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RESPONSIVE ENVIRONMENTS FOR URBANIZING SOUTH AFRICA.

Roodepoort as a Design Case Study.

Willem Jacobus Fourie

A dissertation submitted to the Faculty of Architecture, University of the Witwatersrand, Johannesburg, for the degree Master of Urban Design.

Johannesburg, 1989.

DECLARATION

I declare that this dissertation is my own, unaided work. It is being submitted for the degree of Master of Urban Planning in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

Willem Jacobus Fourie
16 January 1989

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ABSTRACT

South Africa is in the midst of an unprecedented demographic shift. Our population is rapidly urbanizing, with far-reaching implications for our cities. The majority of the in-migrants to the cities are from educationally and economically disadvantaged rural areas. With people flocking to urban areas, cities find it more and more difficult to meet the basic requirements of their inhabitants in terms of jobs and levels of service, with the result that they place an enormous burden on the newly urbanized inhabitants.

This dissertation seeks to explore an alternative to present-day efforts to cope with urbanization. It is recognized that a new mode of city building is needed, capable of guiding rapid urban growth. The study recognizes urbanization as a potential growth resource, with the capacity to reshape urban environments in a meaningful way.

People are coming to urban areas to gain access to opportunities, activities and facilities which are generated through urban agglomeration. Agglomeration is seen as the historic genius of urban areas that enables a range, variety and richness of activities and opportunities, which are simply not possible in more dispersed and less specialized settlement forms. Urbanism as a way of life, in the pattern of existence, is suggested as a framework that will give overall direction and vision for a wide range of agents. Urbanity is seen as a structural order necessary to ensure that parts of cities and regions reinforce each other. In this way the potential of urban areas as

totalities are realized in opportunities for face-to-face human communication: the opportunity for free exchange of goods, ideas and the opportunity for human freedom, as expressed in the multiplicity of choice.

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PART 1

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INTRODUCTION TO THE STUDY

Settlement patterns on the Witwatersrand are historic evidence of the demographic shift over time in South Africa. Since the discovery of gold, many different people, Blacks, Chinese, uitlanders and - after the boer war - land disinherited farmers, all contributed to the socio-political economy of the area. Today migrants and refugees from all over Africa continue to develop these trends. Despite attempts in recent years to control the influx of people, urbanization has become one of the most powerful forces in modern South African history. The extent of this force is such that there is serious doubt in the ability of urban areas to accommodate this influx. The challenge lies not only in the quantities that have to be accommodated, but more so, in the question of achieving quality - environmental quality and quality of life for all citizens of the city.

This study recognizes the fact that a new mode of city building is needed. This new building should be capable of guiding rapid urban growth in such a way that pre-conditions for high-performance urban environments are maximized. From the outset the concern should be for a total living environment.

A premise for this study is that urbanization should be seen as an opportunity that needs to be optimized. Urbanization is an opportunity for growth, which in turn is the only available resource to rectify the mistakes of the past. The very scale of the problem

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provides a great opportunity to change the nature of our cities radically - thereby enhancing their ability to meet the demands made upon them.

It should be recognized that the city is in essence a democratic setting that can enable or restrict. It is therefore important to realize in what form, urbanization will be applied.

Urbanization will affect growth across different urban scales. The implications will affect regional, metropolitan and building scales - influencing the whole as well as the parts. It is therefore important to deal with the problem at all levels.

This study is based on the philosophy that holds that the creative genius of man is best capable of managing his relationship with his environment. Self-actualization, for an urbanizing society, is best realized within the context of urbanity - the urban way of life. This philosophy holds that the values that underlie urbanity are capable of providing environments with improved performance abilities.

This study recognizes the basic principles that underlie and are necessary for the achievement of urbanity. The balancing principles of equity and choice, as well as the urban order of community and continuity, are essential constraints for freedom, and are recognized as fundamental for enduring environments, capable of change.

The emergence of the planning and design profession, was one of the reasons people lost control over their environment. Under the positivist influence of social sciences, planning and design became value free, unable

to resist the social pressures of capitalism and consumer sovereignty. In South Africa positivist influences on science and functional rationality contributed directly toward the synthesis that became the basis for the city form of the apartheid state.

The 1960's saw the birth of community design theories such as advocacy planning, social guidance and transactive planning. In this study these concepts are developed further to include the concepts of dialogue and consensus building, essential to value formulation. Concepts that transform the role of the urban designer to one of providing a spatial framework to serve as the basic structural value which constrains, guides and releases individual decision-making and ingenuity. City making evolves out of argumentation between society and the urban design spatial structure, with the result that city making becomes a social process.

Urban design as mediator in the ongoing argument between society and the order of urbanity has developed as a procedural model for an urbanizing society in South Africa. The urban design problem is identified in epistimological terms, as having an inadequate base in the positivistic view of science and functional rationality. This lead to a methodological framework, which is now producing urban environments that function to the detriment of the majority of city inhabitants, thus not fulfilling the potential inherent in urbanity. This study identifies urbanity as a procedural goal. Urbanity communicates the process of the development of the urban environment.

Urban design goals are transformed into design objectives, in the context of the study area with the

aid of substantive theory, in order to identify the elements of the urban design's spatial framework. These objectives are realized in a design. To design the spatial framework use is made of historic information. The morhpology of the traditional city is used as a tool to analyze an enabling spatial framework. The concepts of transformation, theme, non-thematic and type, as well as the principles for field development - hierarchy and territory, are identified as concepts vital to realizing the urban form.

CHAPTER 2

CHAPTER 2

A FRAMEWORK OF CONCERN IN URBAN DESIGN

The urban designer is centrally charged by society to manage the relationship between society and its environment (Rapoport, 1977: 1). This task is illustrated by two main concepts, namely balance and order.

* Balance: a holistic approach to the interaction between man and his environment which has two aspects: man influencing his environment and the influence of the environment on man. This interaction is considered balanced if the relationship functions as a totality, negating the powerful tendency of imbalance (dis-equilibrium) inherent in man's relationship with his environment. There are two aspects of balance with which urban design is particularly concerned:

  1. Balance between man's activities and the natural environment. This must be recognized as the basis for life, and concerns man's animate or social component.

  2. Balance across the range of man's activities in space. Man has only developed in a terrestrial setting, which possesses qualities that sustain life as we know it.

* Order: This is the way man uses and organizes space - the form and nature of the spatial systems man uses for his activities in space.

These two concepts are dynamic and inter-related, part of a constant process of growth and change. Order can be described as the mechanism that has the potential to influence the balance between man and his environment. Order is important because it affects the performance of man's relationship to his environment, as well as accessibility to the potential inherent in this relationship.

Man's relationship with his environment can therefore be either enabling or restrictive, depending on the specific structural order. It is for the urban designer to seek the basic principles that underlie order, as well as clarify "the qualities" that would result in an enabling or restrictive relationship with the environment.

ELEMENTS OF A PHILOSOPHY OF URBAN DESIGN

Urban design derives its essence from a philosophy about its role in society, as well as the way it conducts work within the framework of its concern.

Over the last century the concerns central to urban design were characterized by a positivist approach. Knowledge was gained through experience, but with the proviso that this experience be firmly established as verifiable evidence on which all could agree. Thus the ontology was one of agreed evidence and the methodology was one of verifying factual statements, often known as the "scientific method" (Johnston, 1983: 11). Urban design in this context often became instrumental amidst claims of value-free conduct.

This way of thinking had a pervasive influence on all aspects of life. Concurrent with this phenomena was a

widespread belief in rationality, which in turn was responsible for the astounding advance and development in science. The positivist approach and belief in rationality accounted for the extent and pace of change over the last few decades.

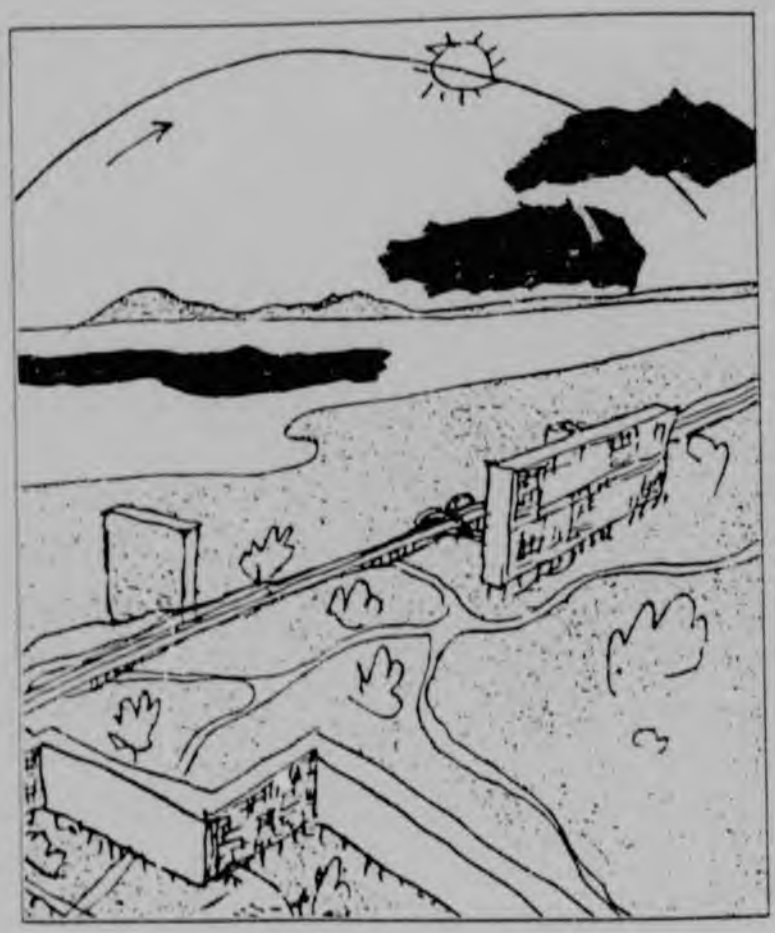
Albrecht (1985: 14) describes this development as responsible for the phenomenon of uneven development in societies. Through the process of scientific research, technology has advanced, producing new possibilities in an unreflective manner for which we have had to find purposeful applications - the means determining the end. Through progress, which has become automatic, abstract potential continually occurred. This in turn resulted in an uneven development of many societies.

As a result of the achievement and influence of science and the belief in rationality, the main pillars of progress became: technocritization, bureaucritization and rationalization of society. Since the concerns of urban design were fostered in this context, it was therefore partially a result and mirror, and partially an instrument of the overall trend. These concerns distinguish themselves through an instrumental point of view of urban design

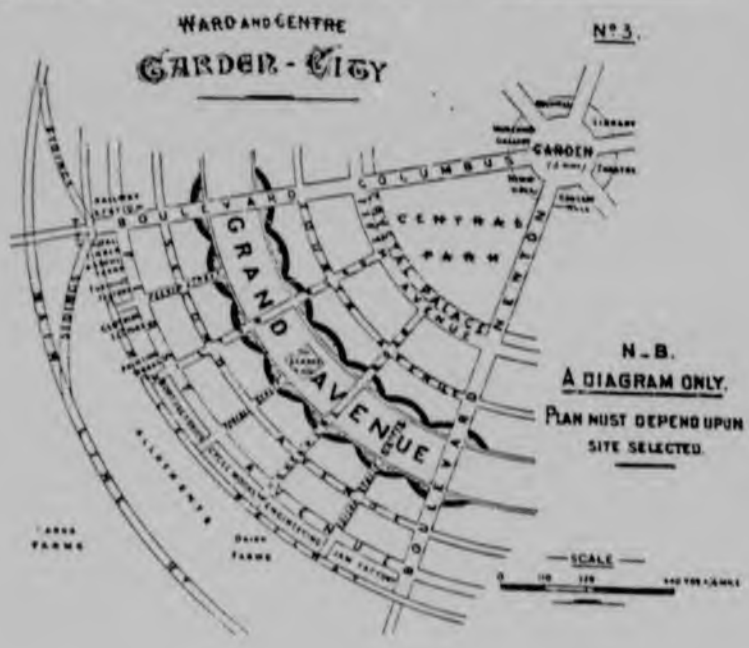
A consequence of this attitude was that normative studies of social and political principles were avoided and ignored. Moral and political choices were no longer appropriate subjects for rational debate. Instead there was the belief that more systematic empirical knowledge of how society worked would lead to the intelligent formulation of policies. These policies were believed to be able to eliminate social inequities and injustice and thereby solve some of the basic problems of society.

This sentiment was reflected through the CIAM functionalism movement - the most important movement in the first half of the century - in the urban environment around the world (Lüchinger, 1980: 15). In the 1920's and 1930's antipathy had developed within the CIAM towards the concept of the urban city, similar to that felt by the Garden City movement at the beginning of this century. The reasons were to be found in the chaotic urban experiences of the 19th century. As a hypothetical starting point the park-like city was developed, with swathes of greenery, and the well-known four-fold functional division: residential, work, leisure and traffic. It was seen as the appropriate solution to the needs of the scientific revolution of the time. The green swathed city, of which the eventual result was initially not visualized, was something completely new in urban planning.

Up to the the 1950's the formula: light, space and greenery with the four-fold division of function, was almost practiced as dogma. At the end of the 1950's this hypothesis became suspect because of a lack of social content. Criticism of the modern movement has come in three major phases (Lang, 1978: 16). The first was during the 1940's and 1950's, and lead by Team 10 and Aldo van Eyck. The second phase of criticism resulted from studies of the expectations and outcome of the large-scale housing and centre-city urban renewal projects of the 1950's (Jacobs, 1961; Gans, 1962). The third phase is more recent and stems from the development of the behavioural sciences themselves. Newman and Alexander, in their studies of privacy, territorial and personal space, attempt to model social sciences after critical natural sciences. The effects



Le Corbusier's City Governed by the Course of the Sun, Drawing
Le Corbusier's sketch of his concept for the City of the Twentieth Century expresses the Functionalist ideal of purified vertical architectural forms, low ground coverage, and a landscape of flowing, democratic space.



of this view on the social sciences is described by Albrecht (1985: 90) as follows: "Explanatory theories developed by social sciences and used in the urban environment are at best only partially capable of insight into a phenomenon like the city." The view held by social sciences, that the physical manifestations of behaviour can be observed as a proper subject of inquiry are challenged. Both motives and ends are part of the process by which the city is developed. Without the ends that constitutes urban living, the city would have little meaning. The meaning behind city living is not merely subjective states of mind, it constitutes the activity of urban living. Knowledge about the city must come from an understanding of urban living and not merely from observations of its physical manifestations.

