

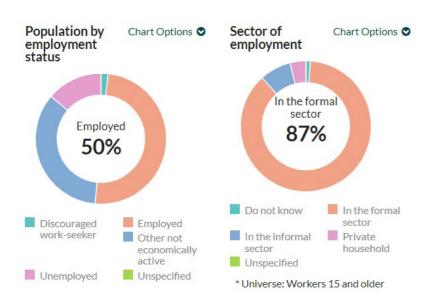
In the process of assessing the feasibility of development on our site, there are several aspects we had to investigate and the different outcomes were used to guide the aims, objectives and the overall type of development that was further proposed. Our site is located in Gauteng towards the west of Johannesburg in Kagiso, Krugersdorp.

The R41 corridor leading to the site has multiple industries and towards the North of Kagiso you have Chamdor which is one of Africa's biggest Fabric warehouse. This gave an idea that the site has some economic nodes close by which are easily accessible through the Leratong taxi rank next to the Hospital 3km away from our site.

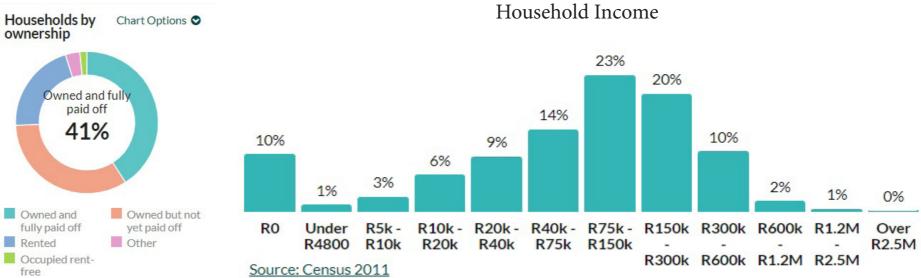
A high influx of backyard dwellings was also observed in neighborhoods surrounding the site and in areas beyond like Tshepisong and Leratong Village which is an informal settlement.

The feasibility study also had a look at employment, household ownership and household income in order to trey and get the social context of the area to guide our aims and objectives. This was also done to try and deduce the demand for different land uses that might be proposed on the site. The household income levels exposed that the area is of middle income but it has quite a number of people earning below average to earning nothing.

The feasibility also assessed the physical elements (the slope of the site), existing land uses (schools, churches, mall, police station and provincial archive center). This assessment also included bad odours on the site, litter and waste dumped all over the site.





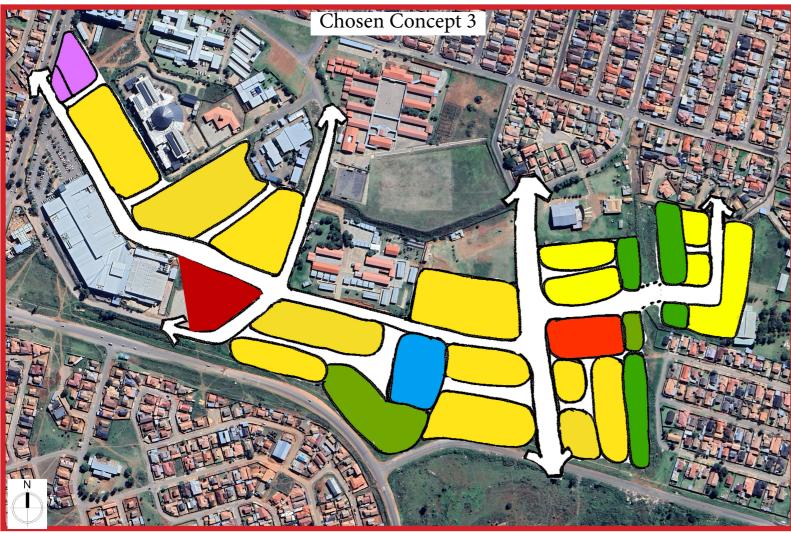


The brief requested 500 residential units minimum and from the feasibility we could gather that there was a need for more cheaper housing on the site. Proving affordable housing therefore become one of the main objective, the provision of a smaller taxi rank was influenced by the fact that within the mall and at the entrances of the mall they exist but they do not have proper infrastructure. Due to the limitation of the size of our site, I had planned to bring about a variety in building form and building types.

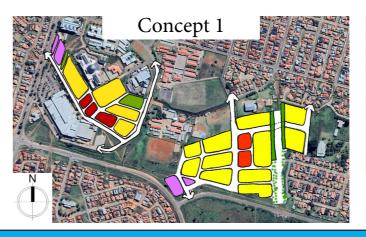
Greater priority will be given to permeability and mobility to ensure for a highly walkable and permeable precinct by foot or vehicle. This will accompanied by detailed street design that allows for social interactions and green streets to minimize heat on the environment and provide shade on the streets.

