

“Maybe we finally need to understand that history and environment are the two faces of architecture, that no building stands alone, and that architectural solutions however brilliant cannot overcome the limitations of the urban fabric in which they are placed” (Trancik 1986: 19).

Relating Trancik’s statement to Mamelodi’s internal segregation of fabric, it is clear that this is a problem which can only be solved on an urban scale; the development of a well thought out urban design framework becomes just as important as the actual architectural intervention itself. In the case of Mamelodi as an under-developed rural environment, one should refrain from the usual process of urban development by treating buildings as isolated objects sited on the landscape, not as part of the larger fabric of streets, squares and viable open spaces.

In chapter two, the Theory of Cognitive Schemas was described as a series of interlinking strains of information functioning as a system. This can relate to an urban design concept as an interconnectedness of economic opportunities combined with social, civic and public space in a holistic scheme; persisting from an urban perspective to an architectural intervention.



# CHAPTER SIX

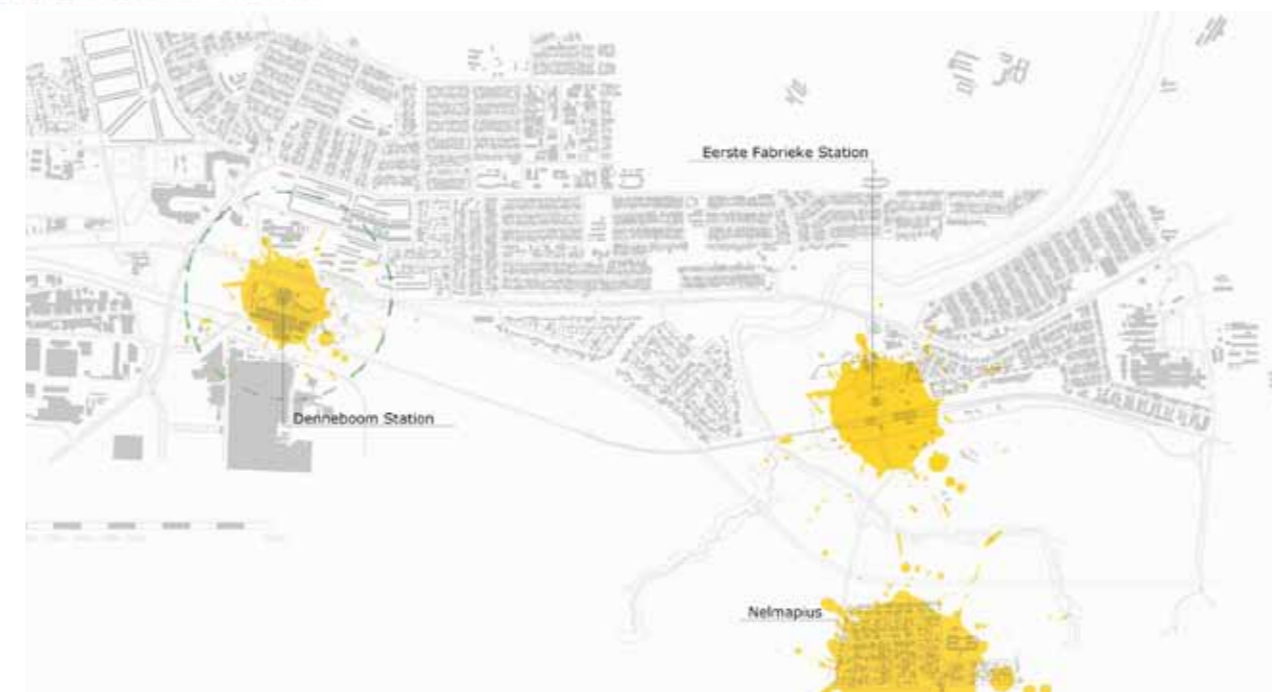
## *urban design framework*



## Eerste Fabrieke as Lost space

The Eerste Fabrieke precinct can be described as being “lost space” (Trancik 1986:2), which according to Trancik, is the underused and deteriorating residual space between districts, yet provides the opportunity to reshape an urban centre so that it draws people together in order to counteract urban sprawl (1986: 2).

He further describes lost space/ anti space as being ill-defined, without measurable boundaries and a failure to connect elements in a coherent manner (Trancik 1986: 4) (Figure: 135). This does not necessarily indicate a connectedness of physical fabric and, in the case of Eerste Fabrieke, relates more to its segregation from a transport and economic system. approximately 15 300 people make use of Eerste Fabrieke Station during the mornings, yet prefer Denneboom Station during the late afternoon, because the Denneboom precinct meets the necessary social and economic requirements demanded by a commuting society. Together with the availability of public transport facilities, such as mini-bus drop-off points and a bus station, people prefer Denneboom Station, the result of which is an increase of human activities leading to a safer, more vibrant environment, leaving Eerste Fabrieke unsafe, underutilised and underdeveloped.



## Connecting the bigger picture

In order to address the issue of segregation in Mamelodi, however, an emphasis on the grouping of a sequence of public and economic spaces should be established before focussing on Eerste Fabrieke as an individual entity. The residual spaces between districts need to be “reclaimed” (Trancik 1986: 19) and connected by transforming them into opportunities for development. It is vital to develop the proposed Eerste Fabrieke core as part of a greater series of economic nodes in an attempt to reshape, not only the Eerste Fabrieke precinct, but Mamelodi in general.