- CONTEMPORARY PROBLEMS AND AMBIGUITY IN URBAN DESIGN

In the previous section the main criticisms of the modern movement, which lead to value-free conduct towards those concerns similar to urban design, were explained. The dilemma created by the pluralistic society in South Africa is seated in the interpretation of a social context for urban design. In South Africa planning is based on an atomistic concept of society. This concept holds that structures consist of individual particles and differ from organismic and communalistic concepts which perceive society as having interdependent parts, all sharing a common interest. Similarly the common interpretations and definitions of the purpose of planning, centred on efficient and rational action, are in question. It will be argued that urban designers in South Africa address a complex

environment and that the nature of South African urban design problems force us to see it as part of a social process (Hatch, 1984: 3), not a science. In order to master these complexities, urban design must accept value considerations; and this can only be done correctly by getting involved in value formulation processes.

* The nature of the urban design problem

The task of the planner and urban designer was once understood as an effort to solve the imbalance between man and his environment. This imbalance was seen to be definable and understandable. The supposed solution to these problems was seen to be the pervasive idea of efficiency - planning needs to promote efficient actions. Derived from classical economics, efficiency was seen as a criterion for specific tasks with regard to the lowest possible input and the highest output of products (Hatch, 1984: 5). This has been the guiding principle behind engineering and scientific management and also represents governmental managements. When combined with the idea of urban design these principles inevitably become part of the urban design programme.

It is now being recognized that this easy definition of problems (assigned to an efficiency expert) focuses on the symptoms, rather than causes of planning and urban design. Urban design problems, generated by the complexity of the social structure, defy clear definitions and solutions. They are never permanently solved and must be re-addressed continuously and acceptable solutions depend on value laden judgements and not on irrefutable proof - Wicket in Ritters terms (Lang, 1987: 50).

The nature of urban design problems is such that they defy definition, including attempts to identify their boundaries and causes. Consequently urban design problems can never entirely be solved; therefore, it is evident that problem-solving is a process and can only be achieved as part of a social process. Accordingly planning is concerned with the larger social and historical context in which it takes place. It deals explicitly with normative prescriptive aspects and it's mode of thought can accommodate value considerations, which allow it to participate in value-formation processes (Albrecht, 1985: 21).

* <u>The context of urban design</u>

The context of urban design is the social order of urbanism - a way of life. This is man's relationship with the environment with special features that can be objectively described in terms of density, crowding, complex division of labour, formal social control, anonymity, heterogeneity and a rapid change of pace. As stated in the previous section, the conditions in this environment can either be restrictive or enabling (alienating or liberating). However, this environment cannot be assessed on its own, it must be related to a context - the social orders of society. Until recently urban design and related concerns used the atomistic concept of society (Albrecht, 1985: 29). In this concept man is seen as a self-enlightened individual whose motives are in the pursuit of personal profit and pleasure. Man is by nature self-interested and individualistic and not socially determined. His social representations are simply the additive beliefs of individuals consulted in a public opinion poll. It

was also assumed that society had equilising tendencies and was basically stable (Smith, 1978:19).

This approach views societal processes as the consequence of mechanistic and instrumental relations among a large number of micro units. For example, the "competition model" of economics explains the state of the economy solely in terms of the decisions of numerous households and firms. In this model, government is seen as just another member in the unguided market, an accumulation of countless decisions taken by micro units. The basis for government's decisions rests only with their individualistic qualities and judgements and excludes societal influence.

The implication is that this concept of society does not consider societal processes to be open to deliberate guidance. In such a context urban design could only be ameliorating and adaptive. The concept of "the common public interest" is also not conceivable because the atomistic mechanism would not easily allow for it.

Neo-classical economic theory viewed the Freudian self-interest of individuals as a given and positive sociological feature. So too, did the sociological theory, it saw the individual isolated by external forces, removed from an earlier integrated existence in a homogeneous organic environment (pre-industrial folk society). The findings of urban ecology, for instance, as used to organize and explain a wealth of social problems - lead to the acceptance of the concept of an atomized society among planners.

The Chicago school of social sciences, as representatives or urban ecological theory, had a persistent influence on planning. In "Urbanism as a way of life", Louis Wirth (Wood, 1982: 7) exploited the basic idea of human ecology, which held that society was made up of individuals, territorially distributed by competition and selection. He explained the city through population size, density and homogeneity. From this principle he derived certain likely patterns of interaction and their psychological and social consequences. He anticipated an emerging metropolitan "way of life", characterized by a decline in the social significance of family and kinship ties, the replacement of territorially based loyalties by interest group affiliations and of primary forms of association by secondary forms of association, the gradual assimilation of ethnic groups and the decline of the neighbourhood as a significant social unit. Wirth wanted to see these informal social controls replaced by political consensus, based on principles of rationality and scientific planning.

Albrecht (1985: 31) is of the opinion that the metropolitan way of life as the "melting pot" was not the assimilator Wirth made it out to be. The predicted decline in heterogeneity and increase in homogenity did not occur, but the coalescence of society rather facilitated a new type of heterogeneity. This new type resulted from internal differentiation, as opposed to the externally caused hetrogeneity - cultural plurism This means that the forms of community which have now emerged are in no way remnants of a more fragmented, localized society. What appears to have emerged is a "mosaic culture", a society with various, distinctly different, lifestyles. The dynamics of this society

are such that, on a societal scale, we have strong diverse tendencies, whereas at other levels, integration is achieved by mutual withdrawal into homogeneous communities. This mosaic of communities maintains different life-styles that are internally cohesive and exclusive. As a result each group is isolated from the other by different behaviour patterns and values. While Wirth believed that confrontation of different values eliminates all values, it rather appears that internal cohesion is often strengthened by conflict that arises from contact (Senett: In Smith, 1978: 85). If the general population increases, not only does population density increase, but information and knowledge increase as well. As technological development expands, the range of options and awareness of freedom to deviate and differentiate spreads, more variations of life-styles are possible. Combined with a growing desire for identity, rising affluence allows groups to take advantage of these options and even to invent new ones. The enlargement of choice aims especially at education and occupation, both of which are, in the opinion of Gans (Smith, 1978: 17), more important factors for greater diversity and heterogeneity than density.

These two different interpretations of society are reflected in urban design theory. The more dominant theory, which rests on assumptions derived from the atomistic concept of society, is the rational and comprehensive model of decision-making. It is based on the belief that man is a utility-maximising and self-interested being, whose relations to others are purely instrumental. In this model there is little place for social decision-making, common interest and shared values. Recognizing a pluralistic concept of

society poses a dilemma for urban designers (Albrecht, 1980: 39). If urban design was to react adaptively towards pluralism - coherency and consistency in planning would be missing and fundamental changes would take place in an unplanned manner. Future conditions would, then, be the result of unco-ordinated and conflicting policies and of countless, conventional decisions that ignored the socially disadvantaged and prevented necessary social innovation.

Reconciling urban design for the public interest, with urban design for group interest would provide opportunity and need for urban design as mediator in a social process. Working with something in a state of becoming, a process wherein value considerations are unavoidable and the guidance of value-formulation processes the norm. The belief in the common man.

* <u>The purpose of urban design</u>

Because people are highly adaptive they can adjust to the requirements of a wide variety of social orders and environmental conditions. However, it may be argued that it should be a concern of the urban designer to distinguish the merely tolerable forms of human existence, from those that enable positive human existence. This has been the concern of a great many social theorists. When looking at social structures that form the context for urban design, a central theme in many of the theories is the need to redirect the "diversion" of human energies from the pursuit of "wants" - which were viewed as artificial or false - to the pursuit of "basic needs" (Smith, 1978: 296).

Louis Wirth defined basic needs in terms of economic security, social participation and political power,

which serve to enhance individual freedom and self-realization in the context of a consensual moral order (Smith, 1978: 298). For Freud these basic needs were biologically rooted and could be reduced socially to the need for legitimate outlets for erotic and aggressive energy. For Roszak (Smith, 1980: 270) self-actualization combined the "mundane and the sublime" through immediate communion with physical nature and with concrete personalities. Working in small communal groups, the Rozakian personality could learn to experience spiritual ecstacy and self-transcendence. Richard Sennet's (Smith, 1980: 176) viewpoint was quite different, stressing the need for the developing personality to escape the constraints of homogeneous communities and to experience inner and outer conflict, in order to grow.

Although these theories differ greatly from one another in many respects, they are united in their opposition to the Freudian ideal of optimal satisfaction of the basic id instinct, limited only by "calculative egoism". Each of these theories pose further limitations on the id instinct to achieve goals as diverse as:

- moral support
- creative cultural development
- social justice.

These same issues are present in earlier social theories. The needs and wants theme is approached by Hegel and Marx from similar vantage points. Despite their different perspectives both theorists perceived the need for human beings to rise above the automatic level of existence to achieve their destiny as free moral agents, responsible for their own lives.

Hegel's view of history envisaged a progressive movement towards increased freedom and rationality as people acquired self-consciousness by becoming aware of the gap between their essential nature as free moral agents and existing cultural norms. The latter, once freely created, now stood in opposition to them, limiting their moral autonomy. To overcome the barriers which these cultural norms created required a wilful act of transcendence to a higher level of cultural development. Hegal viewed this process as a never ending struggle, between old and new ideas of perfection, through which history progressively unfolded. His influence on Wirth should now be apparent.

Marx too was concerned about barriers to fulfilment of the genuine human need for moral autonomy. Marx held that the dynamic that drove the capitalist mode of production had the tendency to generate new ideas and desires and thus new "markets" to supplement existing ones. These "false needs" tended to undermine the sense of human affiliation, which was capable of motivating social action towards social justice. These false needs structured behaviour in ways that converted social and political life into mere instruments of individual acquisitiveness. Desired needs tended to expand more rapidly than did society's productive powers. This gap between expectation and performance generated a high level of general dissatisfaction with life. Marx cited rational control over these false needs (wants) as an escape from the automatic or animal level of our nature.

These theories provide a comprehensive argument against urban design as a rational process by which the



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efficiency of various needs can be assessed with regard to given goals. If the purpose of the urban designer is to act efficiently with scarce resources, urban design becomes a market aid in the atomistic concept of society, where individuals tend to fend for themselves. Urban design thus becomes a means of balancing malfunctions, imperfections and irregularities. Urban design is seen as a means for change. Society is seen as essentially stable and in equilibrium and only "minor" corrections are necessary for it to stay balanced.

An alternative to this concept would be to see urban design as an agent of change, based on the assumption that man is a moral agent, able to influence the balance between himself and his environment. He can bring order by regulating the rate and direction of change, or instigate new change. Urban design is seen here as going beyond restoring normalcy, to consciously promoting a future state, different from the present ones.

In both these views of urban design, change is seen as a material process such as production, mastery of nature, rational organization and technological efficiency (Albrecht, 1985: 39). Social critics have argued against this kind of change, based on the continuous creation of consumer-wants to maintain the dynamic vitality of society. In the face of this situation, social critics argued for social justice in terms of equalization of opportunity to "acquire" and to "succeed" (Smith, 1978: 26). Some go even further, commenting that even perfectly equal access to the opportunities of urban living in a consumer society will not alter the level of alienation in our cities,

because of the inherent inability of material consumption per se to satisfy our need to conduct a purposeful life.

In consideration of distributive justice, urban design must increasingly challenge the previous pre-occupation with efficiency - "the justice of the present social allocation of wealth, knowledge, skills and other social goods is clearly in debate (Davidhoff: In: Albrecht, 1985: 34). Concepts of distributive justice, therefore, refer to the principle of equal access for communities and individuals to the resources and goods of urban living. Also implicit in such concepts are the recognition of the rights of sub-groups within the city to equal access.

The concept of distributive justice could be extended to the principle of re-distributive justice (or the compensatory principle). This involves the transfer of costs, benefits, or prerogatives from some individuals to others. The test of a particular urban design action, therefore, includes questioning who benefits and who pays - with regard to both principles. The result of these actions of re-allocation of benefits and costs cannot be measured in terms of technical solutions, only normative ones. Urban design in these terms would be to assure that the distribution of benefits and costs among people in a city is consciously deliberated and that the resources and goods of society are used to promote the best social conditions (Smith, 1928: 112).

The emphasis on human development is a necessary dimension of urban design. Inherent in urban design there will always be the need to balance incompatibilities that exist among different social orders.

The ever-changing situation in which society and urban design finds itself, invariably underscores the necessity of certain goals at the cost of others. This continuous balancing of the purposes of urban design can only be done in the context of the value-structure of society and not in terms of personal or special group values. It must be done through mediating structures that promote consensus-building among all social actors, to avoid succumbing to elitist ideas, or rigid normative schemes put forward by a minority, however well-meaning. A dialogue conducted according to democratic principles is the foundation for the eventual product. The purpose and roles within urban design are related to each other and dependent on the context in which the urban designer operates - urbanism. A definition of both can, therefore, only be determined by considering relationships and dependencies.

* Conclusion

The complexity of context and purpose of urban design, as well as the nature of the urban design problem, forces it to become socialized (a social process) and this determines the role of urban design in society. Urban design becomes a conscious assessment of the performance of future environments.

