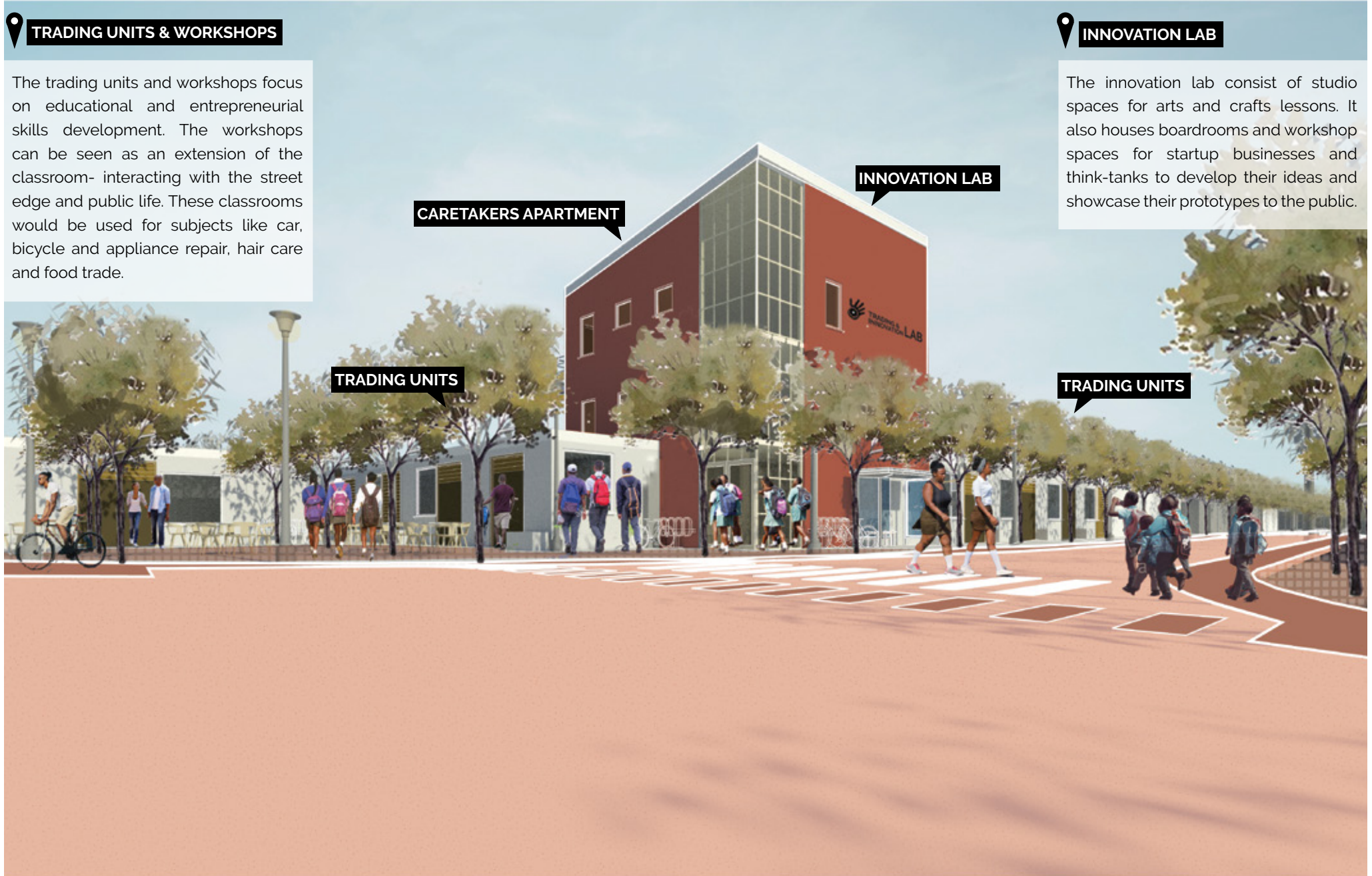
STREET VIEW | GOOGLE MAPS



Figure 76: Corner site by commercial activity







TRADING UNITS & WORKSHOPS

The trading units and workshops focus on educational and entrepreneurial skills development. The workshops can be seen as an extension of the classroom- interacting with the street edge and public life. These classrooms would be used for subjects like car, bicycle and appliance repair, hair care and food trade.

INNOVATION LAB

The innovation lab consist of studio spaces for arts and crafts lessons. It also houses boardrooms and workshop spaces for startup businesses and think-tanks to develop their ideas and showcase their prototypes to the public.



TRADING UNITS & WORKSHOPS

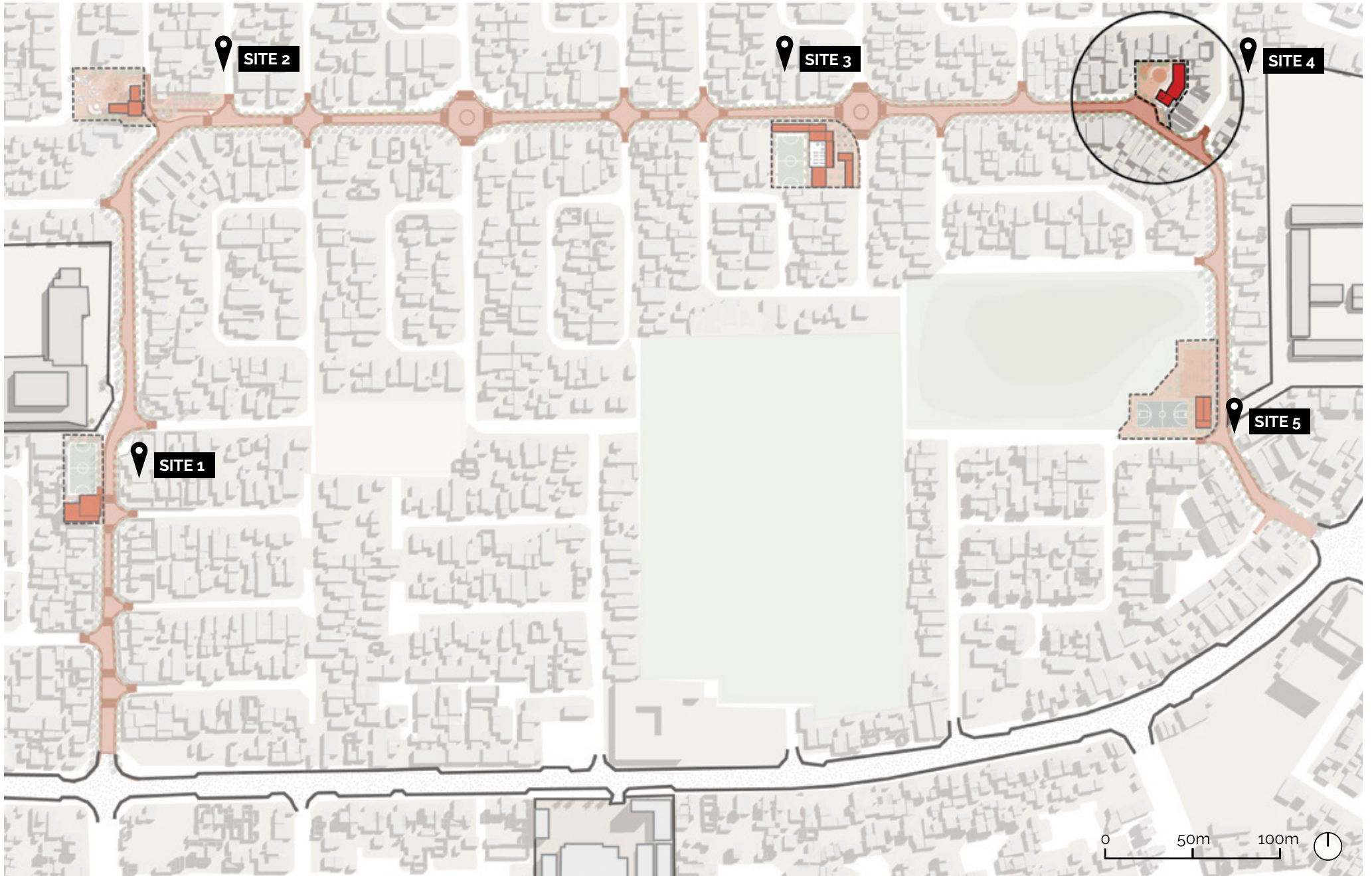
The trading units spill out onto the street, much like the existing economic activity found in Delft. On the corner, the stalls are set back to create a gathering area. This is a social space for the traders, as well as a free Wi-Fi zone with tables for eating, business meetings, and to showcase or sell prototypes.