Figure 135: Identify nodes for development and indicating the residual space in between



Figure 136: Possible solution for connectivity

Figure 137: Established economic opportunities within 800m walkable radius from one another

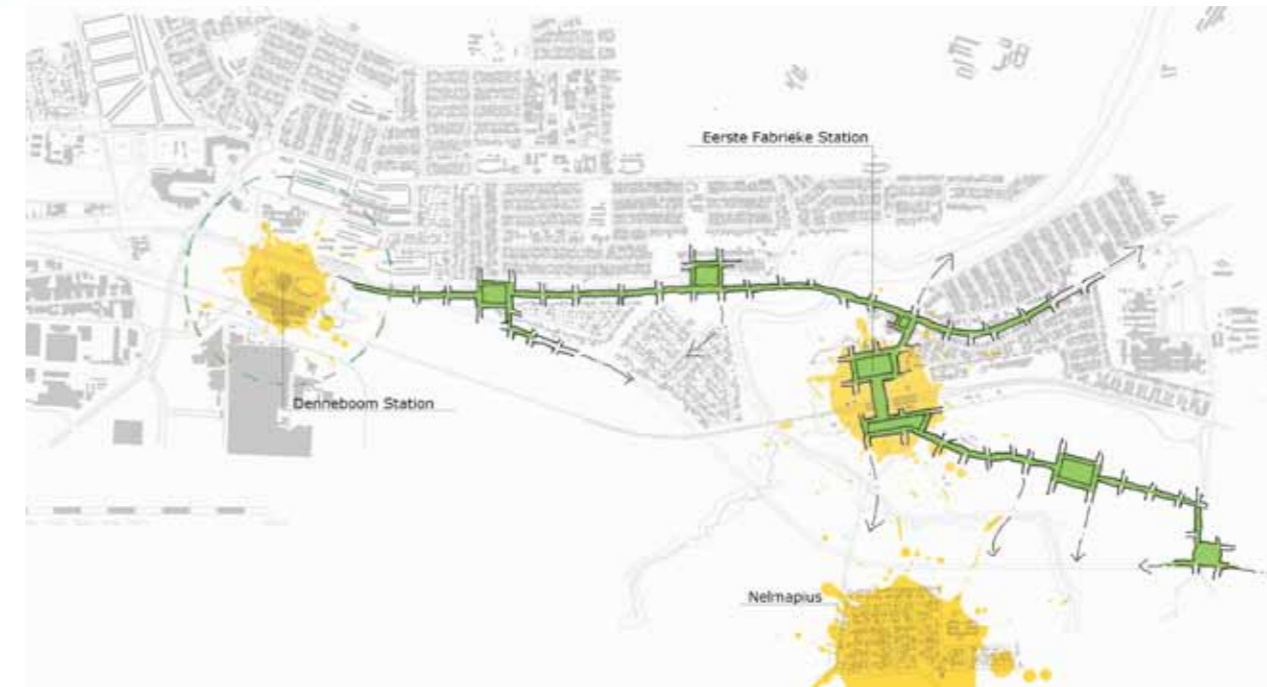
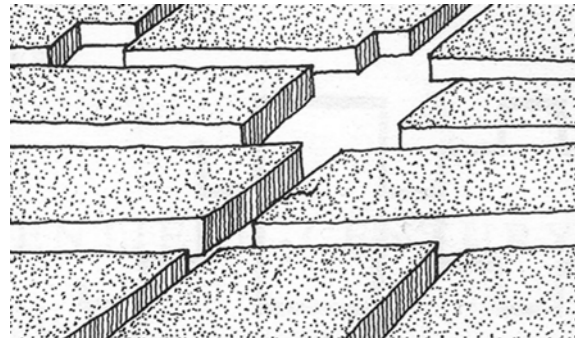


Figure 138: Establishing structure along 'economic spine' .

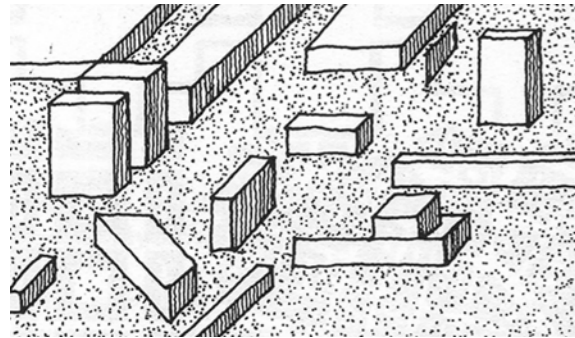
## Connectivity

One of the first steps towards creating an envisaged urban environment would be to address the fragmented and displaced fabric in an attempt to unify Mamelodi by proposing a new spatial structure; one that incorporates some of the existing fabric and connections / infrastructure, such as Denneboom Station, as an existing node, and Tsamaya Road, as a connection between the west and east.