The context of urban design has been described as "urbanism". This is a "way of life" - a specific social order. Urbanism, as a way of life, suggests the accommodation of a specific social order in a specific relationship, within an environment which we believe denotes human growth (our purpose for urban design). It is this environmental relationship that

distinguishes the urban way of life from other man-environment relationships (suburban or rural).

This relationship between the purpose and context of urban design is specific because it is believed that this relationship produces better performing environments, with qualities like equity, choice, community and continuity.

The conditions that underlie the order or urbanity could be determined in various ways:

- historically (Mumfort, 1961)
- through comparative studies (Dewar & Uitenbogaardt, 1977) or
- as normative beliefs.

The basic prerequisites or principles in the environment which hold the key to environmental qualities, are presented by this study as a balanced environment constructed through equity and choice. It is an ordered environment, offering freedom through constraint, expressed in context in a community and continuity structure.

To identify the basic principles which underlie and which are necessary for the achievement of urbanity, becomes the basis of urban design epistomology - urban design theory of knowledge:

What can we know?
How can we know it?

We have seen that under the positivist influence of social science, urban design offered little resistance

to the social pressures of the capitalist economy and the consumer society. The result was that planning lost its belief in "design" as mediator in the environment and little effort was made to work out the implications of these ideas.

Scientific knowledge in the realm of the concern of the urban designer cannot be presupposed; it must accept the guidance of value ideas and therefore must differ from knowledge, which aims at laws and generalities. The inquiry of the urban designer cannot be conferred to observing only external regularities - it must include the inner meaning of social phenomena.

This objective was the main thrust behind the humanistic and structural approaches in urban design; firstly, as a reaction to the positivistic approach and also to get a better understanding of human action, not only the observation of it, but its physical manifestations as well.

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PART 2

CHAPTER 3

PART 2

PROCEDURAL THEORY

Procedural theory is concerned with the way in which the urban designer conducts design within the framework of his concerns. This in turn is conducted in the framework of urban design epistomology and ontology. That is, what is to be known and how one comes to know about it.

CHAPTER 3

PROCEDURAL MODELS FOR URBAN DESIGN

From the context of the concepts of "urbanism" and "urbanity" the urban designer's objective is the deliberation of the resources and the goods of society to achieve the best social result (Albrecht, 1980: 35). Taking into account the inevitability of value structures and the recognition of the need for consensus among all social actors, the question is: How to establish a procedure by which the urban designer intends to influence man's relationship with his environment?

Urban design is seen by many (Lang, 1987: 41) as an intuitive process. Others see it as a rational process and still others as an argumentative process. All these models of the urban design process identify three phases in this process (Lang, 1987: 42): an intelligence, a design and a choice phase. The nature of and inter-relationships between these phases is, however, the subject of much debate.

- URBAN DESIGN AS AN ARGUMENTATIVE PROCESS

This process sees the design process as consisting of an analytical, syntactical and evaluative process in which the designer uses a "black box" to turn input into output by some mysterious process.

- URBAN DESIGN AS A RATIONAL PROCESS

Rational models for the design process give much depth to the ideas of the scientific method and rational models of decision-making, as we have seen earlier. This model is described by Lang (1988: 44), as represented by Alexander's "pattern" concept, Christopher James' "design method" and Raymond Studers' "ideal type model".

This model is responsible for much of our present understanding of the design process, but our present understanding of urban design adds new ideas to our understanding of the design process.

- URBAN DESIGN AS AN ARGUMENTATIVE PROCESS

A value concern has been shown to be essential for dealing satisfactorily with context and purpose as well as contemporary urban design problems. The 1960's saw the birth of the participation revolution in design and new concepts were introduced into urban design that acknowledged value-considerations.

* <u>The advocacy approach</u>

The advocacy approach (Hoch, 1984: 338) has been utilized with regard to value-considerations. This

approach promotes the unequivocal inclusion of value-consideration within the urban design process. The urban designer's right to voice his opinion about preferable social conditions is recognized. All groups in society are encouraged to express their viewpoints according to democratic principles, thereby recognizing the plurality of values in society. The seeming contradiction between the right of the urban designer to take his own values into account while designing and his obligation to design in agreement with his client group, is solved through the specific selection process used in the advocacy approach by which the urban designer selects his client group in such a way that the values of client and designer and their interests are similar. This somehow limits the scope of this approach. It limits involvement in the value-formulating process because of the passive nature of involvement. There is also no effort at further dialogue betwen the urban designer and his client group and this may result in real community interests remaining unnoticed. This approach may also seem to neglect concerns on a broader social scale because of involvement with the values of only one group

* Social guidance

This approach (Albrechts, 1985: 42) deals with value-considerations by recognizing that values are closely related to knowledge, consciousness and power - the components of active orientation - and to consensus building. Values, knowledge and power act on each other in the process of decision-making in society. The ability to control and the capacity to form consensus is, therefore, linked to value-formulations.

If value-formulation were not replaced by normative guides and consensus not by control, the question remains: "What is the mechanism in societal guidance for achieving consensus and formulating values, which is the first step towards consensus-building?" (Hoch, 1984: 337). Consensus must be built up and, without an effective mechanism to accomplish that, it remains only potential.

* Transactive planning

This approach indirectly acknowledges value-considerations through emphasis on face-to-face relationships and person-centered dialogue (Albrecht, 1985: 46). This person-centered dialogue forces the designer into a relationship where value-considerations manifest themselves in society.

This concept is criticized for being unattainable and unrealistic - an utopian relic of the nineteenth century. However, it is important to acknowledge the fact that scientific knowledge should be used in conjunction with personal knowledge in the cause of urban design - in effect a process of "humanizing" knowledge.

* Conclusion

Advocacy-planning explicitly considers values, but its involvement in continuous value-formation processes is only passive. The selection process of the client group does not advance an argumentative dialogue between the urban designer and the "client". Societal guidance and the transactive approach deal with value considerations in a more indirect fashion. From the

transactive approach it may be concluded that the concept of dialogue is wider than a person-centred dialogue and should include the mechanism to communicate on a social level. Social guidance forces us to look closely at the critical role of power in society.

Value considerations are a necessary part of urban design. Dialogue is known to be an essential mechanism for value-formulation and consensus-building, apart from an ideological concept of value - which creates a false consciousness that distorts our understanding of social reality. Urban design, as an argumentative dialogue, has been suggested to deal with these problems (Lang, 1986 and Albrecht, 1980). This concept acknowledges the value-concept, as well as the concept of dialogue that permits equality and autonomy. Also important is the realization that an understanding of the substantive issues is important to the urban designer's ability to argue effectively. The quality of the argument will to a large extent depend on the quality of substantive knowledge (Lang, 1987: 49).

The concern is, therefore, for a combination of knowledge of an argumentative nature, as well as of a scientific nature

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CHAPTER 4

CHAPTER 4

TOWARD A PROCEDURAL MODEL FOR AN URBANISING SOCIETY IN SOUTH AFRICA

- HISTORIC BACKGROUND

Two dominant intellectual traditions are generally attributed to planning on the Witwatersrand. The one is a belief in rationality and science and the other resulted from the influence of various reform movements, that originated out of utopian thought during the second half of the nineteenth century.

Both these influences can be recognized in the development of the Witwatersrand after the discovery of gold in 1886. The early developments along the reef were rooted in the reform tradition. Settlements developed in a suburban fashion, very much as a response to the chaos of the early industrialization of Europe (Radford, 1982: 17). As the Witwatersrand developed, the pull-factor became stronger, making the area an important destiny in escalating urbanization in South Africa.

The history of the development of the Witwatersrand is one of urbanization - a process whereby people from less developed areas move toward the more developed area of the Witwatersrand, in search of greater employment or social opportunities (Morris, 1982: 14).

Important features in this process have been identified:

- The period up to 1910 saw the emergence of segregated locations for Blacks and the introduction of legislation to establish and control them.

- The period 1910 to 1922 saw large portions of land disinherited farmers, coming to work opportunities on the Witwatersrand, after the Boer War. There was also a realization by many of the permanence and the increased range of needs of the urbanized Black population that came to the reef after the discovery of gold.

- In the 1920's and 1930's a progressive inflow of Blacks to the Witwatersrand forced large extensions to the existing townships and resulted in the beginning of the present-day SOWETO, when the farm, Klipspruit, South-West of Johannesburg, was bought. Here we see the first evidence of professional awareness of what was already an urbanization process with considerable dimensions. A competition was held for the design of the Orlando East Township, which was to accommodate 80 000 people. The competition was won by the Furner Parnership, with Rex Martiennsen second.

- The war period, 1939 - 1948, saw an even bigger and more rapid influx of population to the urban areas, due partly to growing pressures and poverty in the reserves and the labour needs of the expanding industrial and commercial sectors, which were stimulated by the war. For the first time a

large-scale professional awareness became evident. Previously planning needs were catered for by mining engineers and surveyors. These people were supported by humanitarians such as social workers, public health officials and others. The need for these humanitarians became evident mainly as a result of the Housing and Municipal reform and Garden City movements in England after the turn of the century. It was the Garden City movement that also spawned the urban planning profession as we have come to know it in South Africa (Scott, 1982: 92). The ideas of the Garden City movement were very compatible with the reformist political program of the 1930's and brought about the municipal function of planning and "professional" dedication.

The profound ideas of this movement were only realized in a superficial manner in the middle-class suburbs around Johannesburg. In the face of growing urbanization professional involvement with political authorities grew closer, to accommodate patterns of segregation.

Japha (1987: 74-101) explored the development of the professional planning discourse of planning strategies to confront the problems surrounding urbanization, as reflected in two events and the associated literature. The first was the Town Planning Congress of 1938 and the second was the Rebuilding South Africa Exhibition of 1943. Both thse events attempted to establish a socially-grounded, scientifically-based programme of action for the profession, as a basis for their concern surrounding the problems of urbanization.

* The Town Planning Congress of 1938

Professional ideologies behind emerging planning strategies were developed mainly as a result of European Modernist housing practices and the emerging critique of it. As a result of events surrounding the Town Planning Congress of 1938, Corbusian Urbanism became the dominant force and made a significant mark on the South African architectual history and urban landscape.

The significance of this congress was the critique by Kurt Jonas against the Corbusian formal pre-occupation of the Martiennsen circle. The nature of the relationship between local architecture and its European source was challenged. He suggested that modern architecture was not just another style, but implied that a radical social transformation was needed, in the absence of which not even aesthetic aims could be properly achieved. He, therefore, deplored the aestheticism of the Transvaal group and suggested that it wa incumbent on modern architecture to work actively for social change. He confronted the context of racism and exploitation that faced architects and attempted to establish a formal housing model which could be substantiated in political, social and scientific terms, separate from the model of the European "moderns".

Japha (1986: 76) described these attempts as a failure, because in the end Jonas only succeeded in reinforcing the Corbusierism of the Transvaal group. He constructed a political justification for the work of Le Corbusier, presenting it as an illustration of scientific modernism and the local product of

sociological, phychological and technical analysis. He became entangled in the dilemma of, on the one hand, the desire for the activist engagement of the discipline, and on the other, the fear that its efforts would be perverted by the context in which it was forced to operate. Jonas responded to his dilemma by identifying and criticizing negative features of the South African political context; these were taken as read and used as constraints for the design. After all the negative structural features of the context were taken into account, a substantial residue of achievement was believed to remain possible. This was believed possible because of, on the one hand, the existence of a pure technical field of operation within the discipline, unaffected by politics, partly as a result of the capabilities of design to mitigate against adverse contextual features and, on the other, because of the inherent effect of the architectural object itself on popular consciousness (Japha, 1987: 77). Inherent in the projected act of architectural engagement was a hidden agenda in political and environmental terms. In spite of its associated rhetoric, Japha (1978: 78) described the argument as in part reformist and in part built on both environmental determinism and belief in the possibility of value-free engagement at the technical level.

Elements of this argument were crucial to work in the following years. Concern with urbanization spread rapidly through the profession in the early 1940's (Japha, 1987: 77). This was fuelled by an international climate in which programmes for post-war reconstruction were common, as well as the increased visibility of the housing crisis of the Witwatersrand. The Town Planning Congress of 1938 was the only

significant professional contribution in response to emerging urbanization.

The growing rejection of the Corbusian urbanism by leading figures like Roy Kontorowitz (a member of Kurt Jonas' thesis group) and later Norman Hansen (the leading figure in South African modernism after the death of Martiennsen), was significant because it resulted in the first clear public manifesto for the growing belief in the necessity of a social and political practice within the discipline.

* The Rebuild South Africa Exhibition of 1943

The work that lead to the Rebuild South Africa Exhibition of 1943 sponsered by the TPI, together with the Wits Town Planning School, was an attempt to formulate these new ideas into a formal model to deal with urbanization. The driving force behind this exhibition was Normal Hansen. The exhibition produced ideas from very diverse sources. Out of topics that included Soviet Planning, American New Town Policy and German Rationalism of the 1920's. The writings of Lewis Mumford and the post-war work of Walter Grophius were the most significant.

Mumford's writings were distinctly at variance with Corbusian urbanism. He attacked internationalism in favour of regionalism and the continuation of certain aspects of the modernist tradition (Japha, 1987: 80). Mumford also gave clear and direct attention to appropriate formal models in his new approach, by relating the concept of regionalism to the Garden City ideas, as defined by Howard, and the neighbourhood unit, as defined by Perry and implemented by Clarence

Stein and Henry Wright at Radburn and elsewhere. All these were projected as the planning devices for establishing a new regionalist consciousness. Of these two concepts it was the neighbourhood concept, originally formulated by Perry and subsequently popularized by Mumford, not the Garden City concept, which became important in the emerging urbanization of South Africa. The idea behind the neighbourhood concept (practiced in diverse forms and ideologies all over the world) was that of a geographically isolated, self-contained residential neighbourhood. In South Africa this can best be seen in the concept of the geographically isolated township in the form of a dormitory suburb, surrounded by arterial roads or a green space buffer strip, in which low-rise, low-density housing and local community facilities are located along a characteristically irregular pattern of internal roads. These planning practices are often attributed to the influences of the Garden City movement. They, however, violated most of the principles advocated by Howard, the father of this concept. His own schemes were directed against both dormitory suburbs and urban sprawl and were based neither on such low-densities nor on the sub-division of urban districts at a scale smaller than the town as a whole (Japha, 1987: 89).