WORKSHOP/ CAFE

TRADING UNITS

6.6 SITE 4 LOCATION ALONG LOOP ROAD

6.6 SITE 4 LOCATION ALONG LOOP ROAD

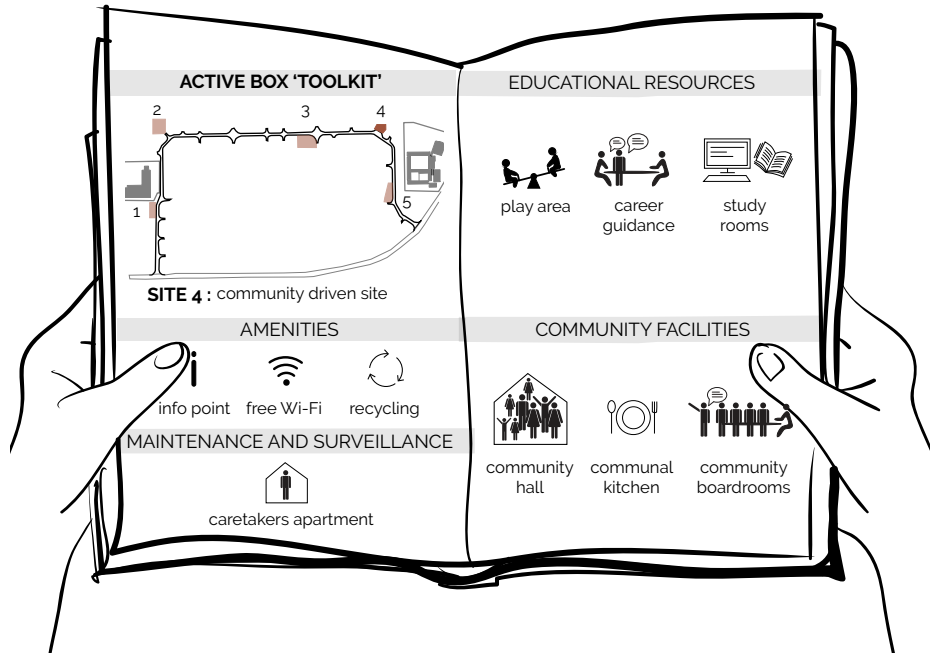


6.6.1 SITE 4: COMMUNITY DRIVEN SITE

DELFT RESOURCE CENTRE

The centre acts as a resource facility for the surrounding residents. Allocated next to an existing church, the new community hall and kitchen, as well as amphitheatre and playground can act

as an extended congregation space. The building also provides additional supportive infrastructure for career guidance, life skills training, and job application proceedings.