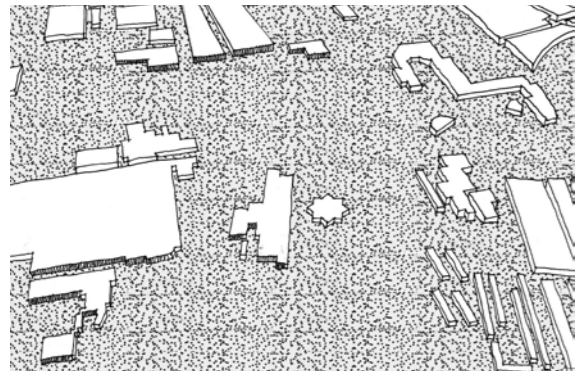
It has been established that within a rural community, the western laws of space and structure do not always apply and that the boundaries between positive and negative space are blurred. Thus, a unified structural system needs to be introduced whilst allowing for the flexibility and adaptability required in such an environment as Mamelodi for people to create and fill spaces that are true to their culture and lifestyle.



Traditional city form



Modern city form



Mamelodi city form

Figure 139-141: Above two images: Traditional and modern urban form (Trancik 1986: 19), Below: Current Mamelodi urban form (author's image)

“One of the major requirements therefore is to design environments in which individual buildings are integrated with exterior public spaces so that the physical form of the city does not fall victim to separation caused either by zoning or by a dictatorial circulation system” (Trancik 1986: 19).

Figure: 139 illustrate the spatial structure of traditional cities and the fragmentary form of the modern city (Figure: 140) and that of current Mamelodi (Figure 141). In the traditional city, urban blocks direct movement and establish orientation; the architectural and built form is integrated with the exterior space it defines in such a way that it creates a spatial structure which connects a series of public spaces. In the modern city and Mamelodi, the fragmentary and confused structure creates disorientation where a hierarchy and definition of exterior public spaces become nonexistent.

The concept of a ‘spatial spine’ (Figure: 136-138, 142-143) serves as a multi-nodal linear development, establishing a clear linkage between existing nodes (Denneboom Precinct, Eerste Fabrieke Precinct and Nelmapius) through ‘stitching’ together a series of envisaged self sufficient cellular units in order to reconnect Mamelodi’s internal fragmentation. It introduces a configuration of smaller scale communities, all within an 800m walkable radius from one another. It allows for informal ‘infill’ as both time and community progresses. The lack of fabric is replaced by the energy and movement required to commute between west and east Mamelodi, which in turn, will be accompanied by a growth in fabric establishing an envisaged physical connection between nodes; literally replacing the voids of residual land with solid mass.

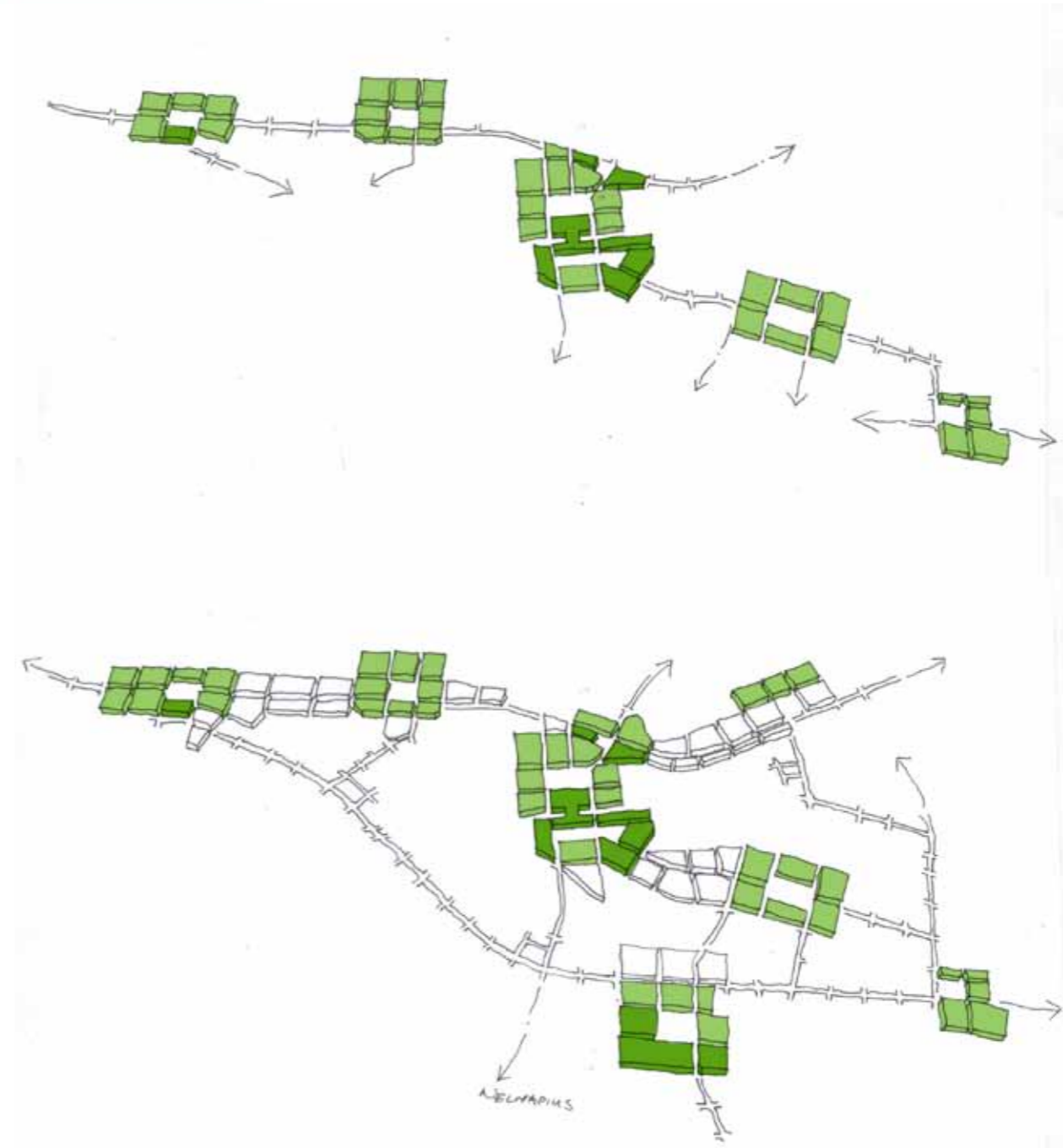


Figure 142: An incorporation of built form and a spatial structure of public spaces