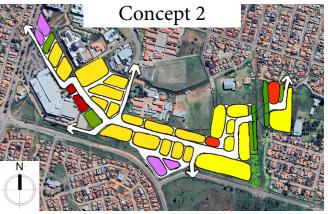
In order to try and put these ideas on a paper I created 3 different concept which best respond to my objectives in different ways. As pointed out by Lynch (1960), a wellconceived concepts s a unifying framework for an urban design project, offering a clear vision of the intended spatial structure, land use, and the overall urban environment. The third chosen concept proved to be more permeable and efficient in land us allocation. Even though it utilizes the school field south of the school, student will be allocated the field north of the school to share with the other school that is towards the north. The concept also includes a small park available to everyone and is close to the community center meant to provide A level computing facilities for the youth in the area.

Land Use	
Residential	
Business 3	
Business 1	
Community Centre	
Small Park	
Public Open Space (Non Active)	
Public Open Space (Active)	
Transportation Node	
Vending Stalls	
(High Density) Residential	



SWOT	OBJECTIVE	PRINCIPLES
Kagiso presents an opportunity to provide more stock of low-cost housing in the area.	Balance the company's requirements, considering affordable housing, and providing housing that supports and sustains life.	Justice and efficiencyLiveability
The western and eastern sides of the site are disconnected.	Provide a coherent flow within the whole site, with a clearly defined spine through the whole site.	Linkage theoryPermeability
There is a floodplain on the site	Instead of isolating the stream plain, find a creative way to turn it into an active communal space.	'Green Ways - Public Ways.'
The site's closest transport node is within the mall	Provide a Transportation node within the vicinity of the new different uses.	Liveability
The site is high-access but has low mobility	Take this opportunity and consider more pedestrian-friendly walkways during the day and the nighttime.	 Connections, convenience, Convivial, comfortable, Conspicuousness Serial vision
The site and the area around do not have a lot of high-rise buildings	Go beyond one-floor development and ensure the integration of different uses in the same building where possible.	Mixed-useVariety
Existing street frontages are not active	Activate frontages of the new development which will ass life and vitality to the public realm.	Active frontage
Social spaces belong to nearby institutions	Incorporate more social/recreational and public open spaces within the residential spaces open for everyone.	Social Spaces





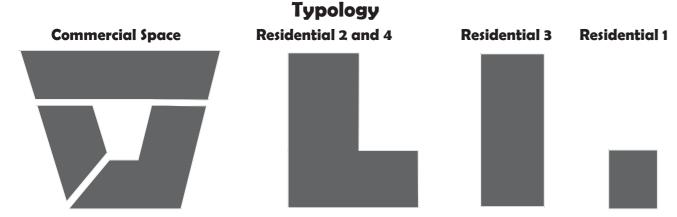
Principles such as **serial vision** speak to arrangement of visual elements in a sequence, often along streets or pathways, to guide people's views and create a sense of place, which is what was done by connecting most roads to existing streets.

Permeability speaks to connections created on the site, such as well-planned road networks, pathways, and public transportation systems, which ensure that people can easily access different parts of our site.

Green-ways incorporate natural elements, such as trees, plants, and green spaces, which help mitigate urban heat, reduce air pollution, and support biodiversity. They contribute to a more ecologically sustainable urban environment.

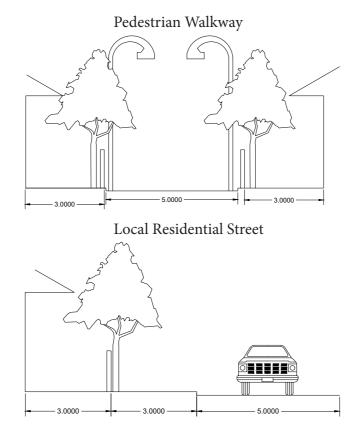
Livability is a principle about enhancing the quality of life for residents occupying different spaces. A focus on factors like clean air, green spaces, access to amenities, and reduced congestion can lead to a higher standard of living.

Linkages help establish physical and visual connections between various parts of a city. This connectivity is vital for creating a well-integrated urban environment where people can easily move from one place to another, whether by foot, bike, public transit, or private vehicle



The limits and controls of the Mogale Land Use scheme guided our development and its' microscopic technicalities from the FAR, the type of land uses, secondary land uses and the flexibility of some restrictions.

The different **typologies** selected for different uses were meant to have a unique impact for each land use. Commercial typology was meant to create an economical space within and on the edges of the buildings with amenities like Restaurants, Cafes and Coffee shops. Residential 2 and 4 typology was meant to provide a sense of privacy for its residents and a backyard away from the roads. For Residential 3 a rectangular typology made sense due to less plot sizes which was also going to allow for decent parking space and communal spaces.