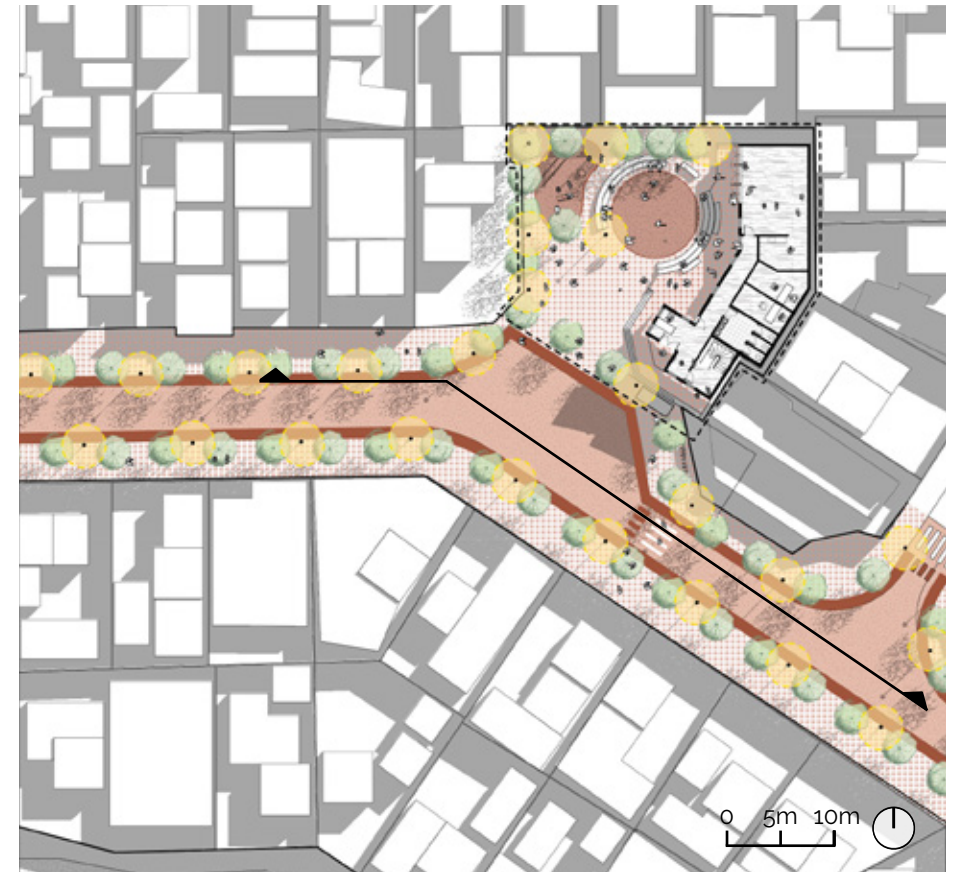
ELEVATION

0 5m



6.6.1 SITE 4: COMMUNITY DRIVEN SITE

PLAN



6.6.2 SITE 4: BEFORE

3D VIEW | APPLE 3D MAPS

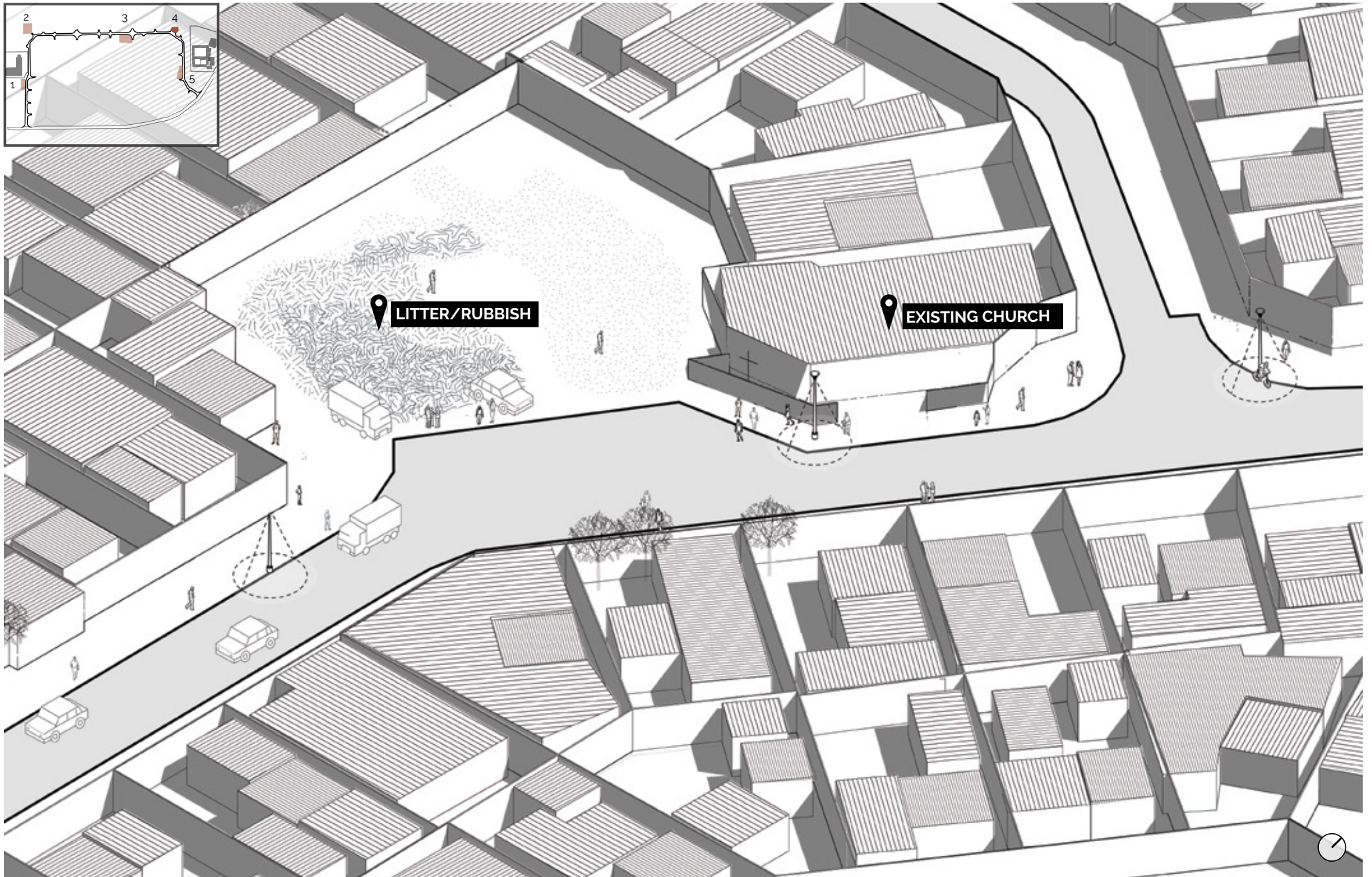


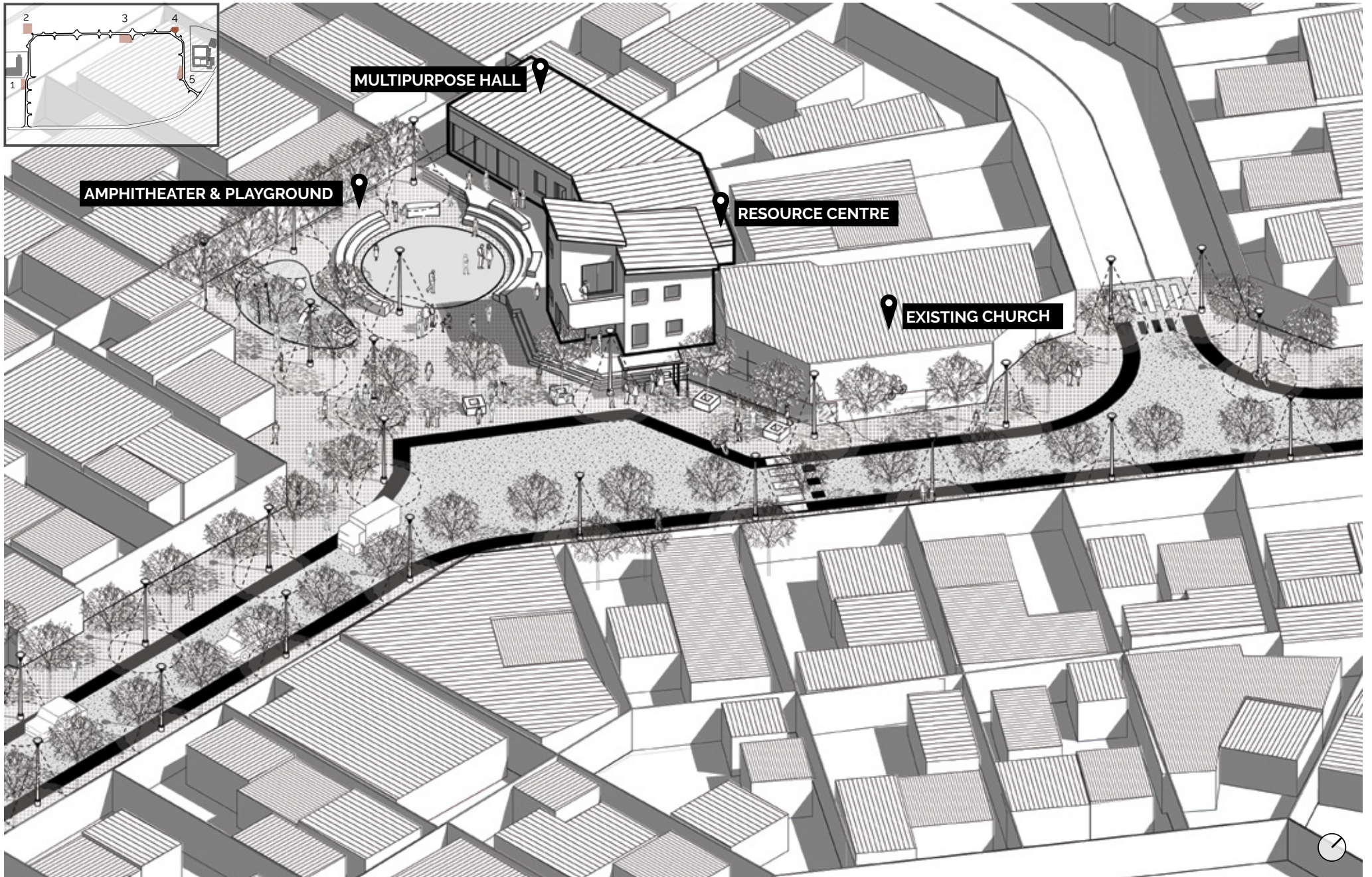
6.6.2 SITE 4: BEFORE

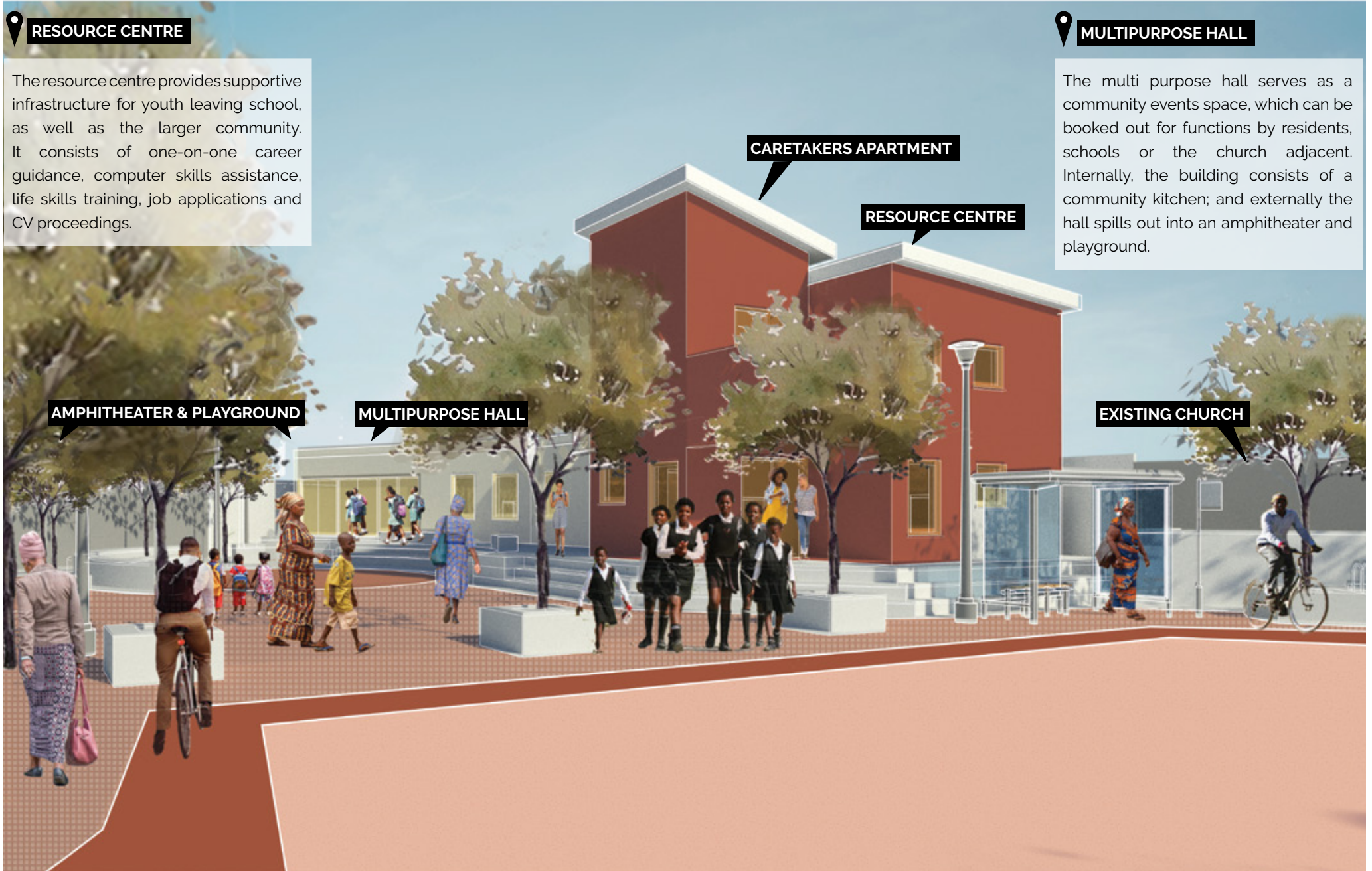
STREET VIEW | GOOGLE MAPS