Figure 143: Envisaged expansion of progression and development

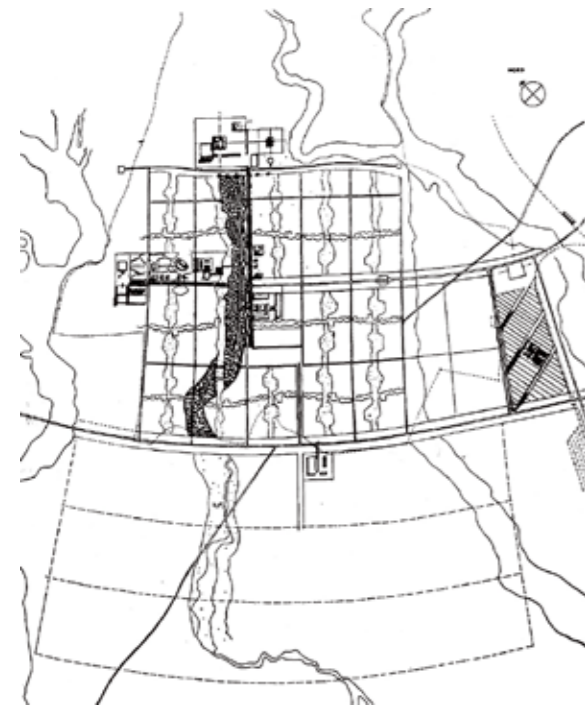


Figure 144: Le Corbusier's plan of Chandigarh, India. The functionalists tended to use the grid as a means of segregating activities into different zones (Trancik 1986: 31)

## The functionalist grid

The grid is an easily applied mechanical method of organising separate parts: while according to architects such as Le Corbusier “the right-angle” is far superior to any other angles. If the right angle were applied to the ordering of exterior space, the resulting grid could be used as a method for eliminating accidental juxtapositions (Trancik 1986: 30). It can be argued that this is exact “accidental juxtaposition”, which is the creator of African rural environments such as Mamelodi, yet a vision for a more structured future needs to be manifested within this context in order to prevent further urban sprawl.

Although seemingly rigid, the grid has advantages of flexibility and expandability. The introduction of a primary spine of activities would eliminate the possibility of the lines of a grid contributing to spatial containment by becoming “super highways” (Trancik 1986: 31). The importance and effectiveness of the grid, as a tool for organising space, should thus be used as a method for the connectivity and not the separation of parts. Applied to the context of Mamelodi, it could provide a sense of unification in an environment where community centres and intermodal mixed use nodes are replaced by strict or no zoning conditions and low density residential environments.

In Le Corbusier's Chandigarh (Figure: 144), which is mainly a functionalist approach, the grid was used to differentiate places and activities. Each urban element is given its own identity as a separate part of the composition. For example, the government centre is set apart from the grid and not integrated into the rest of the city (Trancik 1986: 32).

## Determining Hierarchy

The problem with the grid, however, is that there is no logical way to establish a centre, the result of which might lead to a system that does not reflect the collective, centralized concept of public space and thus ignoring the importance of Eerste Fabrieke as an envisaged urban core and a community focus point for meetings and interaction. The difficulty in identifying the centre of the grid can promote the notion of non-hierarchical, repetitive spatial structures which will leave Mamelodi in a no better state than its current condition.

Relating the flexibility and non-hierarchical nature of the grid to what Francis D. K. Ching believed with regards to the principles of order, he remarks: “Nothing but confusion can result when order is considered a quality that can equally well be accepted or abandoned, something that can be forgone and replaced by something else. Order must be understood as indispensable to the functioning of an organized system...” (1996: 319).

He elaborates (1996: 338) that for a form or space to be articulated as being important or significant to an organisation, it must be made uniquely visible. Visual emphasis can be achieved by endowing a form or shape with (Figure: 145-147):

- Exceptional size: Form and space may dominate an architectural composition by being significantly different in size from all the other elements in the composition (Figure: 145).
- A unique shape: A discernible contrast in shape is critical, whether the differentiation is based on a change in geometry or regularity (Figure: 146).
- A strategic location: This can be achieved by either termination of a linear sequence or axial organisation, the centrepiece of a symmetrical organisation, the focus of a centralised or radial organisation or by being offset above, below or in the foreground of a composition (Figure: 147).