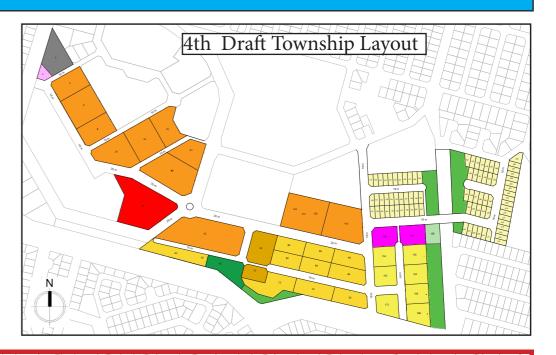
				5 145 16		
Erf Number	Zoning	Primary Use	Secondary Use	Prohibited Uses	Controls	
1	Transportation Node (Industrial 1)	Taxi Holding Area Taxi Rank Public Garage Filling Station	Dwelling Unit Private Club Private Open Space Public Open Space Service Enterprise Noxious Use and Risk Activity Any use not mentioned under primary, secondary.		COVERAGE: 85% FAR : n/a HEIGHT : n/a	
2	Vending Stalls (Industrial 1)	Informal Trading Place Kennels Drive-through Restaurant	Private Open Space Public Open Space Service Enterprise	Noxious Use and Risk Activity Any use not mentioned under primary, secondary.	COVERAGE: 85% FAR : n/a HEIGHT : n/a	
72 - 119	Residential 1	Dwelling House	Boarding house Bed and Breakfast Children's home Commune Crèche Educational center Guest house Gymnasium Internet café	Noxious Use and Risk Activity Any use not mentioned under primary, secondary.	COVERAGE: 60 – 65% FAR : n/a HEIGHT : 2 storey UNITS/ha : 50 One/erf area: 200 m ²	
65 - 71	Residential 2	Dwelling Units Dwelling Houses	Clause 17" applicant shall, submit a written motivation detailing the nature of such application and shall be accompanied by such supporting documents as may be required. Noxious Use and Risk Activity Any use not mentioned under primary, secondary		COVERAGE: 50% (flexible) FAR : 0.8 (residential), 0.5 (other) HEIGHT : 2 storey UNITS/ha : 20 - 40	
12 18 - 26	Residential 3	Dwelling houses Dwelling Units Flats	•" Clause 17" applicant shall, submit a written motivation detailing the nature of such application and shall be accompanied by such supporting documents as may	Noxious Use and Risk Activity Any use not mentioned under primary, secondary	COVERAGE: 50% (flexible) FAR : 1 HEIGHT : 3 storey UNITS/ha : 41 - 60	
			be required.			
3 – 10 12 – 13	Residential 4	Dwelling Units Flats Town Houses	Clause 17" applicant shall, submit a written motivation detailing the nature of such application and shall be accompanied by such	Noxious Use and Risk Activity Any use not mentioned under primary, secondary	COVERAGE: 60% (flexible) FAR : 1.5 HEIGHT : 4 storey UNITS/ha : 60 >	
27 – 28			supporting documents as may be required.			
16 - 17	Community Centre	Educational Use Educational Centre Rehabilitation Centre Social Hall	Municipal Use Dwelling House Government Purpose	Noxious Use and Risk Activity Any use not mentioned under primary, secondary	COVERAGE: 60% FAR : As approved by municipality HEIGHT : 4 storey	
62 – 63	Business 1 (Retail)	•Shop • Restaurant	Commercial use Public garage Parking garage Special use	Noxious Use and Risk Activity Any use not mentioned under primary, secondary	COVERAGE: 95% FAR : 5 (shop) 2 (commercial) HEIGHT : As may be approved by the Municipality	
11	Business 3 (Mixed Use)	Shop Retail Offices, which may include professional uses Fitment centre	Public Garage Filling Station, Parking Garage Service Industry Special Use	Noxious Use and Risk Activity Any use not mentioned under primary, secondary	COVERAGE: 60% FAR : 0.8 (all) HEIGHT : 3 storey	
15	Park	Public Open Space	Recreation Sports Facility Gymnasium	•As Approved by the municipality	As Approved by the municipality	
64	Public Open Sapce	Public Open Space	•As Approved by the municipality	•As Approved by the municipality	As Approved by the municipality	
120 – 123	Public Open Space (Not active)	Flood line areas	As approved by the Municipality in line with environmental legislative controls	Noxious Use and Risk Activity Any use not mentioned under primary, written consent or consent use	As Approved by the municipality	

Township Layout

Producing a township layout for Feet First Central has been and iterative journey. In the process there were critical points that had to be worked over again and again to make sure they are correct and are aligned with the Land Use Scheme of Mogale City. Plot sizes for different land uses had to be accounted for because at times Land uses were small without any form of justification. After the correct sizing I had to make sure I make efficient use of my road space without using up more than 20% of my site which resulted in only 20.68% of road space. The provision of pedestrian walkways to create continuous connections on the layout had to be clearly visible and they had to be big enough to avoid forming dark alley ways.