Gropius widely regarded as the architect in the European Modern Movement most responsive to social issues, was another important reference (Herbert, 1975:28). His work was considered to be a practical demonstration of the "objective scientific method". Together with the influence extolled by Mumford, Gropius had a direct influence on and after the South African Exhibition of 1943. Although the exhibition

was presented explicitly as a result of the 1938 Congress, it was a radical departure from the internationalist vision of Le Corbussier, which had previously dominated - in favour of a regionalist approach. This new approach was seen to be more democratic, realistic and locally relevant and, therefore, better able to achieve wide social environmental and aesthetic goals.

The exhibition also attempted (Japha, 1987: 79) to advance the scientific status of the discipline. The exhibition was specifically organized to promote the impression of the rational design method, in which the act of design would be not so much informed as directed by "objective contextual analysis" from the disciplines of economics, sociology and psychology. The designer was increasingly presented as a technologist, operating free from politics in a value-free manner. The concepts of regionalism and the organic neighbourhood unit were presented as the "scientific" products of rigorous sociological and economic analysis and clearly emerged as the formal construct to replace the unscientific Corbusian influence of the 1938 exhibition (Japha, 1987: 80).

Japha (1987: 80) suggested that the very specific possibilities for establishing a South African frame of reference, offered by the new-found concept of regionalism, resulted in attempts to establish the neighbourhood concept in South African patterns of segregation. This he illustrates with projects developed by Gropius in the early 1940's at Harvard University. The Harvard proposals for a new town suggested the new units of the "township" as the lowest sub-section in an hierarchial urban system. The proposals for the redevelopment of the "township"

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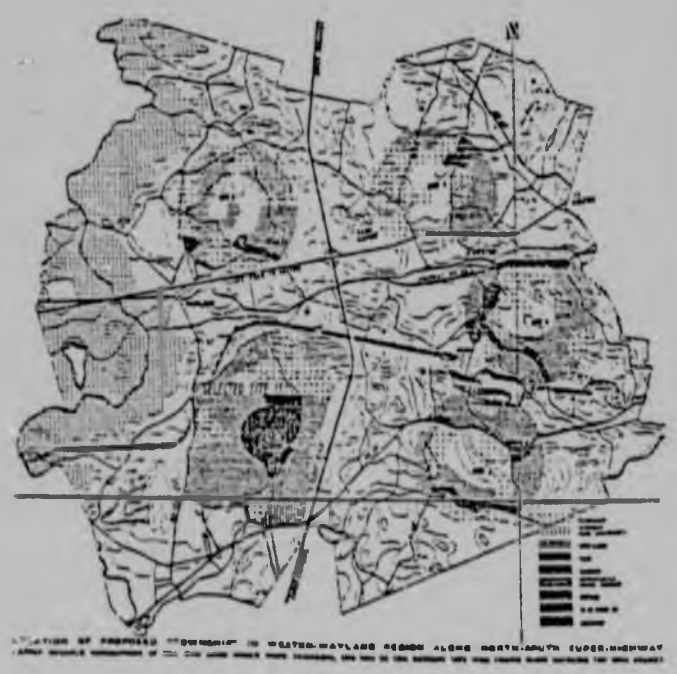


SCHEME PRODUCED BY STUDENTS AT
HARVARD UNIVERSITY UNDER THE
DIRECTION OF GROPIUS

included the redevelopment of larger areas, the evolution of legal, financial and administrative instruments to enable planners to conceive and implement master plans and the resettlement of all those without permanent employment in new townships along super-highways surrounded by farm belts. To quote the Gropius text:

> "Such a policy (resettlement of people in new townships) calls for transferring endangered production as well as purchasing power from a sore spot in the old city area to a sound new city, resettling those inhabitants of the old city who cannot be gainfully employed and have hence become a serious cause of blight and congestion. This transfer of ideal labor would relieve the sick body of the old city ... Simultaneously the stranded workers could be reclaimed for production at a much lower cost per capita than the old town had to pay for slum clearance on expensive land ... by transplanting the idle labor from cities as well as rural regions both the townsman and the farmer will be helping to build new settlements. These 'reception basins' (inverted commas in original) for uprooted people could take over functions which neither our big cities nor the open country can fulfil." (Gropius W and Wagner M, 1943, quoted in Japha, 1987: 80).

Although Hansen (Japha, 1978: 81) was aware of the exploitative possibility of the neighbourhood concept, he considered regionalism and neighbourhood planning to offer a possible solution to the "vital question of the residential segregation of non-European from European races".

* The implementation of the program

The South African Institute of Architects started negotiations with the state through the National Planning Commission, to translate their environmental programme into action by means of the appropriate political and economic agencies, as early as 1941. By 1943 the housing problem in urban areas had grown to a full-scale crisis (Morris, 1981:42). Between 1943 and 1945 the Institute initiated meetings with and sent a series of letters and memoranda to the Minister of Health and various officials in the Directorate of Housing. The first results came in 1945 with the appointment of Norman Hansen, first to the National Housing Council and then to the NHPC.

The NHPC's initial response to the growing urbanization was slow. The first results stimulated the housing research field, an inevitable consequence of the expansion of the state's involvement in the delivery of houses. In 1945 the NHPC approached the authorities for the establishment of a housing research program. Their efforts were, however, pre-empted by the formation of a Building Research Unit by the Department of Commerce and Industries, later to become the NBRI.

Hansen, together with D. Hadden from the TPI, became involved in the work of the NBRI at a policy-making level right from the start. His influence can be judged by the extent to which the NBRI's perceptions of its research function, mainly in the technical field, was altered, to the extent that an architectural division was established with a brief which included the organization of field experiments for the NHPC, in collaboration with the ISAA and the Universities, as

well as to improve standards of accommodation. The architectural research officer appointed for the work was Paul Connell, one of the joint authors of the Kurt Jonas thesis of 1938.

The immediate focus of research was on "scientifically determined social and physical minima". Eventually the CSIR was appointed by the NHPC to undertake and co-ordinate all work on housing standards. As a result of an official CSIR invitation to the ISAA, members of the South African Modern Movement were well represented on the various committees.

In 1949 an interim report was published with two main aims:

- to establish non-racial "scientific" minimum standards for space in housing, and

- to enshrine the neighbourhood planning concept of the 1943 exhibition in local housing practice, as well as to define standards for open space.

The report was based (Japha, 1987: 81) on the fundamental deterministic assumption of the neighbourhood planning theory that good neighbourhoods make good citizens and that it is, therefore, in the interest of the state to set standards for housing as high as economically possible.

The inability of the United Party to frame a coherent "Native Policy" is cited by Japha (1987: 82) as a possible reason as to why research programmes were not implemented. Virtually no Black housing was built during this time. As a result, the research programme

was not forced to confront issues "realistically", neither were objectives dictated by the NHPC, even though they commissioned the research. This lack of action gave rise to considerable frustration in the profession.

1948 saw a new government come into power. The ISAA attempted to ensure that it maintained the relationship it had established with the housing agencies under the United Party government. Although these overtures did not result in a more extensive professional involvement, the profession's representation on the NHPC and the NBRI was unaffected by the change in government.

An important recommendation of the interim report on minimum standards of accommodation was for further research to study "ways and means of ensuring the provision of recommended standards in all future housing (and) to consider every promising opportunity by which its objectives could be attained" (Japha, 1987: 80). These included the investigation of methods of construction, sources of labor and materials and the possibilities of more efficient organization in building. The consequence of this recommendation was the formation of further committees to review the standards recommended in the interim report and to examine the problem of the cost of Native housing (Japha, 1987: 83). It was the formation of these committees that systematically lead to housing policy becoming instrumental in the Verwoerdian apartheid state. The appropriation of these objectives of the profession's research programme into housing became a matter of course The concept of regionalism and the neighbourhood unit became appropriate in the much more extreme segregation under the Nationalist Government.

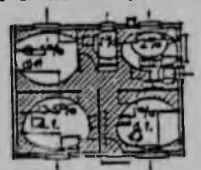
Another important factor was as a result of the increasingly reductionist and sientific approach followed in the analysis of problems of urbanization - making African housing "economic" and eliminating subsidies. New housing research programmes were increasingly directed toward "economic" housing, while claims continued to be made that the programme was based on meaningful social research and was achieving real gains in terms of the environmental quality of African housing (Japha, 1987: 84). These became a little hollow in the face of increasingly technical practices, as the programme began to focus almost exclusively on the rationalization of the individual house as the unit for production.

The review of standards set by the preliminary report of 1949 became a standard procedure, even before it was implemented. Joint committees of the Department of Native Affairs, the NHPC and the NBRI were established for this task, modifying the original standards in two respects:

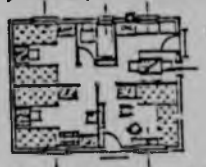
- they were made racially applica e and
- they were drastically reduced.

If these revised standards are compared with housing standards prior to 1949, it will be seen that the entire exercise did no more than rationalize accommodation at levels approximately equivalent to already current practice (Japha, 1987: 85). The big difference between the new and the old standards was that the new standards had "scientific sanction" as the product of a long and systematic process of research that had begun in 1947.

analysis of standard plan no 51/9.



plans analysis of daylighting.



plans analysis of furniture.



scale: 1"=1'-0"

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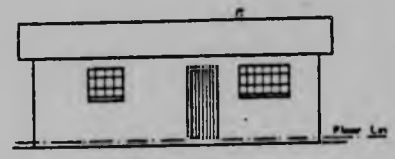
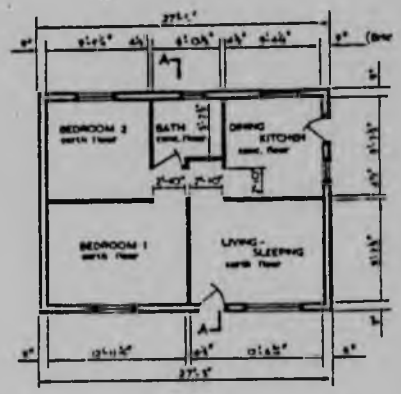


FRONT ELEVATION



PLAN

THE NE51/9 HOUSE

These new standards were published in 1952 as minimum standards of accommodation for Non-Europeans and became a standard for development. As a result of this the architectural branch of the NBRI produced the NE 51 series of houses.

Japha (1987: 86) concluded that it would be incorrect to exaggerate the role played by the design professionals in the development of the housing programme. However, their role was not insignificant because they made considerable contributions toward the synthesis that became the basis for the reality of the African township of the Apartheid State. He continues to make the point that any professional programme will fail if it is constituted in isolation purely as an aesthetic or technical discourse, unrelated to the political and economic issues which dominate the process of urbanization.

- THE CHARACTFRISTICS OF AN ARGUMENTATIVE DIALOGUE

We have identified the necessity of value considerations in Urban design. Furthermore it has been concluded that a dialogue is essential for value formulation and consensus building. The analysis of concepts that consider urban design a social process (the advocacy approach, social guidance and the transactive approach), have indicated the shortcomings of these approaches.

The argumentative dialogue can only proceed within the appropriate concept of knowledge and rationality (Albrecht, 1985: 53). The dialogue should be rational and grounded in knowledge. The disastrous consequences of functional and technical rationality was shown in the role it played, together with the value-free view



PANOPAMA OF SOWETO IN THE 1960'S



51/6 HOUSES UNDER CONSTRUCTION IN PHIRI AND
MAPETLA (SOWETO) 1960'S

of a positivistic scientific concept, in the formulation of a professional planning discourse in the face of the growing urbanization in South Africa.

* A theory of knowledge and rationality

The concern for knowledge is not whether the knowledge should be of a scientific nature or practical and based on action, but rather how to combine the two. The next question is: "What kind of rationality is appropriate for this kind of knowledge?" Both functional and technical rationality reduce all problems to questions of technical adjustment in order to regain a pre-supposed equilibrium.

We have already established that it is not possible to separate fact and value, that there is no "pure is". Urban design is concerned with both fact and value, as well as with methods of conducting rational discourse which would include ethical issues

To solve an urban design problem rationally from an instrumental or technical point of view the following should be assumed (Forester, 1983: 2):

- a well defined problem
- a full range of alternatives to consider
- full information about the consequences of each alternative
- full information about values and preferences
- fully adequate time skills and resources.

This model is impossible to follow in the strict sense. For, as we have already seen, radically simplifying steps are immediately necessary in a practical

application. There is an immediate gap between theory and practice.

Applying these assumptions to any study area in the South African context, one will find the following:

- ambigious and poorly defined problems
- incomplete information about alternatives
- incomplete information about the range and content of values, preferences and interests
- limited skills, time and resources.

Due to a pluralistic context, interests may differ. Different groups reflect particular interests and bias. The urban designer will find himself confronted by diverse and conflicting claims of competing interests, articulated by competing actors (Forester, 1983: 12). Problem definition in this environment is plural and multiple and information now becomes a political resource. It can be contested, withheld, manipulated and distorted.

Urban designers need the right kind of knowledge to aid their work in a pluralistic context. McConnel (1981: 26) suggests that the theory of knowledge as defined by Karl Popper is appropriate. His theory takes both a critical and scientific approach. He believes in the scientific method, but in falsification rather than in a positivist-style verification, as a method of obtaining knowledge. Furthermore he believes that knowledge advances by means of conjecture, which is not dependent on pure fact.