Figure 77: Community site, within residential fabric and next to an informal church





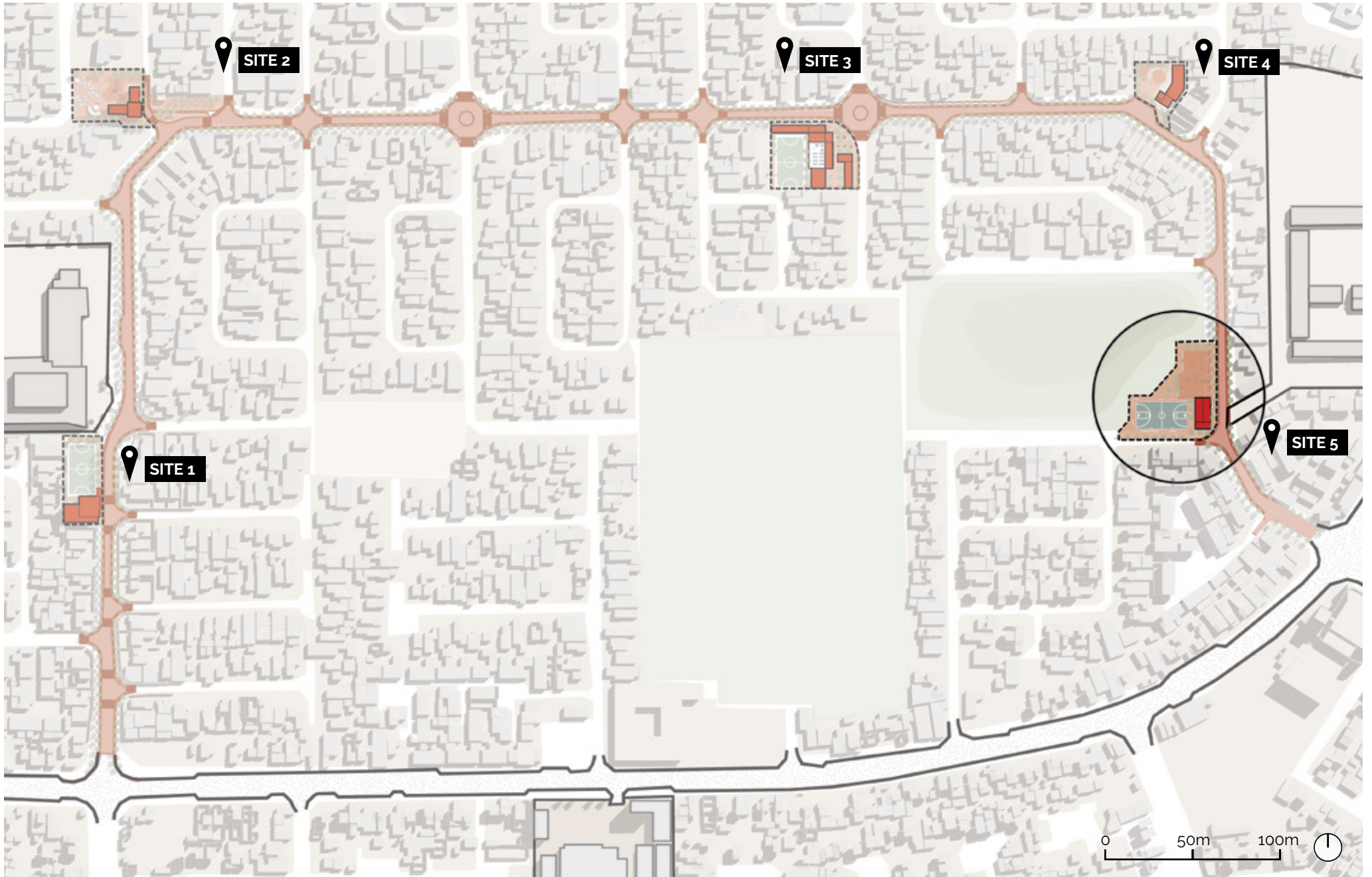


RESOURCE CENTRE

The resource centre provides supportive infrastructure for youth leaving school, as well as the larger community. It consists of one-on-one career guidance, computer skills assistance, life skills training, job applications and CV proceedings.