Ist Draft Township Layout

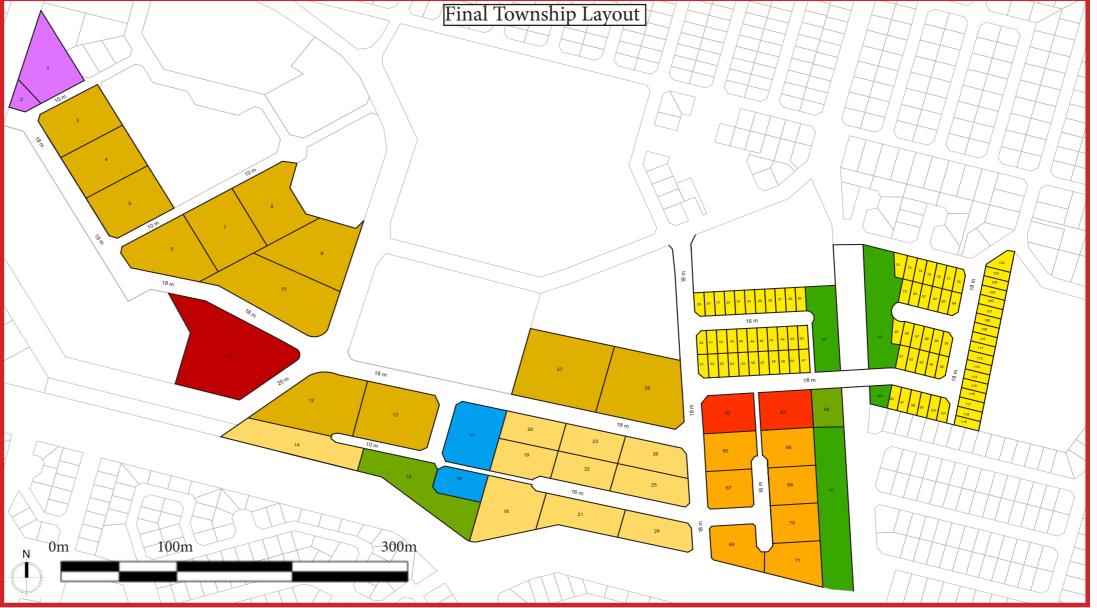
Local Planning and Urban Design



Estimated Population = 1 803

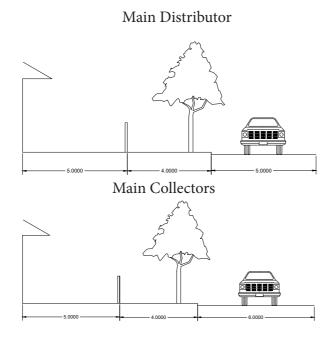
Residential 4= Medium Density = Ave. 62units/ha Residential 3= Low Density = Ave. 12units/ha Residential 2= Low Density = Ave. 10units/ha Residential 1= Low Density = Ave. 8units/ha

Land Use	Number of Erven	Erf Numbers	Area (ha)	% of area (ha)
Residential 1	80	72 - 119	2.04	10.29
Residential 2	7	65 - 71	1.38	6.96
Residential 3	10	12 18 - 26	2.33	11.75
Residential 4	12	3 - 10 12 - 13 27 - 28	5.36	27,03
Business 3	1	11	0.81	4.08
Business 1	2	62 - 63	0.41	2.07
Community Centre	2	16 - 17	0.47	2.37
Small Park	1	15	0.41	2.07
Public Open Space (Non Active)	4	120 - 123	1.17	5.90
Public Open Space (Active)	1	64	0.12	0.6
Transportation Node	1	1	0.32	1.61
Vending Stalls	1	2	0.06	0.30
Floadplain Open space	-	-	0.85	4.29
Road	-	-	4.1	20.68
total			19.83 ha	100



I then went on to further throughly calculate the different elements making up the township layout in order to produce Land Use splits and coverage to observe if we were able to stick to the limitations and controls.

It should be noted that the coverage for most plots and land uses is way below the limit, this was done purposefully in order to have more space for car parking and communal spaces especially in residential plots.