Critical theory developed by the Frankfurt School has also been suggested as applicable, in an attempt to

overcome the division in urban design theory and practice (Albrecht, 1985: 84 and Forester, 1980: 275). With critical theory urban designers have an empirical, interpretive and critical framework which constitutes a basis for knowledge, avoiding knowledge based solely on facts and the dominance of functional rationality. In particular the critical theory, as developed by Habermans (Albrecht, 1985: 92), has distinguished itself by unifying knowledge: The deficiencies of the empirical-analytical and the hermeneutic-historical sciences are corrected through the application of an emancipatory cognitive interest. This most basic knowledge - constitutive interest - guarantees the realization of the inherent critical function of theory. A synthesis of knowledge and comprehensive concepts of rationality precludes the separation between theory and practise.

The object of critical theory is liberation from all externally imposed constraints. Its primary purpose is, thus, to further human emancipation and to promote autonomy and responsibility. The mechanism for fulfilling these objectives is given through a discourse that functions at a level of theory, enlightenment and practise. Theoretical discourse is the means of interpreting social reality through differentiation of structural regularities from historically caused dependencies and relationships. Theoretical discourse is closely related to the discursive process of enlightenment and these two, by initiating processes of self-reflection, are connected to the formation of consensus for practical action.

Habermas' critical theory calls our attention:

(a) empirically to concrete communicative actions and organizational and political economic structures,

(b) interpretatively to the meanings and experiences of persons, and

(c) normatively to the respect or violation of fundamental social norms of language use, norms making possible the very intelligibility and commonsense of our social world, by looking at urban design as a normatively ruled structured communicative action which distorts, covers up, or reveals to people the prospects and possibilities of their environment.

Critical theory reveals the alternatives, corrects false expectations, fosters inquiry and spreads political responsibility, engagement and action.

* Conclusion

Urban design problems are fluid: understanding the problem is dependent on understanding the solution. Having an efficiency criteria no logner suffices, especially since equity considerations are now part of urban design practise. This situation demands more than technical control and an interpretation of norms and values, it requires the elimination of ideological manipulation. The continuous existence of ideological distortions in the environment, will make attempts at social reform or intervention merely a means of reinforcing the status quo.

Existing models of participation and reform of the urban environment do not operate with the concept of emancipatory interest (Albrecht, 1985: 83). Advocacy approaches, societal guidance and transactive effort attempt to increase autonomy, but they are unable to show how the environment can enrich or how the environment can distort communication and create dependencies. Although advocacy and transactive approaches, as well as societal guidance, use communicative action as a means of operation, they are still without a dialogue concept that permits equality and choice (autonomy).

Urban design becomes a mediator between man and his environment. The urban environment is a political system in its own right. City design becomes the mediator in a potentially democratic setting that can be enormously enabling.

- The first function of mediating theory is the formulation of critical theories. By establishing or identifying shared norms, the relationship between man and his environment goes beyond quantitative aspects to a qualitative relationship.

- A second function of mediating theory is in the process of enlightenment. There are constraints necessary to provide desired freedom. Critical analysis is necessary to mediate between society and urban order.

- A third function of mediating theory is to function as watchdog over possible misuse of urban orders for political means. The tendency of

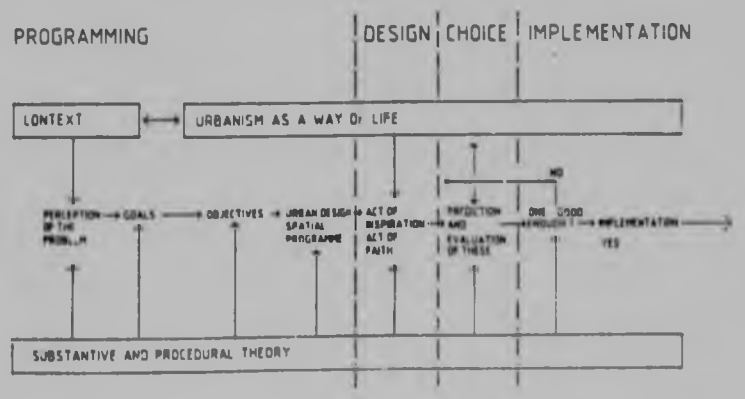
planners and designers to extend technical dominance to all areas of the environment must be avoided.

We have now established that an argumentative process is the right premise for urban design in the South African context. This process is subject to critical judgement from all participants. Through argumentation the problem and the solution emerge.

Argumentation in the design process must be applied to a number of basic intellectual activities that are combined in a variety of ways into a number of phases, each of which has a distinct characteristic and output (Lang, 1978: 45). These basic intellectual activities are: analysis, synthesis, prediction, evaluation and decision. Some are carried out very self-consciously, some intuitively and some by default. Translated into a general model of design process, Lang (1987: 45) identified the following phases:

- programming
- design
- evaluation or choice phase, and
- implementation.

There is a general linear quality to the process, but it must be recognized that each step is not carried out exhaustively and completely before the next is begun.



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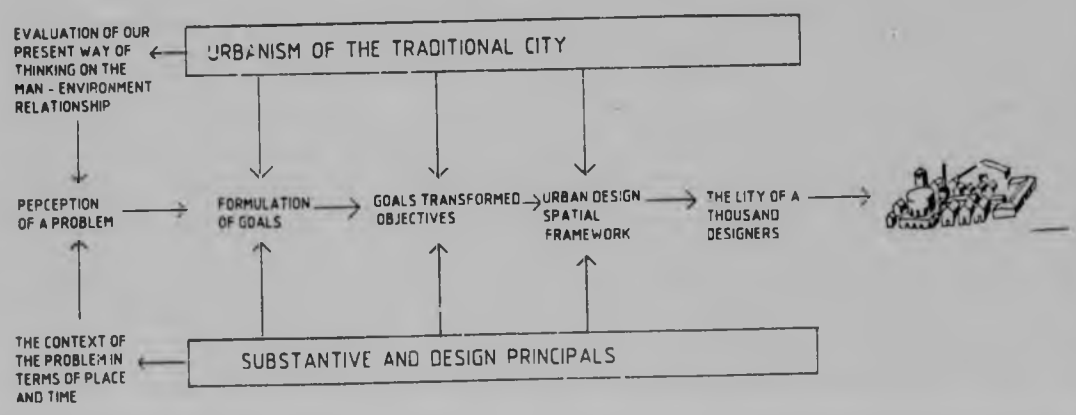
CHAPTER 5

CHAPTER 5

THE PROGRAMMING PHASE

The goal of the programming phase in design practise is to identify and understand the problems being addressed. It is concerned with the basic identification of problems, the setting of goals that the design has to achieve and the constraints under which the future design will have to operate. The programming phase is highly political in nature because there are many participants in the process, each with its own set of values.

The whole programming process is an argumentative one, but Lang (1978: 49) identified a general sequence of events.



IDENTIFICATION OF THE PROBLEM SITUATION:

The programming phase can be said to begin (Lang, 1987: 49) with the perception of a discrepancy between the present state of a social order and/or physical environment and some state known or believed to exist.

* The nature of the problem

After our evaluation of ways of thinking about our environment, we concluded that urban design problems are not easily defined. As Ritter (Lang, 1987: 50) noted: "... wicked problems have no clear definition." We have recognized that the problem should be dealt with as part of the social process and an argumentative dialogue. Nevertheless, a preliminary definition of the problem must be made to initiate the design phase.

The most prominent feature of the social, political and physical environment in South Africa is the reality of the urbanization process. For at least the next two decades this process will continue to bring in floods of, mostly poverty-stricken, migrants, to the urban centres of South Africa at a speed and scale unprecedented in our history. The metropolitan region of Johannesburg is expected to double its population to eight million in this period (Mills, 1986: 2).

People are coming to cities out of necessity and choice. Necessity or "push factors", such as adverse social, political and economic conditions, force migrants from a rural environment to an urban one. Migrants are also attracted to urban areas through choice or "pull factors". They are attracted to urban areas because of real or perceived opportunities offered by city life.

Despite many attempts to control the influx of people, present-day urbanization has become one of the most powerful forces in South African society. There are two views on urbanization. The first is that urbanization is a destructive force, the second that

urbanization is the only resource available to rectify what are perceived to be the mistakes of the past. Urbanization is seen as an opportunity to better the performance of cities, both in terms of their ability to operate efficiently and in terms of quality of life experienced by the people living in them. The very scale of the crisis provides an opportunity to radically change the nature of South African cities, enhancing their ability to meet current demands made upon them.

* The purpose of the urban designer in dealing with the problem

The purpose of the urban designer was described in the previous chapter as the active restoration and maintenance of balance between man and his environment.

It is becoming increasingly clear that our cities are performing to the detriment of the majority of their inhabitants (Dewar). This represents a serious imbalance in man's relationship with his environment. Choices are limited for the majority of the people, restricting the freedom to realize both individual and social potential. The possibilities of urban living are described by Dewar (1984: 27) as distorted and dulled by the historic legacy of institutionalized decision-making, within which the experience of the inhabitants has been moulded.

Accessibility to benefits and opportunities of urban living are restricted in most areas affected by urbanization. By definition these areas increase poverty and inequality. Many sections of the study area are not viable (Dewar, IN: Van der Merwe, 1979:

132). The cost of urban living in this area may very soon outstrip the majority of the people's ability to pay.

* The cost of commuter networks are becoming more expensive.

* There are many areas in the city without any form of economic base, which live as parasites on other areas.

Current modes of development in the city are not realistic. Planning tries to cope with "wants" not "needs", disregarding the growing third world component of our cities. Future planning in Johannesburg fails to recognize that the most fundamental urban priority will not be housing, transport or related services (important as these may be), but economic survival. Jobs can only be brought about by economic growth and the creation of wealth (Tomlinson, IN: Neoro 1988: 33). Present forms of urban development centre around the concept of housing as physical shelter, emphasizing the three attributes of: structural quality, levels of services provided and the space available for dwelling. Standards for development are measured objectively: soundness of structure, floor space, sanitary facilities, ventilation, etcetera. Very little consideration is given to the actual needs and aspirations of users. City development should be multi-dimensional in approach, not merely defined in terms of objectively quantified physical criteria of the "housing problem".

Developments are not resource conscious. Large areas of land are consumed by new developments, simply

because that is most easily obtained by the authorities. The result of this pattern of development are sprawling, unco-ordinated areas, with low structural density, in spite of very high population densities, due to over-crowding in certain areas.

Land becomes compartmentalized in large mono-use areas, linked only by transport routes. Motorized private transport dominates accessibility to these areas, rendering many opportunities inaccessible to poor people.

Development is not seen as part of broader development issues, despite the fact that cities have fundamental implications for economic and social development on a regional and national scale. Urban and rural development are interdependent, as rural development is essential for the sound development of our cities. Many problems experienced in the cities cannot be solved in isolation. They must be tackled at their source - the rural areas. Urbanization is not only the result of "pull factors". "Push factors" are important and must be dealt with. Real alternatives do exist. People must not be forced to leave the rural areas. The city is a specialized area and provides only one of a number of different options. In the city itself man's activities are played out on various scales. Elements that accommodate man's activities are scale-related, thus, while the precise definition of scale is arbitrary, the concept of scale influences environmental performance.

The conclusion of this analysis casts serious doubt on the relevance of present-day development. Few of society's most pressing macro-problems have been

solved, such as reduction in population growth, inequality, race and poverty (Dewar, 1985: 66).

Insofar as the urban designer's occupation is concerned with the physical order of the city, it should be recognized that the improvement of the physical order of cities is not sufficient to improve macro-problems, but an essential part in attempting to solve these problems. The primary objectives of city development must be increased levels of economic welfare for all people and greater equality. Structural changes in the political economy will also not necessarily bring about adequate improvements in the quality of life in cities.

The challenge for urban designers is the introduction of a new mode of city-building, capable of guiding rapid urban growth in such a way that the conditions for an improved performance environment are maximized from the outset. The aim must be environments that offer maximum chance for survival and the best possible choice and opportunity, which will enable the city dweller to benefit from urban living.

* The context of the problem

The context of the problem was described in the previous chapter as the order of urbanity. (The qualities of urbanity distinguishes rich urban environments from other forms of settlement (Dewar, 1977: 7).

The basic principles which underlie this order were identified as freedom (constraint), community and continuity.

The genius of urbanity (Dewar, 1984: 28) is based on the order which provides freedom through the constraint necessary for agglomeration. This provides opportunities which are simply not possible in more dispersed and less specialized forms of development. Our city structures hold, control and weld individual actions. Examples of these are historic constraints, natural constraints, technological constraints or structural constraints like roads, reefs, rivers, etcetera. These constraints are essential for the creation of a "public facade" in an environment where there is either too much individual freedom or nothing at all.

In "The Ascent of Man" Brownowski (1973: 11) sees the city as humanity's greatest act of communal co-operation. The essence of the city's purpose is the care and nurturing of community in the urban way of life. Yet, our city reflects people who have lost control over their homes, neighbourhoods and institutions. Abnormal growth is a feature of the urban environment. The environment is no longer in harmony with human activities. It now expresses the requirements of the machine (the profession of the technocrat), rather than social and cultural values.

Our rapidly changing environment lacks continuity. People lack stability. They are without a controlled and principled vision of change (Rayen, 1986: xxxi). The lack of concern for the temporal dimension in our cities is evident in the total absence of both abstract and physical relationships, and linkages and connections between areas of development. Each new development is treated as a clean slate, revealing little sense of "place" to serve as a sense of order in time.

* Conclusion

The generative capacity of cities to create economic, social and recreational opportunities is incredibly dissipated. Basic relationships between the urban and rural areas, between orders reinforcing each other, as well as the social relationship between people, are dislocated. With the result that the generative capacity of our cities becomes a drain on resources, which produces a sterile environment with no sense of place.

The impact of these inadequacies on urban living is profound. Dewar (1984: 229) says that the cost of urban living is rapidly outstripping people's ability to pay and opportunities for collective urban living do not exist.

The perception of the city as not performing, not even meeting the basic requirements, will be investigated further.

- THE FORMULATION OF GOALS

Goals are the basic underlying principles in the urban design process necessary for the achievement of urbanity. Implicit in the definition of the problem are the identified goals for urbanity. These are balancing principles of equity and choice, and urban order, constituted through community and continuity, that provide freedom by their essential constraints.