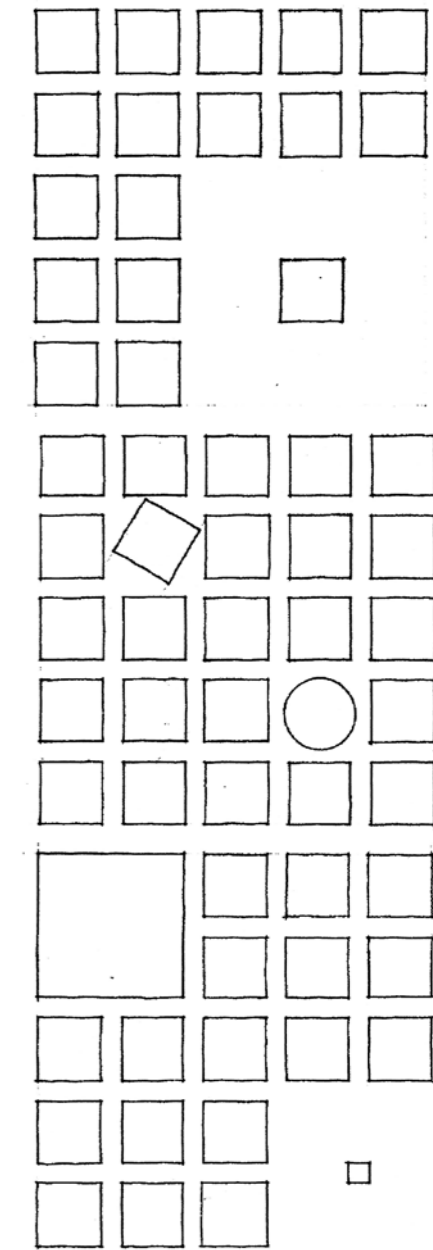


Figure 145-147: Ching's diagram for spatial hierarchy (1996: 339)



Figure 148: Master Plan; Applying the concept of hierarchy through shape in an attempt to emphasise Eerste Fabrieke as an important configuration



Figure 149: Spatial Structure; The primary network of streets and squares: A unifying structure that contains the active public life of the city

### Theory of linkages

This theory, as stated by Trancik (1986: 73), is derived from lines connecting one element to another. He observes that these links are formed by streets, pedestrian ways, linear open spaces, or other linking elements physically linking parts of the city. Emphasis is placed on the circulation rather than on a static space.

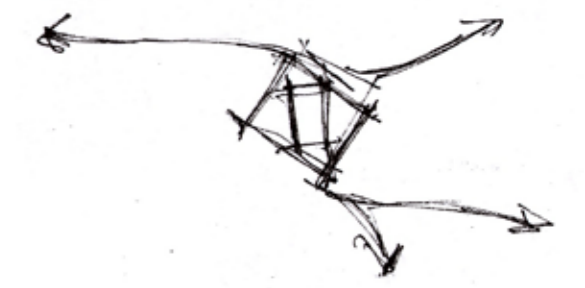


Figure 150: The primary network connectivity



Figure 151: Greenery; Differentiating between hard and soft spaces, and public and productive green areas



Figure 152: Land use; Allocating programme and function so as to optimise the efficiency in a general network

### The place theory

The place theory, in addition to the linkage theory, adds the components of human needs and accords structure to the solids and voids of urban form (Trancik 1986: 97). It organises the links between parts, and responds to human needs and elements of the particular environment. Applied to the culture of Mamelodi, human needs refers to basic human needs in terms of the availability of fresh produce and general safety: allowing for flexibility and compensating for the formation of public space as demands increase and decrease, yet ensuring the provision of elements which would simplify and possibly accommodate such changes. Ideally, one would design an environment which is adaptable while maintaining a certain amount of control over the quality and efficiency of public space.