Plot Number	Plot Size	Building Footprint	No of units	Height	FAR	Land Use	Coverage	Parking Space	Communal Space	Land Use Percentage (per ha)
1	3 207m ²	2 014m ²	n/a	1	n/a	Taxi Rank	62.80%	2 014m ²	n/a	1.61
2	554m²	194m²	n/a		n/a	Vending Stalls	35.02%	n/a	n/a	0.30
3	3 467m ²	852m ²	24				24.57%	769m ²	158m ²	27.03
4	3 467m ²	852m ²	24				24.57%	832m ²	158m²	
5	3 626m ²	852m ²	24				23.49%	856m ²	158m ²	
6	3 904m ²	886m²	24	4	0,98 – 1,16	Res 4	22.69%	900m ²	158m ²	
7	3 874m ²	852m ²	24				21.99%	844m²	158m²	
8	3 838m ²	852m ²	24				22.19%	643m ²	158m²	
9	4 402m ²	854m²	24				19.40%	865m ²	402m ²	
10	5 857m ²	850m ² (2)	24				29.02%	957m ²	196m ²	
11	8 098m²	-1 138m ² -940m ² -467m ²	n/a	2	0.8	Shops, Businesses, Consulting offices	31.42%	1 272m²	401m²	4.08
12	4 938m²	1 461m ²	28	4			29.58%	740m ²	382m ²	
13	4 437m ²	1 264m²	28		1,18	Res 4	28.48%	706m ²	209m ²	
14	3 435m ²	-572m ² -600m ²	24	3	1	Res 3	34.11%	500m ²	259m²	11.75
15	4 095m ²	n/a	n/a		n/a	Park	n/a	n/a	n/a	2.07
16	1 438m ²	607m ²		2	Approved by		42.21%	291m ²	n/a	2.37
17	3 248m²	1 427m ²	n/a		Municipality	Community Centre	43.93%	489m²	n/a	
18	3 515m ²	996m ²	18				28.33%	431m ²	399m²	
19	2 054m ²	572m ²	12	3			27.84%	458m ²	128m²	

20	1 804m ²	612m ²	12			Res 3	33.92%	381m ²	n/a	
21	2 499m ²	621m ²	12	3	0,83 - 0,85	1.000	24.84%	431m ²	158m ²	-
22	1 801m ²	605m ²	12			Res 3	33.59%	339m²	96m²	-
23	1 804m ²	612m ²	12	-			33.92%	381m ²	n/a	-
24	2 123m ²	637m ²	12	1			30%	310m ²	158m ²	-
25	2 273m ²	608m ²	12	1			26.74%	534m ²	205m ²	-
26	1 972m ²	606m ²	12	1			30.73%	381m ²	n/a	-
27	6 124m ²	1 275m ²	32	4		Res 4	20.81%	1 285m ²	255m ²	
28	5 592m ²	1 275 m ²	32	1	0,83		22.80%	1 171m ²	255m ²	-
29	242m ²	60m ²	1	1			24.79%	n/a	n/a	10.29
30 -39	250m ²	60m ²	9	1			24%	n/a	n/a	
40	242m ²	60m ²	1		0,24	Res 1	24.79%	n/a	n/a	
41 -50	250m ²	60m ²	9				24%	n/a	n/a	
51	242m ²	60m ²	1	1			24.79%	n/a	n/a	
52- 61	250m ²	60m ²	9				24%	n/a	n/a	
62	2 047m ²	1 356m ²	n/a	As		Shops and	66.24%	n/a	n/a	2.07
63	2 079m ²	1 365m ²	n/a	approved		Commercial	65.65%	n/a	n/a	
				by the municipality		offices				
				mamerpancy						
64	1 219m ²	n/a	n/a		As approved	Play Area	n/a	n/a	1 219m ²	0.6
					by the municipality					
					inumcipanty					
65	1 994m ²	666m²	10				33.40%	302m ²	62m ²	6.96
66	2 023m ²	654m ²	10				32.32%	302m ²	66m ²	
67	1 808m ²	666m²	10	1			36.83%	252m ²	100m ²	
68	1 885m ²	654m ²	10	2	0,73	Res 2	34.69%	289m²	100m ²	
69	2 074m ²	666m ²	10	1			32.11%	261m ²	210m ²	
70	1879m ²	654m ²	10				34.80%	265m ²	100m ²	
71	2 173m ²	654	10	1			30.09%	305m ²	188m²	
72	277m ²	60m ²	1				21.66%	n/a	n/a	
73 -77	250m ²	60m ²	4		0,17 - 0,25		24%	n/a	n/a	
78	240m ²	60m ²	1		0,17 - 0,23		25%	n/a	n/a	
79 -83	250m ²	60m ²	4				24%	n/a	n/a	
84	240m ²	60m ²	1	1			25%	n/a	n/a	
85	256m ²	60m ²	1		0,17 – 0,25		23.43%	n/a	n/a	
86 – 89	250m ²	60m ²	3				24%	n/a	n/a	
90	237m ²	60m ²	1			Res 1	25.31%	n/a	n/a	
91 - 94	250m ²	60m ²	3				24%	n/a	n/a	
95	237m ²	60m ²	1				25.31%	n/a	n/a	
96 - 100	250m ²	60m ²	4				24%	n/a	n/a	
101	240m ²	60m ²	1				25%	n/a	n/a	
102	337m ²	60m ²	1				17.80%	n/a	n/a	
103 -	250m ²	60m ²	6				24%	n/a	n/a	
119	0.000									
120	2 383m ²		.,		- 1-	Floral III				5.90
121	3 730m ²	n/a	n/a		n/a	Floodplain	n/a	n/a	n/a	
122	5 170m ²									
123	423m ²									20.50
Road										20.68
Wetland			601							4.29
Total			601						1	100%
	ı	I	units	1				1	I	