MULTIPURPOSE HALL

The multi purpose hall serves as a community events space, which can be booked out for functions by residents, schools or the church adjacent. Internally, the building consists of a community kitchen; and externally the hall spills out into an amphitheater and playground.

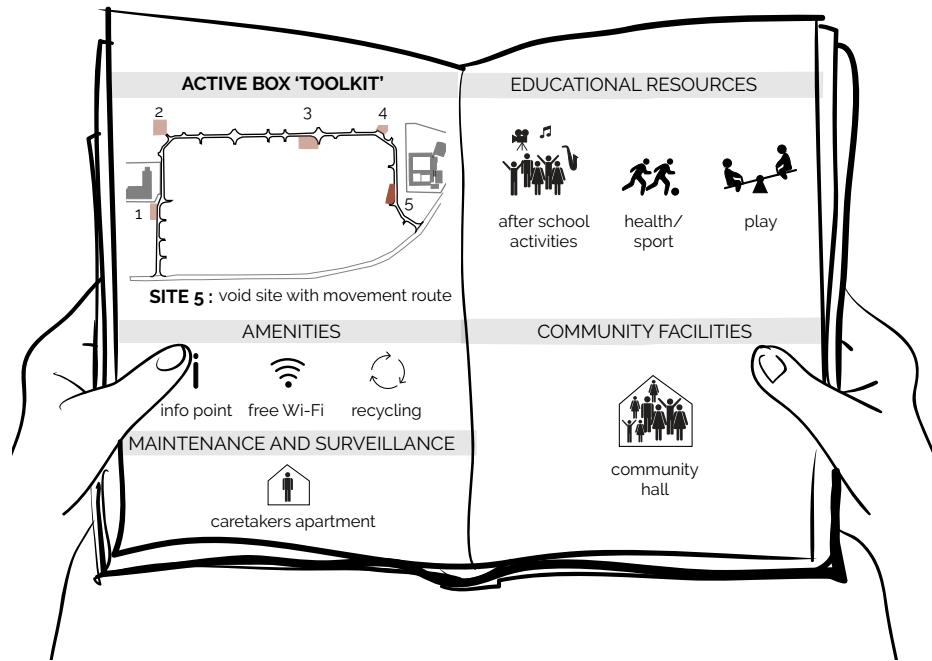


6.7.1 SITE 5: UNACTIVATED SITE PART OF DESIRE LINE MOVEMENT ROUTE

DELFT THEATRE & URBAN PARK

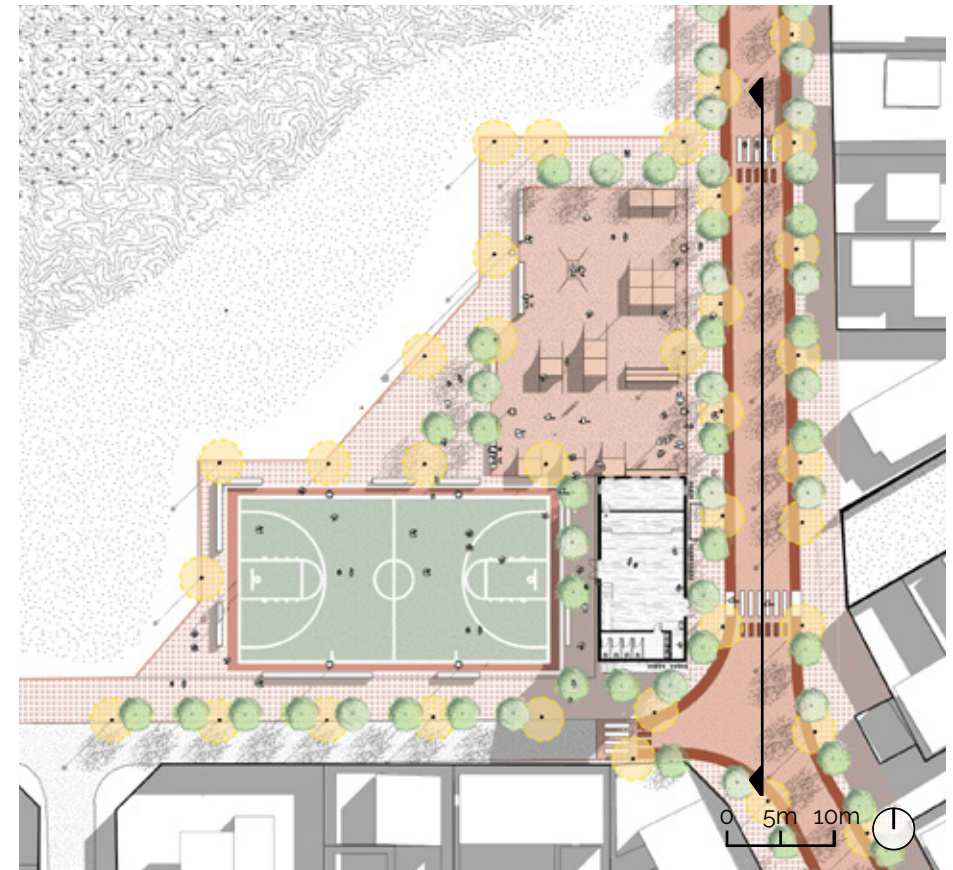
An urban park activates the corner of the void site, and responds to the existing diagonal movement routes which previously took place as a short cut. The intervention consists of a theatre, which

can be used for performances or large community gatherings. On either side of the theatre, the site is activated through a basketball court and skate park.