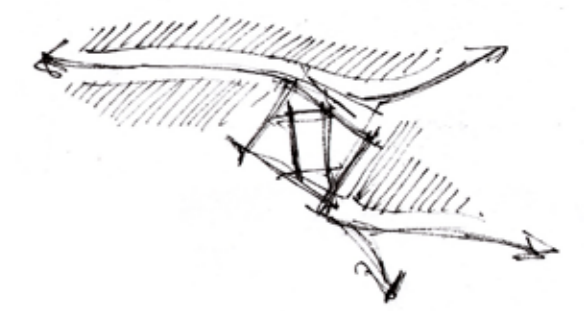


Figure 153: Self-development as infill of residual space

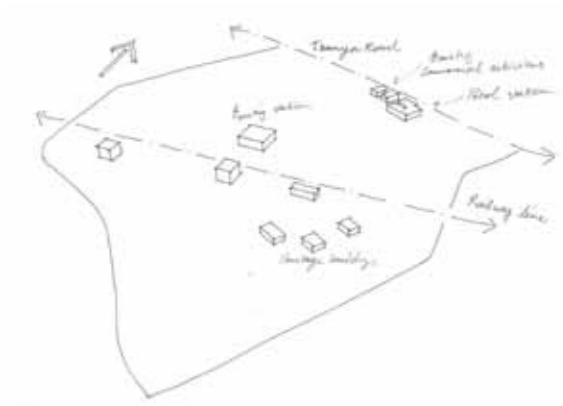


Figure 154: Historic fabric

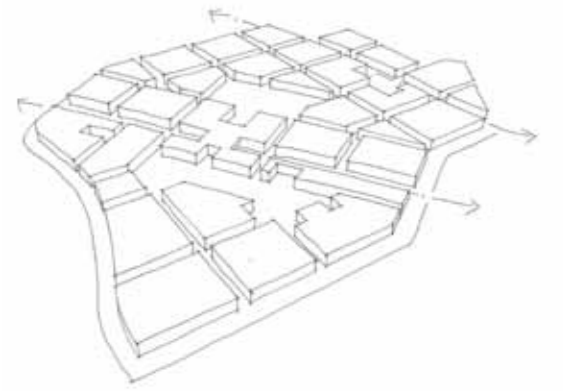


Figure 155: Solid and Void relation

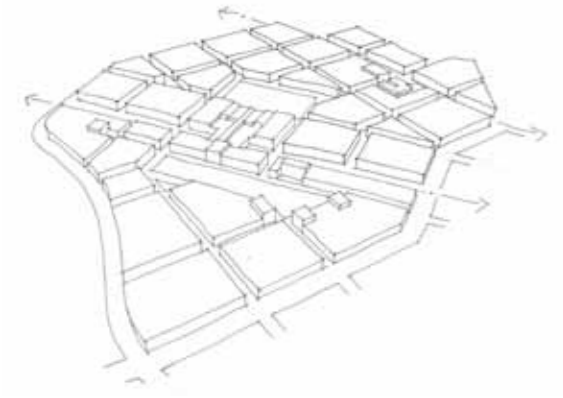


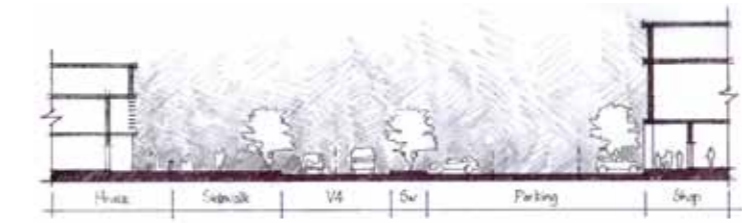
Figure 156: Incorporation

### Urban voids

Definable “urban voids” are just as important as infill and the creation of urban mass (Trancik 1986: 103). Trancik describes these voids as needing to be carved out of and pushed into the solids to provide functional and visual continuities, thereby creating an environment where space, or void, and mass are integrated without just ‘framing’ exterior space. According to Trancik, there are three primary types of void (Trancik 1986: 103);

- The entry foyer: A space that establishes an important transition
- The inner block void: An enclosed space for leisure

Within a rural environment where the difference between positive and negative space is hybridised, the street is probably the most important form of void and method of connectivity. According to Trancik, the street has lost most of its social function and physical quality. It needs to be a space that represents an extension of function or enclosure, a place for discourse and a connecting spine, linking a “systematic hierarchy of order from locally controlled space to city wide routes for communication”.



### The street as public space

Indian merchants introduced bazaar streets, or market streets, to Swahili towns where they remain functional to this day, and have evolved into major circulation routes in Zanzibar, Lamu and Old Mombasa (Figure: 157). Although intended to discourage traffic, adequate provision for cars and parking is made.

Over time, the African market has evolved as an identifiable typology and organiser of urban space. It is a distinct pattern with buildings facing a ‘communication route’ to benefit from passing trade. In some rural villages, the width of these streets is often 30 meters or more.

As can be observed in Mamelodi, the street serves a social and public function beyond that of vehicular requirements (Figure: 158-163). It often becomes a combination of pedestrian and vehicular activities that render it a positive space for gatherings and trade, allowing the provision of merchandise and services that commuters require, such as fresh produce, bread, sit-down and take-way meals, hair styling, shoe repairs, bars for after-hours socialising, and so forth. Pedestrian permeability is achieved as well as affective access to local public transport systems. It normally connects two points with significant value linking to train stations, bus stops and minibus taxi stands.

Through the provision of a minibus drop-off point along Tsamya Road (Figure: 168), connected to the existing filling station and serving commuters travelling in an east-west direction or to Eerste Fabrieke Train Station, one can incorporate such a trader’s route linking the two public transport nodes. Thus it needs to have the “flexibility to accommodate the varied activities of the traditional street” (Trancik 1986: 39).