Guideline **High Foot Mobility Spaces**

Environment for pedestrian activity should prioritize creating safe, walkable, and enjoyable spaces that encourage people to use their feet as their primary mode of transportation. This also encourages more social interaction along the precinct streets.

Rationale

The ultimate intent is to create pleasant walking spaces and enhance the overall quality of life for residents and visitors, making places more enjoyable, livable, and inclusive. This is done through encouraging different modes of sustainable transportation like walking.

Farringdon Bridge, London



Phoenix, London



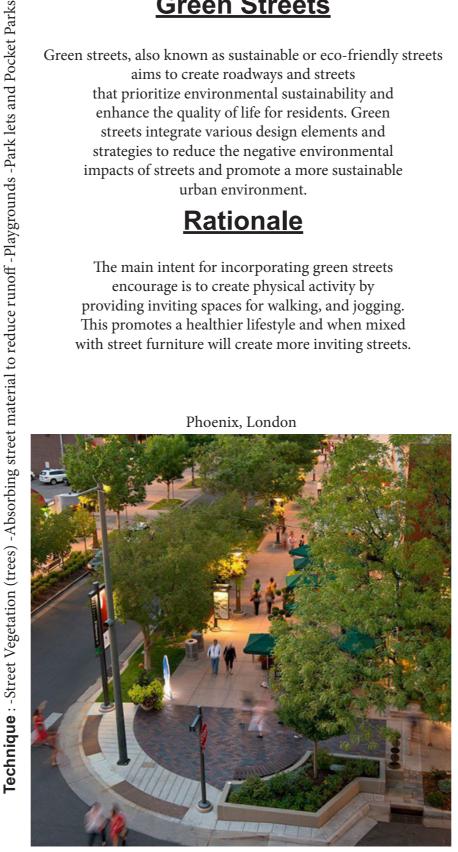
Guideline **Green Streets**

Green streets, also known as sustainable or eco-friendly streets aims to create roadways and streets that prioritize environmental sustainability and enhance the quality of life for residents. Green streets integrate various design elements and strategies to reduce the negative environmental impacts of streets and promote a more sustainable urban environment.

Rationale

The main intent for incorporating green streets encourage is to create physical activity by providing inviting spaces for walking, and jogging. This promotes a healthier lifestyle and when mixed with street furniture will create more inviting streets.

Phoenix, London

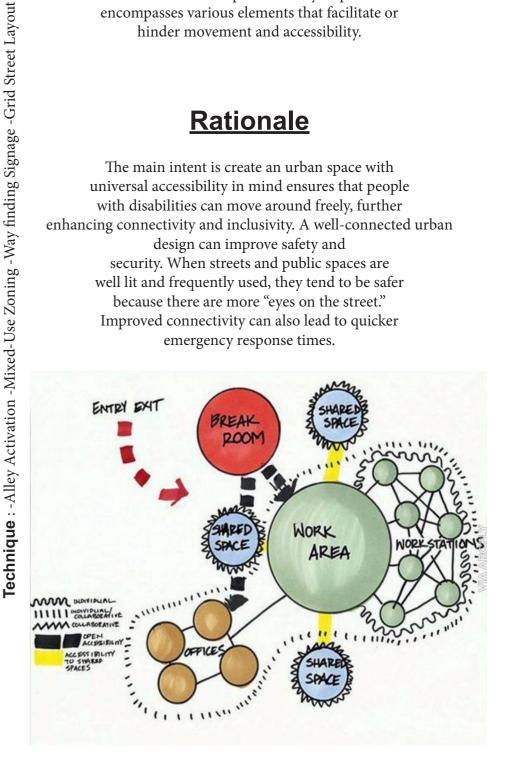


Guideline Connectivity

Highly connected precincts speak to the ease with which people and goods can move within and between different parts of a city or precinct. It encompasses various elements that facilitate or hinder movement and accessibility.

Rationale

The main intent is create an urban space with universal accessibility in mind ensures that people with disabilities can move around freely, further enhancing connectivity and inclusivity. A well-connected urban design can improve safety and security. When streets and public spaces are well lit and frequently used, they tend to be safer because there are more "eyes on the street." Improved connectivity can also lead to quicker emergency response times.