* Equity - fairness of access

Good environments should be accessible to all. This implies access to the benefits of urbanity, as well as the natural environment.

Access to rural areas is important - not only because of the psychological benefits and recreational opportunities rural areas offer, but for economic reasons as well (Fair, 1982: 4). The better the integration between an urban area and its agricultural base, the greater the benefit for low-income groups in the urban areas. This relationship affects not only the price of basic foodstuffs, but is very important for the stimulation of an informal "bazaar" type economy. The urban-rural interface is important in order to accommodate migrants from the rural community. The urban-rural relationship itself, is important because each is an essential part of the other. Dewar (1984: 29) describes agriculture as an essential urban land-use, and urban settlement as an essential feature of rural life.

Access to the benefits of urbanity is access to all the opportunities, activities and facilities which can be generated through the power of agglomeration. The different parts enforce each other to form an independent whole. Benefits are expressed in face-to-face human communication, free exchange of goods and ideas, and freedom expressed in multiplicity of choice.

Fairness of access is a political issue, related to different means. In South Africa ideology affects people's access to urban opportunities. It is also easier for the rich to overcome constraints of access than for the poor. At the most basic level fair access must be defined in terms of mobility for the poor - man on foot. Any additional means must be considered a bonus.

Technology should be used to enhance the basic conditions needed for fair access, and not as a

standard as in the case of the sprawling environment around our cities. Public transport must be used only to define higher order facilities and activities as they emerge in the greater city context.

* Choice

Urbanism, as a way of life, suggests the accommodation of heterogeneous groups of people involved in non-agrarian activities which entail a high degree of specialization of labour. In this context institutions for advanced learning and the arts emerge that spawn the interplay between innovation and change.

The city becomes a generator of choice (Mills, 1986: 1): choice of opportunities, lifestyle and moral options. The more choices the city offers, the greater its attraction as a place to live in and the greater its capacity to accommodate growth and change. Cities which generate a lot of choice emerge as enabling environments that foster human development through their ability to accommodate a variety of experience.

Variety of experience implies places with varied form. uses and meanings (Bentley et al., 1985: 27). Variety of use interlocks with the other levels of variety:

- places with varied uses have varied buildings of varied form;
- these attract varied people, at varied times for varied reasons;
- because of different activities, forms and people, a rich perceptual mix is provided. Different users interpret the place in different ways and so it takes on varied meanings.

The complexity of such an environment is the hallmark of positively functioning environments. It results from freedom of action and decision-making and the creative talents of a wide variety of people. Such places counteract and offer an escape from the everyday work and living environment. The city has always offered places of excitement: acting as a stage upon which citizens can display themselves and see others (Jacobs & Appleyard, 1987: 116).

* The order of the city - freedom through constraint

The urban order can be described (LÜchinger, 1980: 16) as a complete set of relationships in which the elements can change, but only in such a way that these remain dependent on the whole and retain their meaning. The whole is, however, independent of the relationship between the elements. And the relationship between the elements are more important then the elements themselves. As a result the elements are interchangeable, but not the relationships.

Man, as defined by the atomistic concept of himself, is no longer the reference point of the city. This position has been assumed by the urban order within which man, as an element, is dependent on the whole - the community and continuity structures. Man must relinquish his autonomous position to the totality of things. Freedom can only be derived from the constraints of the urban order. It is not that man equals the city (Lüchinger, 1980: 17), it is the collective awareness of our time that has constituted the city as object. This must not be seen to mean that man is entirely subject to the constraints of a specific order. The urban order must not be seen as a

"fit-all" concept. Man's future undoubtedly lies in a society with various community structures, sizes and forms, each suitable to varying needs. The urban order must remain an option within a range of options. Choice still remains a basic principle in man's relationship with his environment.

The genius of the urban order is described by Dewar (1984: 28) as the fact that agglomeration enables a range, variety and richness of activities and opportunities simply not possible in a more dispersed and less specialized form of development. The order is constituted by a whole, but dependent on the relationships that constrain the whole. It is these relationships that constitute individual human action, making them coherent.

* Community structures - the collective institutions of man

The pluralistic concept of community (a mosaic of communities) holds that communities maintain different lifestyles that are internally cohesive and exclusive. This results in groups being isolated from one another by different behavioural patterns and values. The concept of community is, therefore, informed by different concerns, depending on the scale on which this happens. The general result is, however, a system of common values and attitudes expressed through prominent patterns of life-style and environment (Wood, 1982: 8). Whatever its context, the basic function of community is the co-operative coming together of people in voluntary networks of association to derive mutual benefit (Bronowski, 1973). The two major benefits are possibly the satisfaction of the need for social

interaction and the need for security, whether it be physical security through proximity and numbers, or the psychological security gained from a feeling of inclusion and belonging.

It is clear that the profile of a community is related to the dominant reason for its existence. The city can, therefore, be seen as a highly complex system of communities existing at different levels. Community as a mode of existence in urban life is an essential structure in the urban order. The public domain serves to structure the urban order, both in its basis for collective life and its physical framework. By definition, urban space is social space and must be an extension of private space, as well as the focus of community life. If public space is rich, then the whole environment is rich. Poor public space is a residue of poor environments.

Community structures are essential to the urban order and a prerequisite for positive environments to emerge.

* Continuity - past, present and future

> "Past, present and future must be in the mind's interior as a continuum. If they are not, the artifacts we make will be without temporal depth or associative perspective."
> (Aldo van Eyck, quoted in Lüchinger, 1980: 23)

So many areas of our cities are becoming meaningless places beyond the inhabitants' grasp. We no longer know the origins of the world around us. Things happen in our environment without warning and in which we do not participate. There is a need for an image of

"place" to persist to endure the change. The "time depth" of place is necessary to convey a sense of order in time. These structures of continuity (Rayen, 1976: 6) are necessary to create a sense of stability, identity, continuity and of controlled change.

Continuity provides urban man with opportunities to pass on ideas, traditions and myths from one generation to the next. It is a way of transcending the present to the abiding future. Therefore man builds and preserves, to free himself from the dictates of time.

Man needs symbols to externalize himself and his culture and to create a sense of stability, both for individuals and groups. Mumford (1961: 101) saw the city as a human experience transformed into visible signs, patterns or conduct and symbols or order " ... where time challenges time, time clashes with time, habits and values carry over beyond the living group, streaking with different strata of time the character of any single generation ..." (Mumford, 1961: 101).

Societal institutions and symbols, as a structuring device in the city, are therefore very important. People need to feel they have control over time to be able to order things. Understandably urban order, in both spatial and temporal terms, enhances people's ability to have a meaningful relationship with their environment.

- TRANSLATING GOALS INTO OBJECTIVES

The translation of goals into design objectives involves an extension beyond the logic of urbanism to the specifics of context. To find form and process,

which are appropriate to place (and which will enhance the uniqueness of place), the response to context must transcend the concern with the crisis of urbanization, to fulfil the promise of place.

* The study area

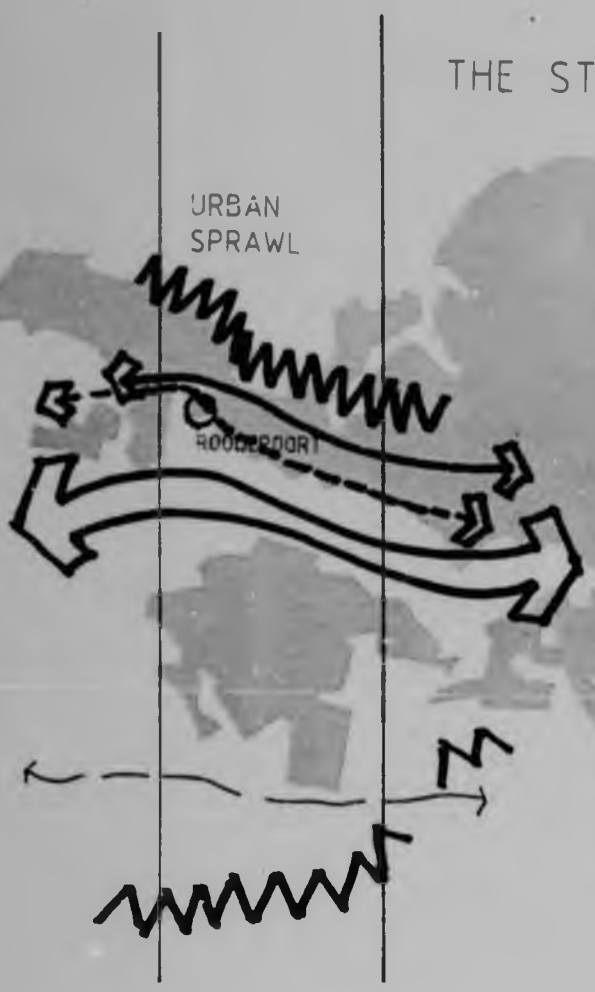
The study area chosen for the investigation is a section through metropolitan Johannesburg, West of the CBD. This strip includes the major structuring elements of metropolitan Johannesburg:

- The Klipriver system to the south of Johannesburg.
- Soweto - the city created by apartheid.
- The East-West mining corridor.
- The East-West railway line.
- A mining settlement, Roodepoort, with roots that go back to the discovery of gold on the Witwatersrand.
- The East-West motor commuter routes.
- The East-West ridge system.
- The urban sprawl to the north of Johannesburg.

Within this area opportunity exists to investigate the possibility for an "intermediate city", an area with relatively low structural density and with a good infrastructure. This area could be stimulated to develop as a counter-magnet to the CBD to alleviate possible over-burdening of existing opportunities.

There is a brutal mismatch between the existing city structure and the load it must carry. Urbanization dictates that the holding capacity of the area has to be drastically increased. This area presents an

THE STUDY AREA



THE NORTHERN RIDGE SYSTEM

THE EAST - WEST MOTOR COMMUTER SYSTEM
THE EAST - WEST RAILWAY LINE

THE MINING CORRIDOR

SOWETO

THE KLIPRIVER SYSTEM
THE SOUTHERN RIDGE

opportunity for infill development, new development and redevelopment.

The potential exists within the area to fulfil several bridging functions. Firstly, to accommodate a meaningful urban-rural integration. This interdependence is vital for future South African cities, because of its inherent potential to accommodate third-world type economies. The second potential bridging function lies in the divided city, integrating the deprived Soweto into a wider metropolitan and regional context.

The sprawling city

Growth in this area is primarily accommodated through the extension of new housing beyond the existing fringe. This has resulted in a series of pockets of almost exclusively housing development. These pockets are then separated from each other by freeways or buffer zones of open veld. The dominant mode of planning is based on the philosophy of "one man, one plot", and motorized transport the norm for this spatial layout.

Although the state and local authorities are the main agents of development in low income communities, the extent of urbanization is not recognized by them in terms of the provision of housing. This results in squatter areas becoming more and more evident on the outer city fringe.



THE SPRAWLING CITY







Blob City

Spatial elements in the area are located and managed largely in isolation to one another.

Commercial, educational, industrial, health facilities and housing operate in total isolation. Different uses are zoned into mono-use areas, which result in blobs of isolated specialist areas. Each of these successive development "blobs" are simply tied back to existing higher-order facilities and opportunities in older areas by means of a transportation network. This has resulted in blobs of the outer periphery being massively disadvantaged in terms of opportunities and facilities, because of distance.



NEW TECHNICON UNDER CONSTRUCTION



ONTDEKKERS HOSPITALE



SCHOOL IN SOWETO



ROODEPOORT CIVIC CENTRE



PRESIDENT SQUARE - VAN WYK STREET



O K BAZAARS - VAN WYK STR.



The illegible city

Movement networks respond to and reinforce existing urban patterns. No attempts have been made to use these networks as city structures which would manipulate or stimulate growth.

Different modes of transport are unco-ordinated. Each network is a specialist channel exclusively reserved for a designated use.

A general lack of clear physical structure allows new developments total freedom, with no responsibility to a totality. New development is almost entirely informed by self-interest rather than a responsibility to shared interests. Advancement in movement technology and construction techniques, as well as the dictates of supply and demand, were utilized in the pursuit of freedom, without the necessary constraints needed for urban living.



Placelessness

The dominant response to urbanization, as reflected in the study area, is the creation of massive low-income housing areas, planned and designed by a very limited number of people. The overall impact of this is one of sterility - with very little to offer in terms of sensual and spiritual experience.

This survey of the dominant structural characteristics within the study area indicates a poor response to the problems identified with urbanization. These responses are to a large extent contributory to poverty and inequality, and are by no means capable of accommodating a greater influx of people.

The main objectives in establishing a spatial framework which directs and controls the city of a thousand designers are:

- The integration of the urban area and its rural base in the form of the definition and control of a fixed urban edge.

- Accessibility to the benefits of urbanity, creating a city for a man on foot and to supplement it with an efficient transport networ

- Reinforcing the public realm as a vital compone t of city life, through the creation of a ystem of public space, that would struct urban development.

- The use of man's major social institutions as key building blocks in city building.

- The introduction of "The city of a thousand designers", to create a more complex proces of city building through:

  . An integration of activities:- living, working and trading.

  . The maintenance of minimum density in the urban environment.

- Livable streets and neighbourhoods.

- A belief in the common man.

The realization of these objectives (Dewar, 1984: 52) will not solve the problem of the urban poor. These conditions are, however, necessary for any political and social change to have the desired effects.

* Conclusion

The vision, for urban South Africa presented here, is rooted in the urban vision conceptualized from older places. The environment produced from this vision might not suit all people. We should continue to strive for urban living to remain one of many options. South Africa will still remain dependent on urban areas to provide livable and meaningful places for years to come. It is, therefore, important for cities to be places of opportunity, imagination and joy.