Figure 153: Self-development as infill of residual space

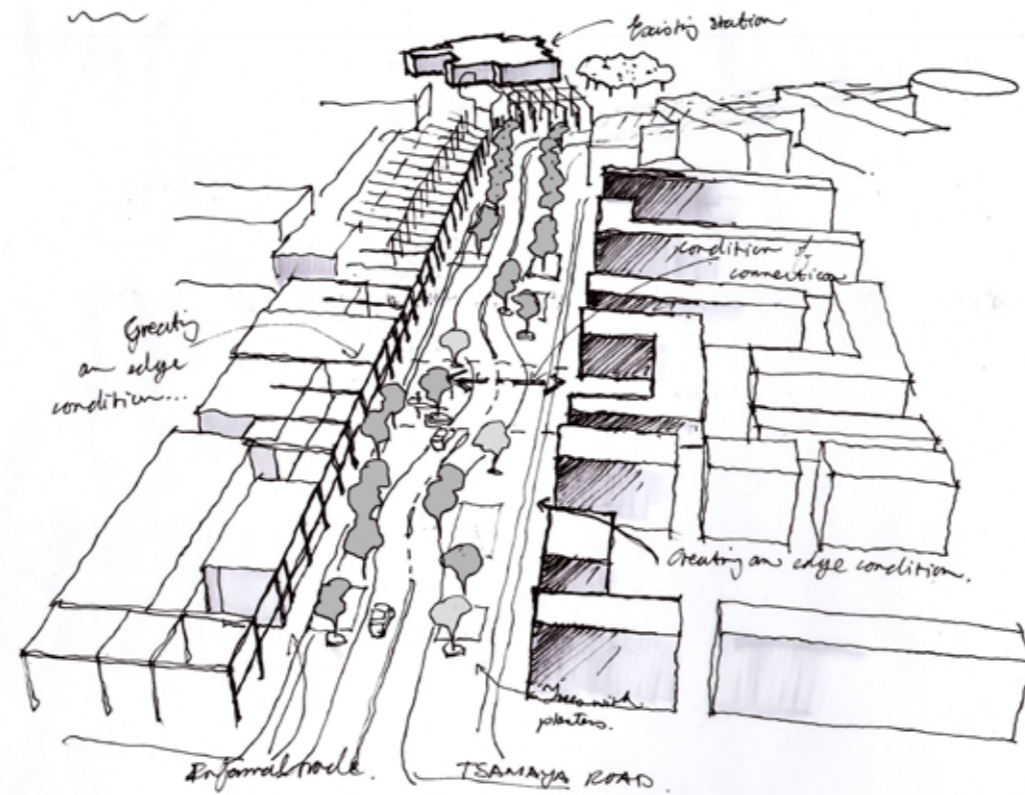
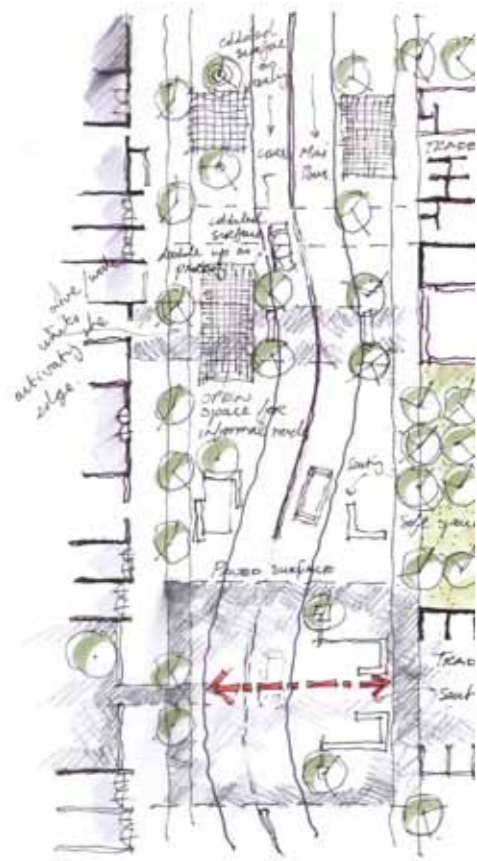


Figure 158-163: Street as an integration of activities and public space



Figure 164: Diagrammatic representation of the street as a public space





### Integration of the shared street concept

Although Eerste Fabrieke road will be used by vehicular public transport, it should not be rendered an express way for vehicular movement. It poses the opportunity to introduce an integrated concept of the shared street system. The integration of traffic and residential activity in the same space is a concept that increases social interaction and safety on the street and promotes pedestrian movement (Southworth & Ben-Joseph 1997: 109). The concept of integration places emphasis on the community and the residential user. Pedestrians, children at play, bicyclists, parked cars and moving cars all share the same street space. By redesigning the physical aspects of the street, the social and physical public domain of the pedestrian is reclaimed, placing the driver in an inferior position since this “emancipation” (Southworth & Ben-Joseph 1997: 109) of the pedestrian environment is carried out with the full integration of vehicular traffic, which is not an anti-car policy.

This concept enables the transformation of the street from an exclusively vehicular slipstream with sidewalks, to an extension of the surrounding architectural form and part of a network of urban spaces, creating a more unifying and inclusive public environment.

Trancik (1986: 45) adds to this notion of the street as public space the view that in the past, the Main Street was the focus of community life and was maintained as a high-quality spatial experience. Its diversified commercial activities and close proximity to residential neighbourhoods made it the physical and social centre of the community.

Figure 166: Bird's eye view of the shared street as a connection between proposed taxi drop-off and Eerste Fabrieke Station

Figure 167: Typical section through proposed street connecting Tsamaya Road to Eerste Fabrieke Station