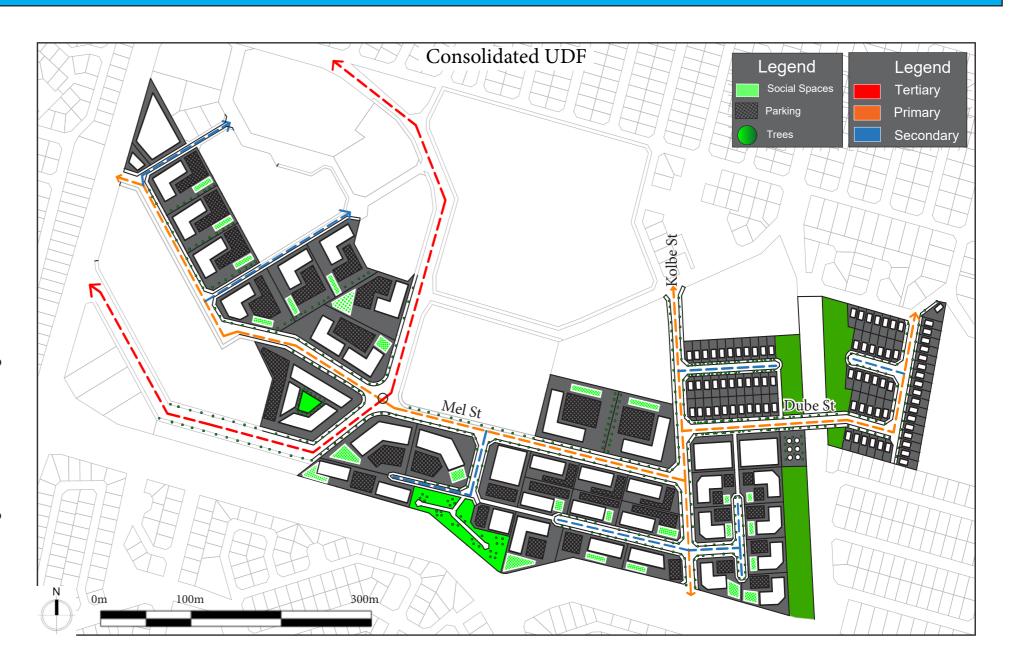


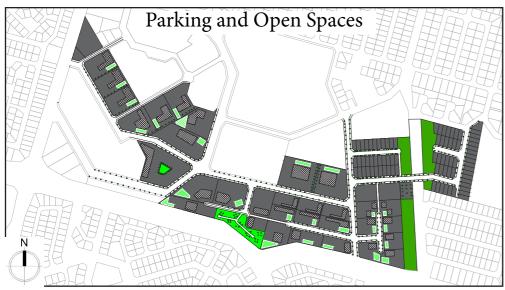
Each plot has been provided parking areas and communal spaces, considering that the development caters for middle to low income earners, a huge dependency can be expected on public transportation hence the small parking areas for those who would afford them.

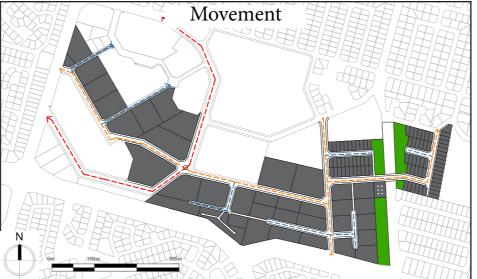
The park was strategically located closer to the community center in order to form a green magnet in the middle of our site. This space will be used by residents in the immediate residential buildings and those further away. Residents traveling to the park will activate Mel St which can lead to economic opportunities for residents.

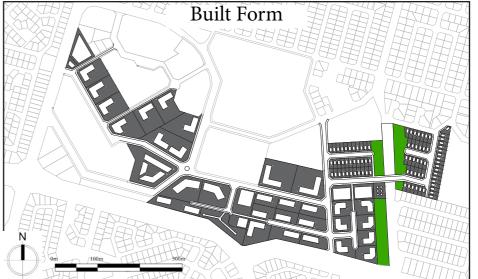
The configuration of the built form was done similarly on the whole site irregardless of the type of residential typology. The buildings were brought closer to the streets to bring more eyes on the streets. This also allows for backyard expansion especially in Residential 1 which can be another source of income for residents.

The framework has different classes of roads to maintain and regulate vehicular traffic on the roads. This is essential since the framework is designed to be pedestrian friendly and there is a high expectation of foot traffic. Although not highlighted on the map, the alley ways also contribute significantly to the movement especially of people, they also ensure continuous flow on the site and reduce a number of dead ends whilst increasing convenience.









Using different building shapes and planning in accordance with the land use scheme it allowed the framework to avoid gigantism by having decently sized and proportioned buildings.