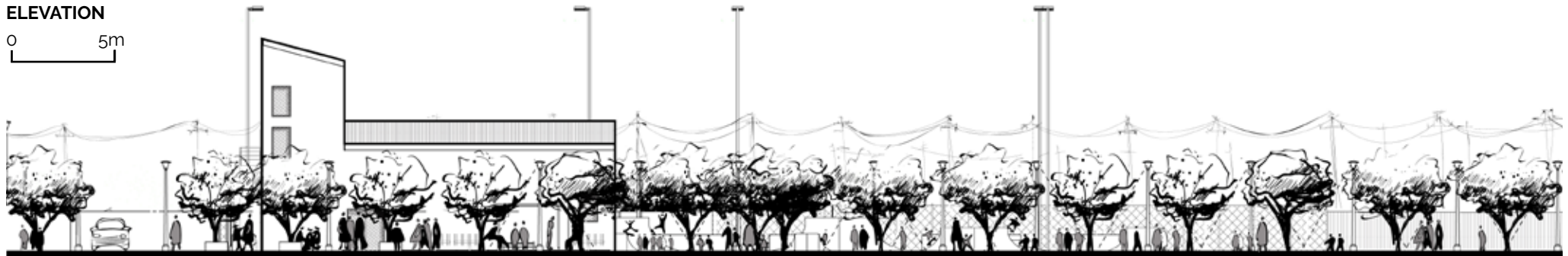
6.7.1 SITE 5: UNACTIVATED SITE PART OF DESIRE LINE MOVEMENT ROUTE

PLAN



ELEVATION

0 5m



6.7.2 SITE 5: BEFORE

3D VIEW | APPLE 3D MAPS

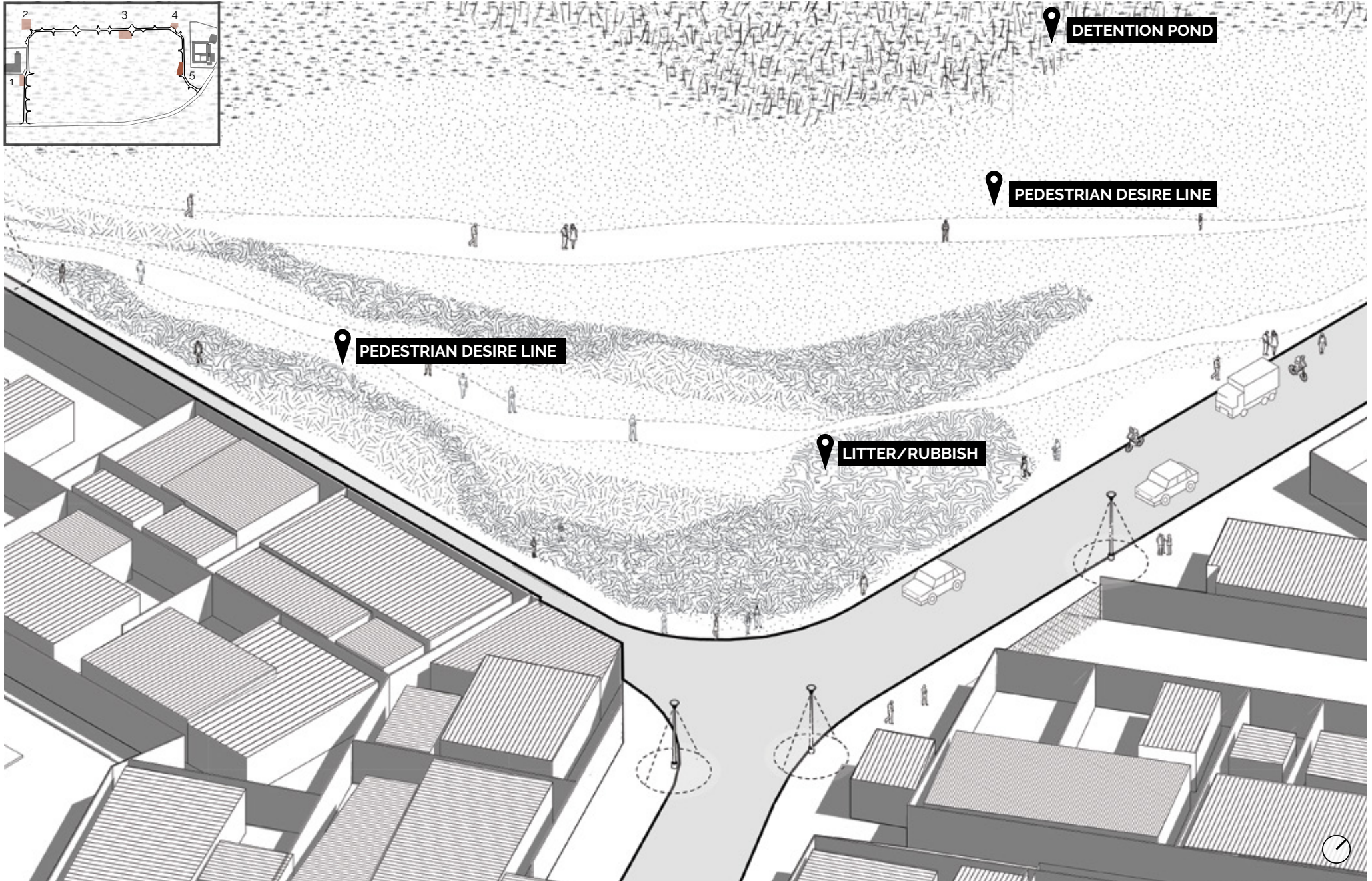
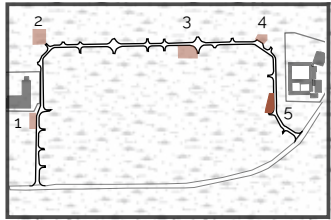


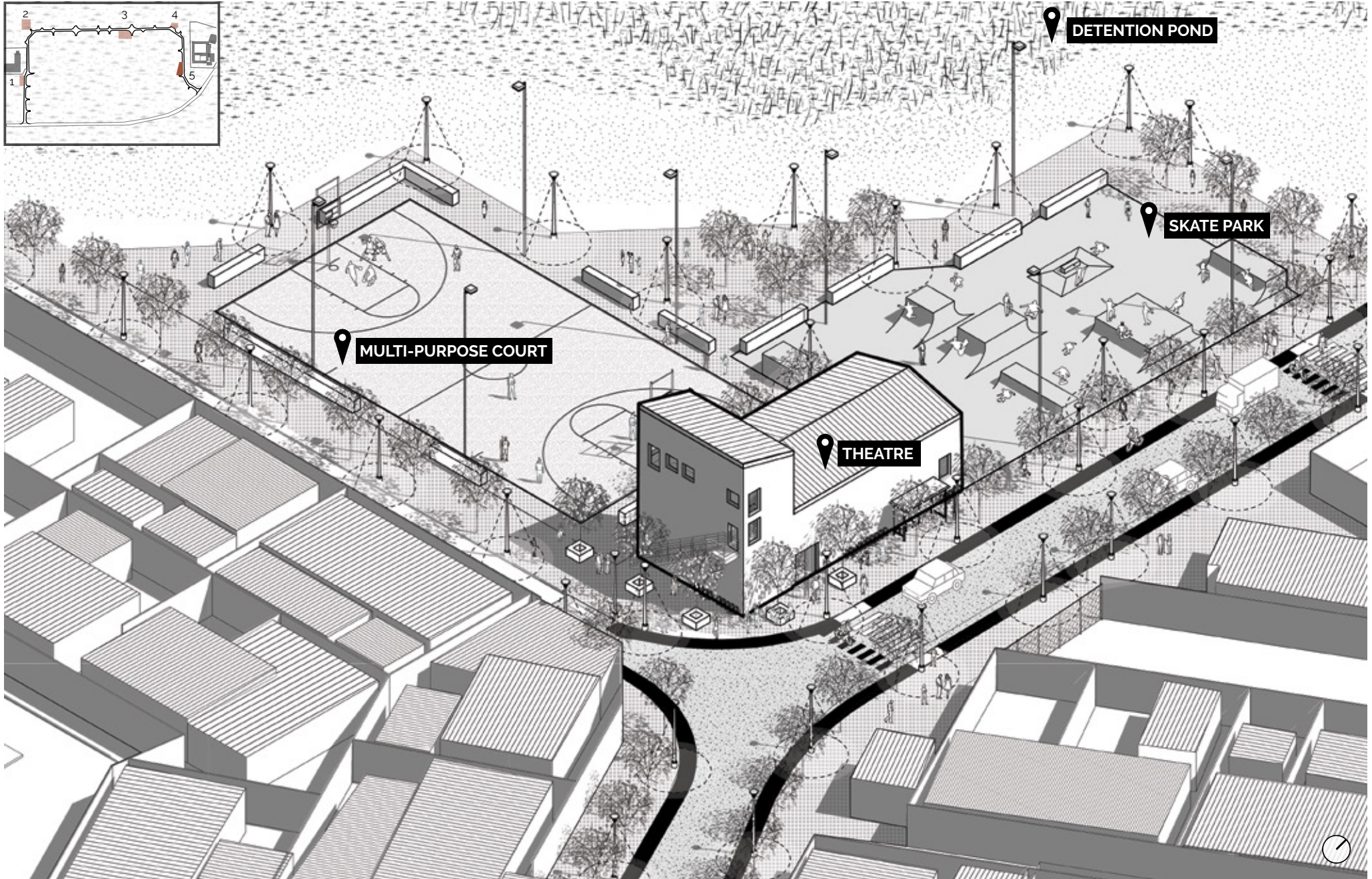
6.7.2 SITE 5: BEFORE

STREET VIEW | GOOGLE MAPS



Figure 78: Unactivated open site where desire line movements cut through







THEATRE

The theatre acts as both performance space for schools to utilize, and a large scale community hall for events and meetings. The theatre can also be used by the existing small church across the road.