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CHAPTER 6

CHAPTER 6

THE DESIGN PHASE

The design phase (or urban design) is the phase in which potential design solutions to the programme are developed. They are either created during the intelligence phase or selected from a set of potential solutions (Zeisel, 1981: 6). The act of designing may reveal new problems and result in a redefinition of the original programme, but the focus of concern during the design phase is the definition of an urban design spatial structure.

Lang (1982: 58) recognized four basic processes as the basis for creative work:

- preparation, incubation, illumination and verification.

Preparation reflects the intelligence activity, incubation the largely unknown intellectual processes that involves digesting the problem and developing scenarios to solve the problem. Illumination refers to the apparent insight the designer has into the nature of his problem and its potential solution. Verification is the process by which the designer concludes that a viable solution has been found.

Design does not always involve totally new ideas. Novelty in urban design is not always an object worth striving for as an end in itself. Pragmatic, iconic and canonical processes do have applications (Bazjanac, 1974: 11). The fact remains that every time a designer draws a line, a choice is made between a number of

possibilities. Thus, the act of designing is one of creating (or selecting) the problem to be solved, the objectives to be met and the urban structures required to meet these objectives within an argumentative framework. The goal is to achieve the best possible design within given constraints - design as an optimizing process.

METHODS FOR DEVELOPING DESIGNS:

Three major activities can be identified in developing solutions to problems (Bazjanak, 1974: 4):

- review of historic information
- individual creative effort
- group creative effort.

In this study the review of historic information is preferred because it is an excellent method of dealing with urban design problems. Worldwide and locally we have many examples of successful urban environments. The principles behind these are very useful. Not only does history inspire and justify design, it is also an effective tool in the argumentation process (Trancik, 1986: 60). The review of historic information includes the study of paradigms and typologies, the adaptation of types that meet present needs (Eismann, Row: In: Lang, 1987: 58), and the use of design principles and standards. The objective here (Lang, 1987: 61) is to understand what others have thought about the problem and to understand which variables are considered to be important and the design problem used to "solve" these problems.

- THE CITY IN HISTORY

We have rejected the school of thought that holds that the reality of life is determined by scientific and technological ideologies. From this perspective history is perceived as our own personal knowledge of historic facts. This field of history appears as a landscape which can be surveyed, described and classified. The dream of modernity, of total autonomy of reason, made reference to history so redundant that it is possible to speak of the end of history.

No sensible discussion of environmental order can avoid the dilemma that has developed between history and tradition on the one hand, and the present situation on the other. The tradition of urbanity, once the foundation of the urban order, was largely lost during the nineteenth century. A vacuum was created, which was filled by the rational principles in city making.

Today we are questioning these principles and are once more looking for the typicality of experience (principles that underlie traditional urbanity), as the very foundation of environmental order. Typicality of experience has its origins in "place", which is also the source of stability and meaning. "Place" is an existential term - it is our mode of being in the world. It is the most concrete way of understanding the reciprocity of our experience and any given reality, i.e. the condition and possibilities of our existence, that of the surrounding world and the revelation of human qualities of the world itself.

Place endows experience with durable dimensions in relation to which a whole series of experiences will

acquire meaning - will form an intelligible history. The richness of place depends on the reverberation of meaning through the depth of history. There is no limit to the depth of our memory and its potential importance.

The return to the history of human place as a point of reference is not nostalgia, but a demand for honesty and truthfulness. It is not a movement back to our mysterious origins for their own sake, but an attempt to remember the forgotten and latent meaning of city living.

The place aspect of the yourg and featureless areas of our cities is vague. But even these areas reveal structures that are surprisingly stable. Some situations or places are always more important than others, some are similar and some are just repetitive. The picture that emerges is a hierarchy, with the most important situations in the centre of our lives and the less important ones on the periphery.

The process of differentiation and stabilization of "place" becomes more comprehensive from a temporal view. The deeper we move into history, the more "place" shares common precedence (roots), until we come to the myth which is the ultimate foundation (Trancik, 1986: 112).

Myth in this world discloses the basic reality which encompasses a foundation for human time, space, events and artifacts. Myth is the dimension of culture which opens the way to a unity of our experiences and a unity of our world, while it preserves the most permanent features of our lives. Myth becomes man's cosmic link.

It is the interpretative power of myth that gives life to symbols, allegories, poetic images and metaphors, which in turn constitute the real stability and meaning of city living (Rayen, 1976: 28).

It is clear that urban order and meaning depends only to a limited extent on history in the narrow sense. In the city, tradition has become a more powerful form of embodiment and a vehicle for continuity. Ritualization of city living is the fundamental bond between the present and the past. In ceremony, celebration and play, memory is reinforced through contact with history. The seasons and cosmic beliefs become a medium of shared experience within the city.

- THE CONTINUITY OF THE CITY IN HISTORY

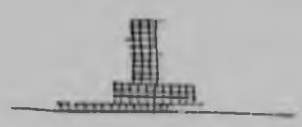
The history of the city shows clearly, that urban space reveals a great deal of stability, despite its great heterogenity. Urban space persists in the city as primary symbols, that contribute, inform and differentiate whole families of urban form as secondary symbols in cities. Urban form, as secondary symbols, completes the hierarchy of resulting forms and meanings and are held together by the power of symbols and symbolic representation, which allows us to move from one situation to another, because we understand their similarities and in the end the poetics of their metamorphosis.

It is under these conditions that we can understand the subtleties of territory and the poetics of metamorphosis in urban form in the process of mediation between public and private space.











The traditional city is a very reliable embodiment of tradition and therefore the ultimate frame of reference and foundation for urban design. Urban design becomes a nemesis of the traditional city in this sense.

The choice of Roodepoort is, therefore, a framework to establish a dialogue between present-day urban culture and the possibilities of the city of tradition. The intention is to utilize the city of tradition, not merely to recall the past, but to indicate the future. Also to avoid the meaningless contemporary city by using the reality of the existing environment and to look for a residue of tradition sufficient to support a re-interpretation of the urbanization of this city.

- THE TRADITIONAL CITY - A MORPHOLOGY

Trancik (1986: 97) identified three theoretical approaches to the study of the morphology of the traditional city:

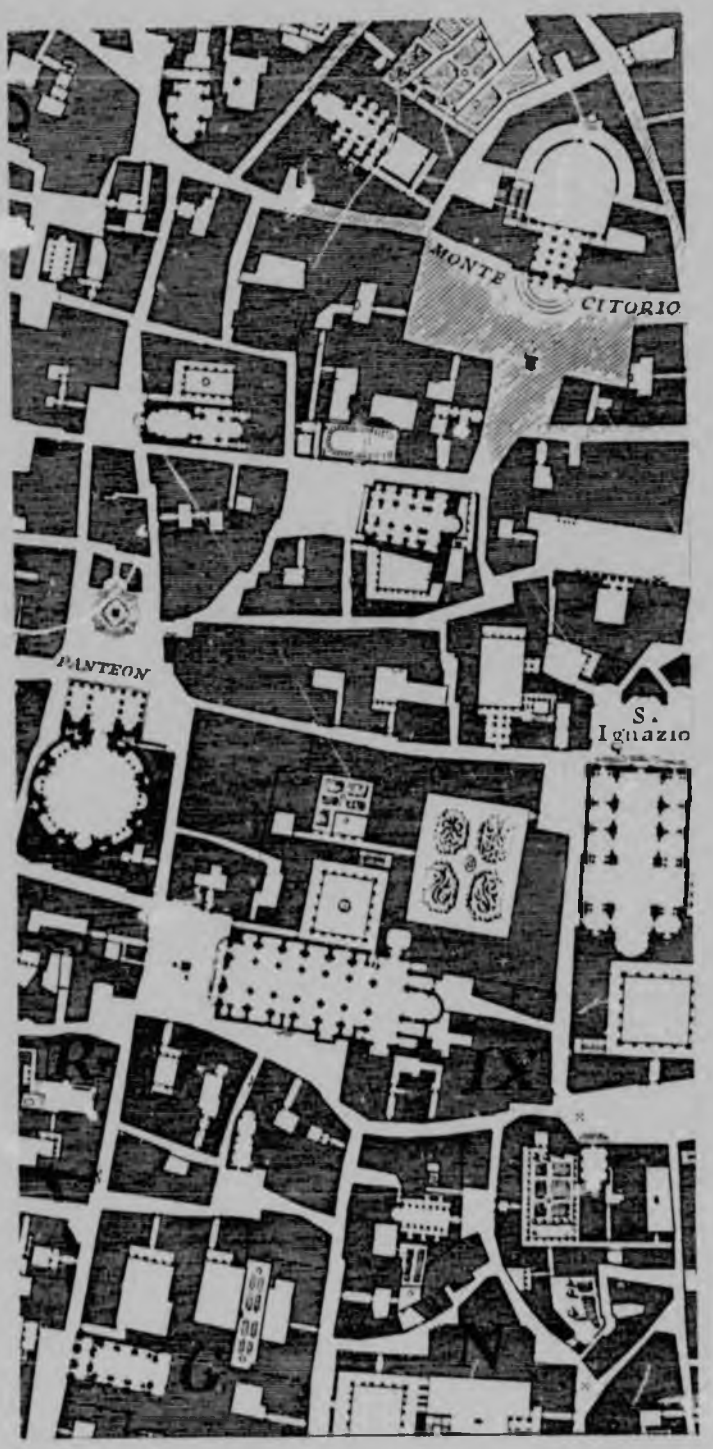
- figure ground theory
- [illegible] theory
- space theory.

* Figure ground theory

This view can be utilized on two different scales:

- Firstly, the city as a clearly defined urban and rural system.

- Secondly, the city as defined in terms of solids and voids.



Nolli's map graphically illustrates the figure-ground relationship of a traditional city where public civic space is carved out of the private tissue. The predominant field is a dense continuous mass, allowing open space to become a figural void. (Trancik 1986: 99)

THE NOLLI MAP OF ROME - 1748

The urban rural definition

The rural space fulfills a direct and meaningful contribution in sustaining the urban settlement.

The solid and void definition of cities

In the tradition.l city space is seen as a positive entity which is integrated with the surrounding solids (Trancik, 1986: 98). This is in strong contrast to the modern concept of space, where buildings are treated as figural, free-standing objects. In the traditional city the figure-ground relationship is one of overall coherency, featuring a mesh between the block pattern and the individual building. Object buildings are distinguished by their large civic spaces in front and by the predominant field of tightly packed streets and squares, registered within a continuous building mass or "private tissue". Thus, the difference between public and private describes civic buildings.

We have identified urban space as th_ primary structure in the urban order. Positive voids carry symbolic content and meaning by providing vessels that represent the tension between the individual and the collective. These voids are the medium of urban experience, providing the sequence between public, semi-public and private domains. The articulation of solid and void is also responsible for the make-up of the urban fabric of the city and establishes the physical sequences and visual orientation between places.

Urban solids

One important type of urban solid is characterized as non-thematic. These are objects in space, often the



THE URBAN RURAL DEFINITION OF RIVALTO, ITALY



THE FIGURE GROUND PLAN OF PIAZZA DEL CAMPO,
SIENNA ITALY

focal point, expressing historic, social or political significance.

Another important type of urban solid is characterized as a thematic field. The pattern and size and orientation of the composition of this field are important elements of the city.

Urban voids

Trancik (1986: 103) identified five different types of urban voids:

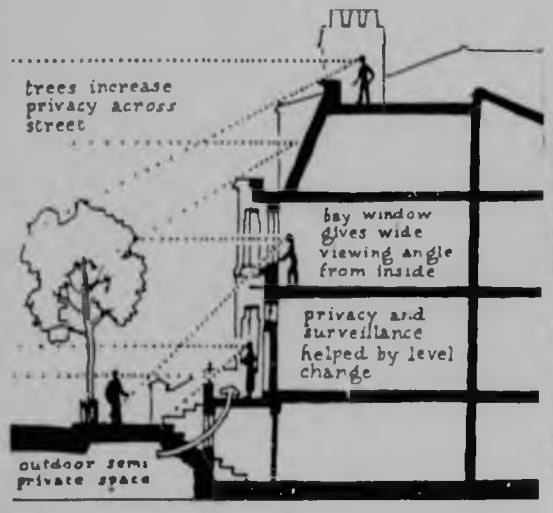
- The first mediates between public and private territory. The "Eye on the street", defined by Oscar Newman in Defensible Space (In: Lang, 1987: 151), is an important mediator between public and private.

- The second type is the inner block void, which is enclosed semi-private space.

- A third type is the network of streets and squares, a category that corresponds with the block layout in the geometry that contains it and supports the active public life of the city.

- A fourth type of void is that of public parks and gardens, which serve as a necessary contrast to the city fabric, offering both relief and accessible recreational opportunities.

- The final type of urban void is the linear open space system, which can be related to watercourses and ridges in South Africa. In contrast to the





SHEFFIELD, ENGLAND

EGUISHEIM, FRANCE



PROPOSALS FOR MITCHELLSPLAIN
UYTENBOGAARDT, MACASKILL & SCHNEIDER



INTERLAKEN, SWITZERLAND

THE EYE ON THE STREET

green world of public parks and gardens, this predominantly brown world threads through different parts of the city, creating edges and link places.

In conclusion: figure ground theory lies embedded in the manipulation and organization of the dialogue between urban solids and voids.

* Linkage Theory

Linkage Theory organizes the elements that serve as "datum" to which building and space relate. "Datum" refers to lines, planes or volume of reference to which city elements relate (Ching, 1979: 358). "Datum" structures a random pattern of elements through its regularity, continuity and constant presence.

Linkage is the glue of the city. It is the act by which we unite different layers of activity as well as the physical forms of the city. Designers need to know what geometrical possibilities exist as a basis for design - rules that facilitate the thematic and non-thematic elements of the city. Geometry has for a long time been the hallmark of architecture and city-making and is inherent to "place" - allowing a uniqueness.