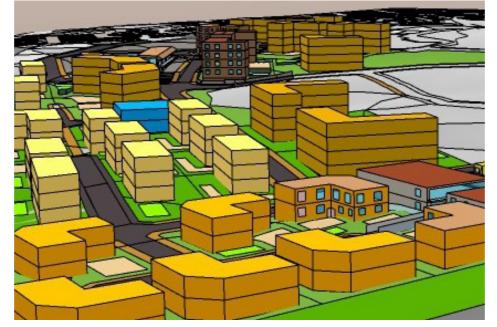
This was essential because it affects what is happening on the street, for example if a building is too long it reduces the connectivity of the block. The buildings have also been set back closer to the streets about (5m), this is done to give more eyes to the streets which contributes to the safety of the streets on different times of the day even during the night time.

The different forms that the buildings of different densities take also allow for the provision of parking space and the provision of communal spaces within the plots.

The pedestrian pavements vary in width depending on which street you are on. Pavements on residential streets are about 2m and the pavements on main streets are about 4m, this is done to cater for more foot traffic but also accommodate street furniture and street vegetation.









This detailed precinct of the kind of street envisioned for where Residential 4 and Business 3 translates how I want this as a economic space but at the same time be able to accommodate for a tranquil street life. The trees will provide relief from the heat and also provide shade for by standers waiting for taxis or pedestrian moving along the street. The provision of a solid edge against the residential for is done to limit visual permeability at least at the ground floor level, considering that this is a residential 4 building the top 3 floors still provide eyes on the streets. To try and not create a dead edge, street furniture has been provided to foster social interaction and street activity from appropriation.



Precinct 2 is on the East of the Urban Design Framework it a Business 1 spaces surrounded by Residential 1,2 and 4. This secondary economic node is meant to distribute some economic activity on the site, considering that the precinct is designed to be walkable, additional economic activity elsewhere on the site reduces commutes by foot and car. The precinct also include a pedestrian walkway that connects Residential 2 and 1. Creating a connected precinct requires as little dead ends as possible, pedestrian walkways ensures continuous movement around the site making it convenient. In order to ensure they safety, lighting has been provided but also sitting areas have also been made available for people to socialize which will increase the feel of the walkway when it comes to safety













Reflection Page

As an urban planning student who has worked on a project in Kagiso, Johannesburg, I have gained a profound understanding of the intricate site development processes and the importance of context in urban planning. The project comprised three essential phases: a feasibility study, township layout, and an Urban Design Framework. Through this experience, I have come to appreciate the necessity of a step-by-step approach and the dynamic, iterative nature of site development.

The feasibility study phase was the starting point of our project, where we assessed the viability of development in Kagiso. This phase emphasized the need to consider the local context comprehensively. We delved into factors such as the level of income, employment opportunities, and the existing infrastructure. It became clear that successful development must be tailored to the specific conditions of the area. The feasibility study highlighted that development should not be one-size-fits-all but rather in sync with the unique socioeconomic and cultural characteristics of the community.

The township layout phase built upon the findings of the feasibility study. It involved the organization of land uses and the road networks for the development in our site. What became evident during this phase was that the layout needed to correspond with the physical features i.e steepness of the slope which were identified in the feasibility study. This was a back and forth process because most of the technical details in this phase had to align with the Mogal City Land Use Scheme.

The Urban Design Framework phase was the culmination of the project. During this stage, we focused on the aesthetics and urban design elements. However, the earlier phases had already set the groundwork for this final phase. Understanding the context, as determined in the feasibility study, and ensuring the practicality of the township layout were critical for crafting an urban design that resonated with the community's aspirations. This phase considered the idea that urban design must be functional and aesthetically pleasing while also catering to the local economic and social needs.

Throughout this project, I learned that site development is not a linear process but a back-and-forth one. Each phase informed and influenced the others. Adjustments in the township layout had implications for the Urban Design Framework, and changes in the local context sometimes can cause you to revisit certain phases because there an instant new information. This iterative approach ensures that the development is always responsive to new conditions and new community needs.

In conclusion, working on the Kagiso, Johannesburg project has taught me the invaluable lesson that successful site development must occur within a specific context, considering income levels, employment opportunities, and local conditions. The feasibility, township layout, and Urban Design Framework phases are not standalone processes but interconnected steps that should be undertaken sequentially to develop a coherent, context-sensitive plan. The iterative nature of site development allows for adaptability, ensuring that the end result aligns with the community's evolving requirements and aspirations. This experience has given me a deeper understanding of the complexity and importance of urban planning and development in creating sustainable and vibrant communities.

References:

Lynch, K. (1960). The Image of the City. The MIT Press. Jacobs, J. (1961). The Death and Life of Great American Cities. Random House. Batty, M. (2013). The New Science of Cities. The MIT Press.