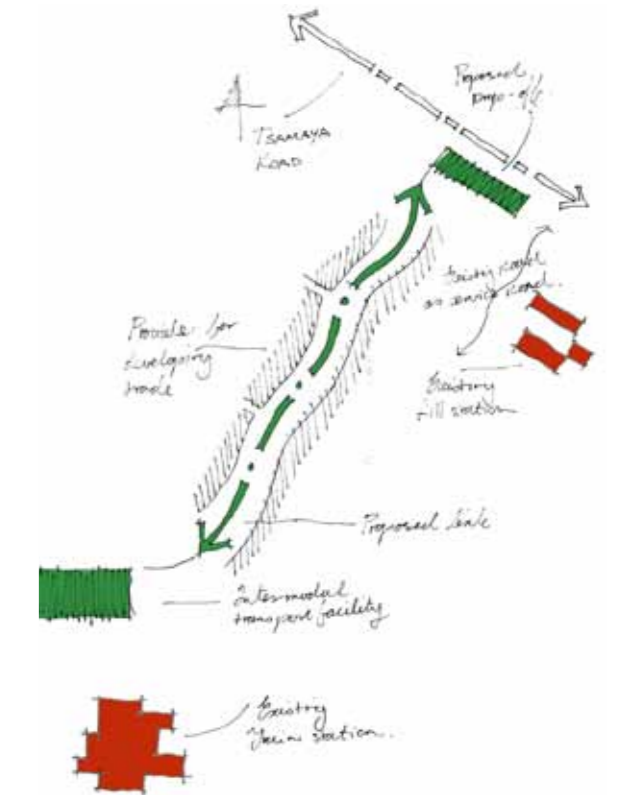
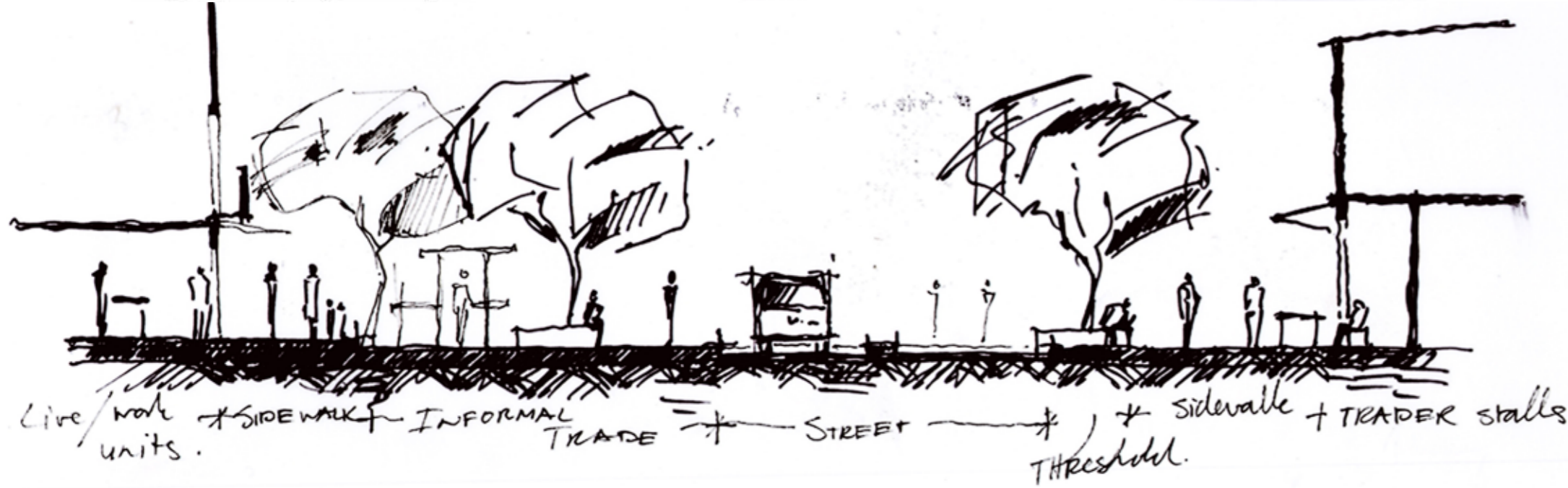


Figure 168: Providing a link between new and existing transport nodes



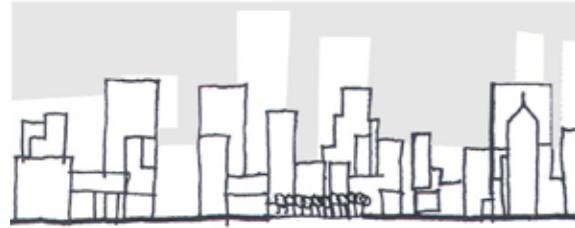


Figure 169-171: Sert, Soltan and von Moltke. New communities Project. The goal of this project was to create a compact environment based on intensive land use without the sprawl of the suburb or the inefficient planning of the core city. (Trancik 1986: 57)

## What is a rural urban experience?

Perhaps, the Harvard study of 1968, led by a preeminent team of European architects including Joseph Lluís, Jerzy Soltan and Wilhelm von Moltke, described the perfect urban environment for an underdeveloped environment such as Mamelodi. They declared that it is not the high density city core, with its pockets of lost space, and political and social problems (Figure: 169), nor the low-density western typology of suburbia (Figure: 170), but a compact city open to all income groups (Figure: 171).

A city where the infrastructure of roads, utilities and open spaces would be coordinated and urbanity would be put into balance and harmony with the ecology of the site. Here, lost space would be eliminated and a composite city structure would provide positive urban space in a variety of formal and informal configurations. The city would become a place for learning, and residents would participate in any changes and control their own environment. All facilities would fall within walking distance or would be accessible by moving sidewalks or public transport (Trancik 1986: 57).

## Conclusion

Creating a spirit in a new environment is essential, yet one of the designer's most difficult tasks. In the development of the twentieth-century outdoor space we have been optimistically searching for a new spirit of the modern age, yet have failed to realise that it is not the spirit that is lacking, but the physical requirements necessary to adapt to their environment.

Robert Venturi (Trancik 1986: 61) mentioned that the problem is not the lack of open spaces in the city, but its openness. One should realise that rural communities such as Mamelodi function according to their own culture and that one should not try to introduce a new or modern way of living, but rather enhance that which is existent, known and familiar whilst designing toward a vision for the future.