SKATE PARK

The urban park includes a concrete skate park, well lit walkway with resting spaces, and a basketball court. The park acts as a recreational attraction point, activating the previously unsafe detention pond adjacent to it.



BASKETBALL COURT/ SQUARE

The basketball court is situated behind the theatre. It can double up in function for sporting purposes, or act as an public square spilling out from the theatre for performances and community meetings.

SKATE PARK

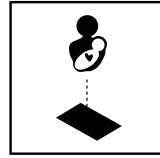
DELFT THEATRE

CARETAKERS APARTMENT

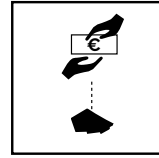
BASKETBALL COURT



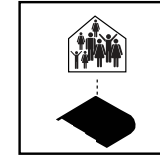
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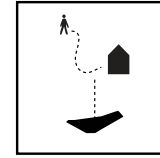
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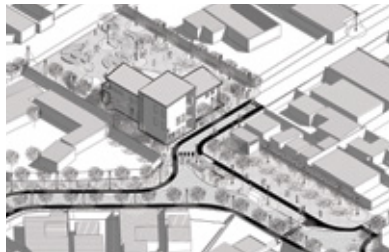
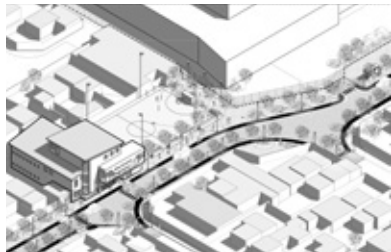
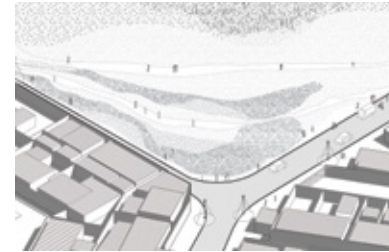
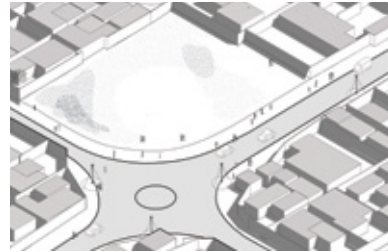
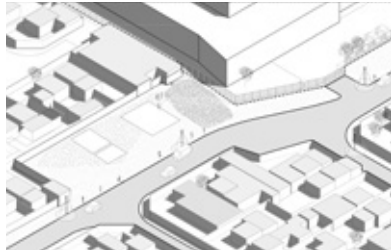
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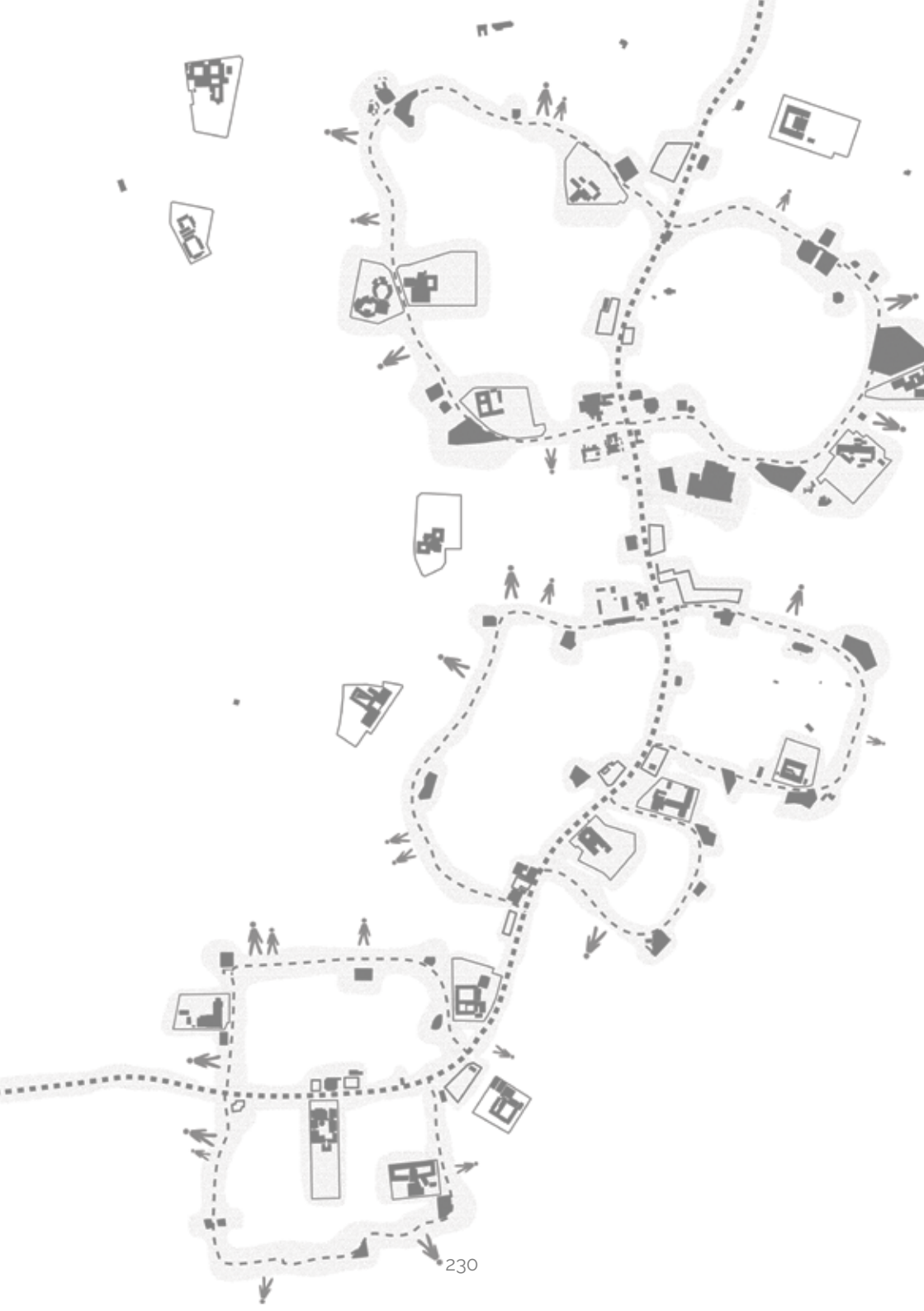


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SITE 5





CONCLUDING THOUGHTS

In conclusion, it is evident that there is a legacy of inequality in South African schools, where educational environments do not offer equal opportunities. I believe it is necessary to engage with the transformation of the educational system in South Africa if one is to see the country move forward and progress.

Focusing on creating public spaces attached to a network of educational programmes, has great potential in regards to benefiting the lives of many people in society. Alongside the persisting inequalities in South African education, it is also noted that private household environments in low-income areas are less resourced. This makes the need for public spaces and public resources even more justified.

The concept of the insular school was therefore challenged and the holistic educational model was put forward so that mono-functional elements could be expanded to multi-functional spaces in order to engage the whole community. It is within these dynamic environments where opportunities facilitating a broader process of learning and exchange can arise. Subsequently, this can represent a great opportunity for spatial transformation, social mobility and socio-economic change in the country.

When working with such large-scale issues, it is important to establish strategic and pragmatic solutions. The urban and architectural outcome of this research-by-design thesis aims to challenge current educational practices through theoretical and pragmatic solutions. Through this, I hope to begin to engage with approaches that could tackle these issues and create a discussion about South Africa's transformation; a transformation that views education beyond the boundaries of the school.

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REFERENCES:

- [1] Edgar A, Pieterse, Epistemological Practices of Southern Urbanism, African Centre for Cities, University of Cape Town, 2014
- [2] "Global Campaign for Education', last modified 2020, accessed March 3, 2021, <https://campaignforeducation.org/en/>
- [3] Jonathan Jansen and Molly Blank, How to Fix South Africa's Schools: Lessons from Schools that Work, (Bookstorm), 2014
- [4] South African History Online, 'Congress of the People and the Freedom Charter', accessed 8 March 2021, <https://www.sahistory.org.za/article/congress-people-and-freedom-charter>
- [5] Aryn Baker, 'What South African can teach us as worldwide inequality grows', TIME, last modified 2 May, 2019, accessed 8 March 2021, <https://time.com/long-form/south-africa-unequal-country/>
- [6] David Simon and A. J. Christophe, "The Apartheid City", Institute of British Geographers (IBG), Vol.16, No.1(June 1984), 60-62
- [7] Thompsell, Angela. "How the State Assigned Race Under Apartheid." ThoughtCo, last modified 1 September 2020, accessed 27 January 2020, www.thoughtco.com/racial-classification-under-apartheid-43430
- [8] Amanda Uren, 'Signs during Apartheid', Mashable, accessed 8 March, <https://mashable.com/2015/06/20/apartheid-south-africa-signs/?europa=true>
- [9] Adrian Frith, 'Dot Map of South Africa', Dot Map Race, population data from Census 2011 and Statistics South Africa, last modified 2011, accessed 8 January 2021, <https://dotmap.adrianfrith.com>
- [10] Iain Low, "Space and Transformation: reflections on the Cape schools programme", in Counter Currents: Experiments in Sustainability in the Cape Town Region (Cape Town, Jacana Media, 2010), 202 – 215
- [11] N Mouton, "A Historical Analysis Of The Post- Apartheid Dispensation Education In South Africa (1994-2011)", International Business & Economics Research Journal #11, no.11 (Northwest University, South Africa, November 2012), accessed on 5 September 2020
- [12] PUBLIC, PRIVATE OR MODEL C: WHICH SCHOOL IS BEST?, School Guide, accessed on 1 March 2021, <https://www.schoolguide.co.za/guide/primary/entry/primary/public-vs-private-which-school-is-best.html>
- [13] Fiona Anciano, "COVID-19 exposes South Africa's unequal schooling system", London School of Economics, last modified May 29 2020, accessed 9 March 2021, <https://blogs.lse.ac.uk/africaatlse/2020/05/29/covid-19-south-africa-unequal-schooling-education-system-inequality/>
- [14] "CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA", STATUTES OF THE RE-

REFERENCES:

- PUBLIC OF SOUTH AFRICA-CONSTITUTIONAL, NO. 108 OF 1996, last modified 18 December 1996, accessed 9 March 2021, <https://www.gov.za/sites/www.gov.za/files/images/a108-g6.pdf>
- [15] Nicole Breen, "OPINION | A (new) lockdown tale of two school systems: Segregation in the right to basic education", News 24, last modified 29 July, 2020, accessed 9 March 2021, <https://www.news24.com/news24/columnists/guestcolumn/opinion-a-new-lockdown-tale-of-two-school-systems-segregation-in-the-right-to-basic-education-20200727>
 - [16] Qodashe, Zoleka, 2020, "All schools must close: Cosas", SABC News, 27 July 2020, accessed (March 2021, <https://www.sabcnews.com/sabcnews/all-schools-must-close-cosas/>
 - [17] Douglas S. Masey and Nancy A. Denton, American Apartheid: segregation and the making of the underclass, (Harvard University Press, 1993).
 - [18] MLH Architects & Planners, Blue Downs-Delft: Structure Plan, Cape Town (1987).
 - [19] Collective Mapping from Space of Good Hope Studio at University of Cape Town, 2018
 - [20] "WCED Find-a-School", WCED Education Management Information System, last modified March 2018. <https://wcedemis.westerncape.gov.za/wced/findaschool.html>.
 - [21] "The 2017 National Senior Certificate Schools Performance Report", Department of Basic Education RSA , last modified, 2018 March, <https://www.naptosa.org.za/whatsnew/2381-2017-national-senior-certificate-analysis-reports>.
 - [22] "MLH Architects & Planners", Blue Downs-Delft: Structure Plan, Cape Town (1987).
 - [23] "MLH Architects & Planners", Delft South: An Amendment to the Blue-Downs Delft Local Structure Plan, Cape Town (1995)
 - [24] Collective Mapping from Space of Good Hope Studio at University of Cape Town, 2018
 - [25] "Active Boxes", Violence Prevention Through Urban Upgrading, accessed 10 March 2021, <http://vpuu.org.za/safe-node-area/active-boxes/>
 - [26] "Active Boxes", Violence Prevention Through Urban Upgrading, accessed 10 March 2021, http://vpuu.org.za/wp-content/uploads/2018/02/18010g_VPUU_ACTIVE-BOX-PACKAGE.pdf
 - [27] Lynch, Kevin. The Image of the City. The MIT Press, 1960
 - [28] "City Map and Zoning Viewer" City of Cape Town, last modified 2021, accessed 8 March 2021, <https://www.capetown.gov.za/work%20and%20business/planning-portal/online-planning-and-building-resources/online-zoning-viewer>

REFERENCES:

- [30]** Krause, Michael. 'Violence Prevention through Urban Upgrading (VPUU): Co-create safe and sustainable neighbourhoods to improve the quality of Life', PowerPoint Presentation, 16 April 2018, University of Cape Town
- [31]** "Usasazo Secondary School" *Wolff Architects*. accessed 10 March 2021, <http://www.wolffarchitects.co.za/projects/all/first/>
- [32]** AbdouMaliq Simone. "People as infrastructure: intersecting fragments in Johannesburg. Public Culture", *Public Culture*, 16(3), 407-429. ISSN 08992363 2004
- [33]** Jo Noero Architects, *Jo Noero : the everyday and the extraordinary : three decades of architecture*, (Vlaeberg, South Africa: ADA Pub, 2009)
- [34]** Asef Bayat, *Un-civil society: The politics of the "informal people."*, (Third World Quarterly, 1997)
- [35]** "Delft Daycare Centre". *Noero Architects*. 2015, accessed 10 March 2021, <http://www.noeroarchitects.com/delft-day-care-centres/>