* Place Theory

"Whatever space and time means, place and occasion means more. For place in the image of man is place and time in the image of occasion." (Aldo van Eyck - quoted in Lüchinger (1980: 27) in reaction to the well-known space-time concept associated with the park-like city of CIAM)



LINKAGE PRINCIPLES IN HAUSMAN'S PARIS
IN THE SECOND HALF OF THE 19TH CENTURY



THE ORGANIZING ELEMENTS OF MEDIEVAL
MANTUA

The essence of place theory in urban design lies in understanding the cultural and human characteristics of physical space. Space only becomes place when it is given a contextual meaning from culture. The role of the urban designer is not merely to manipulate form to make space, but to make space a synthesis of the components of a total environment, including the social and the mythical. The goal should be to reconcile the physical and the cultural context and the needs and aspirations of contemporary society.

The critical question is how to create responsive environments - relevant to time and place? Although place theorists (Trancik, 1986:49) tend to agree in the values they try to express, approaches are varied. Ralf Eriksin represents an attempt to respond to vernacular organic. New classicists, like Leon Kner, look at formal devices to connect the new to the existing. French contextualists created nostalgic collages to emulate the evolution of the city. Kevin Lynch has studied the mental mapping process of individuals in the city, while Stanfort Anderson studies the ecology of the street. Gordon Cullen explores the experience of sequence through space, whereas Lucian Knoll allows participation by people to create their own place.

Urban design, as a social process, sees the creation of place as a living process, an open-ended dynamic activity, in which each generation adds meaning and enriches it with contraditions.



OASIS LANDSCAPE IN ALGERIAN SAHARA



EL OUED OASIS ALGERIA

- A MORPHOLOGY OF CONTINUITY

The traditional city provides us with exemplary opportunities in its demonstration of the relationship between solid and void. These can be analyzed and classified in different ways: primary and secondary symbols, open space & built form, or public and private realms, determined by the following components (Gebauer, 1981: 3):

Public open space:	Street Square Green areas Some buildings
Private space:	Plots and block
Built form:	This acts as mediator between urban public space and urban private space.

The integration of these elements is described by Trancik (1986: 219) as possible by means of the integration of the spatial definition of the figure ground theory, with the connective qualities of linkage theory and the social reponsiveness of place theory. These three theories provide us with a morphology of continuity.

* Transformation: The city in a state of becoming

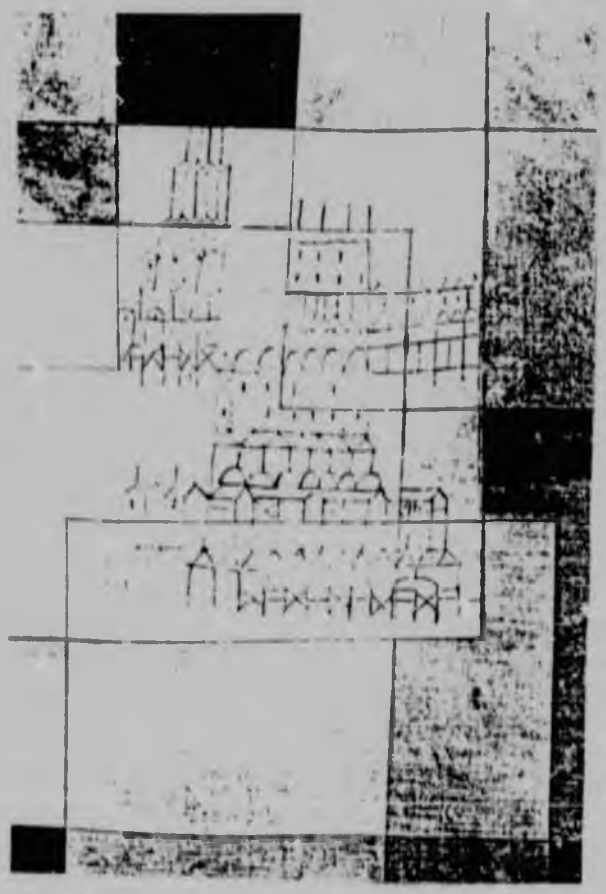
Built form must result from a process of transformation. The urban designer must provide a structure - a primary configuration that will lead to a number of possible alternatives. The urban design structure

provides something (a basis) to enter into dialogue with. Freedom lies in choosing the next move from a number of alternatives. Successful urban forms derive from choosing the option that leaves enough room for further alternatives for future needs.

The urban environment is in a state of becoming. This process requires knowledge of, and interest in, the way cities are made. The relationships between built form and space must be understood to enable different options to become evident. It is only possible to develop if there is a shared knowledge of, and vision for, the city in the state of becoming.

Built form must be autonomous from the dictates of functionality. We live in cities where built form is justified by functionality and design depends on a pragmatic premise. However, we cannot rely solely on a functional vocabulary in relation to form. Function must be a variable within a stable form. A broader vocabulary is needed to discuss moves, directions of moves, development of patterns, juxtapositions of space, relations of elements and other aspects of city-making.

The need for a prior image of the city in a state of becoming is not always possible and need not be a prerequisite. We are looking for a living process - open-ended and dynamic. The urban environment is the result of a social process and will always bear the imprint of that society by reflecting the needs and aspiration of that society directly.



P KLEE

* Theme

Urban form developed through the order of urbanity is like improvising on a theme. There can be variations and transformations of the initial pattern, but the "theme" allows society to connect with the urban design structure. Theme is a link that enables coherence in the urban form. Making urban form transformations in a thematic way is a mechanism to provide constraint in the design process.

Another aspect of the concept "theme" is its relationship to systems. A system gives us a choice of elements and their acknowledged relations in space. It emerges when we seek to establish rules. By approaching systems this way, we can see their thematic potential. A system always allows variations of form within the rules it imposes and it can support the thematic development of a configuration. Thus, systems-thinking can be a means of generating variety by following rules.

Theme and system both set constraints on what we do. In the system, constraints are spelled out; in the theme they are implied. The system is made up of rules, while the theme is convention. A system usually allows for many themes, but a theme always implies something systematic. Both are binding forces in that they imply a group of people who follow their constraints. Both theme and system are, in their own way, the product of people agreeing on a set of constraints.

Themes and systems require co-operation, giving design, when adhered to in a responsible way, within a social

context. Without thematic or systematic principles, continuity in the urban environment is difficult.

Themes and systems should be inherent to the urban design structure which mediates between society and the order of urbanity.

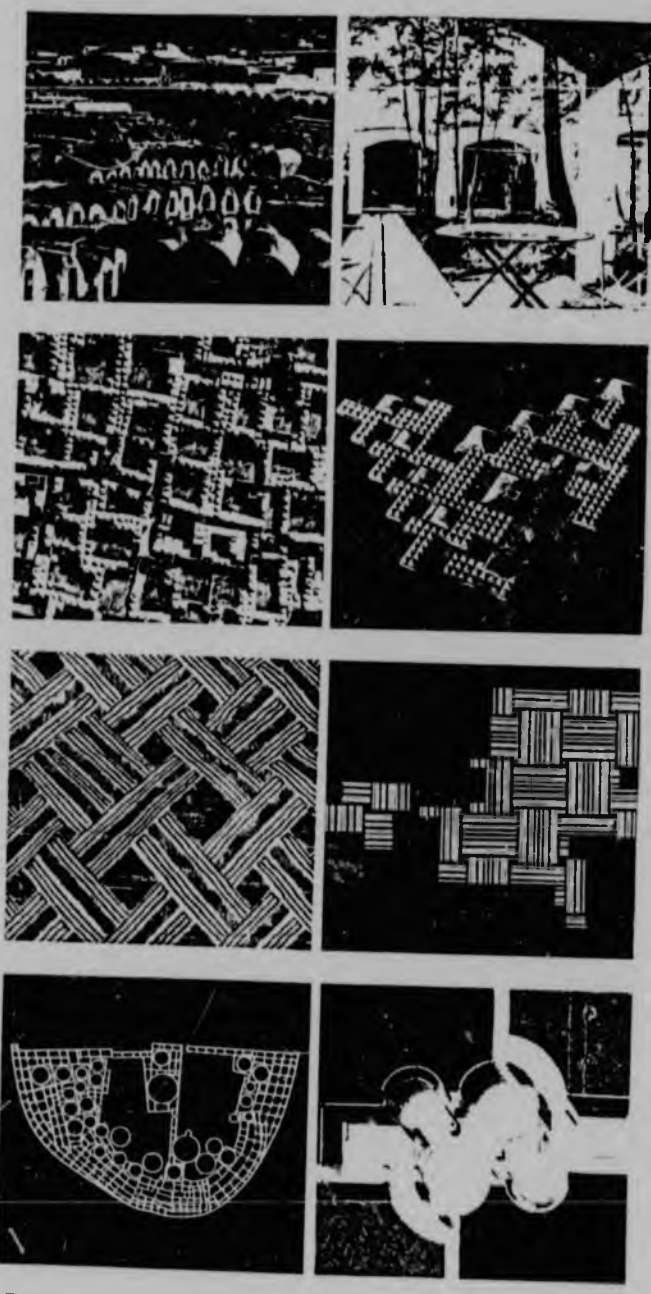
* The non-thematic (the unique)

The thematic, as a means to guide actions and connect things, is defined by the non-thematic. The unique cannot exist without the conventional and it is the tension between the two that brings out qualities of form. It is important to emphasize that the city is not only an agglomeration of themes and structures. Non-thematic structures refer to the total structure and relate different parts to it.

* Type

Types are shared properties within a culture. Type exists only in a social body, therefore it is futile to discuss type in terms of form only. The power of type is that it is never categorical, but allows a social body to produce very complex artifacts with a minimum of formal design and a maximum of efficiency.

As shared know-now within the social process, the type is known through acts, not through description. Type exists as long as we follow the conventions it implies. The living type need not be explained because it is already shared knowledge, hence its efficiency within a context.



THEMATIC TRANSFORMATIONS

LUCHINGER (1980 · 22)

* Field deployment

The thematic development of urban form is not restricted to self-contained forms that grow and transform. This approach can be extended in the creation of large continuous fields of urban form. The urban tissue (grain) consists of a particular set of elements and relationships, with clear identity limits and homogeneous characteristics.

To control the development of such fields, a number of issues must be studied. One has primarily to do with tools: the geometry that organizes that field. The other has to do with hierarchical structures of complex form.

Geometry

Geometry in design has to do with the placement of parts. It organizes where things go. These rules should facilitate the thematic structure, making a link between theme and field. The formulation of such placement rules is accomplished by means of the geometric in grid or zone systems.

Hierarchy (scale)

Two kinds of hierarchies can be distinguished. The hierarchy of assembly: a part-whole hierarchy, and the other kind of hierarchy which is a control hierarchy or dependency hierarchy. This is a hierarchy of entities which contain one another, rather than make up each other's constituent parts. The concept (dependency hierarchy) distinguishes realms of existence. In the city there is a hierarchy of discrete physical parts on

different levels that constitute realms of control. Knowledge of control hierarchies is a necessary tool for intervening in the city. Each level allows alternative deployment on lower levels.

* Territory

To distribute elements in space, the space needs to be accessible. Territory is space controlled by one party, who must have the ability to control that space. This is the basis for all use of space. Territory contains two kinds of spaces: public spaces and private spaces. These reflect patterns of inhabitation, the most general expression of use and function.

THE DESIGN:

- THE ROODEPOORT STUDY AREA

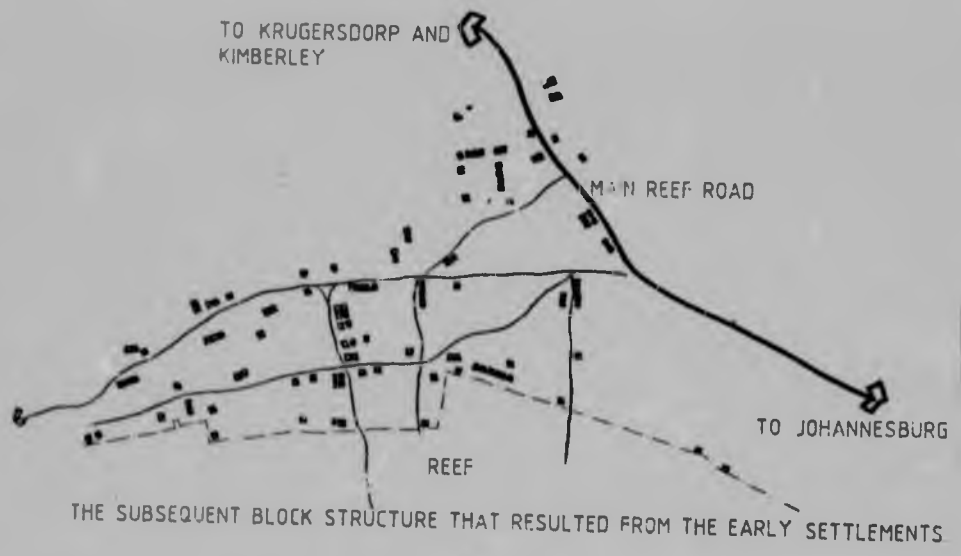
Roodepoort is the oldest area in the section under investigation. It developed as a result of the discovery of gold in 1886.

Within the context of the strip under investigation Roodepoort appears to perform far better in comparison to the other areas:

* It is well located and accessible to the rest of the Johannesburg metropolitan area.

* It is linked to the existing public rail transport system.

* It is near the future opportunity zones of the east-west mining belt.



THE SUBSEQUENT BLOCK STRUCTURE THAT RESULTED FROM THE EARLY SETTLEMENTS

THE 300×200 CAPE FEET BLOCK STRUCTURE USED IN MANY TRANSVAAL TOWNS



THE 50 × 50 CAPE FEET MINER'S PLOTS ON THE FARM ROODEPOORT AFTER THE DISCOVERY OF GOLD IN 1886

* It is relatively near to agricultural opportunities.

* It is a fine-grained area, with a healthy mix of commercial, light industrial, residential and institutional uses.

* It is relatively soft in certain areas, in terms of potential for re-development.

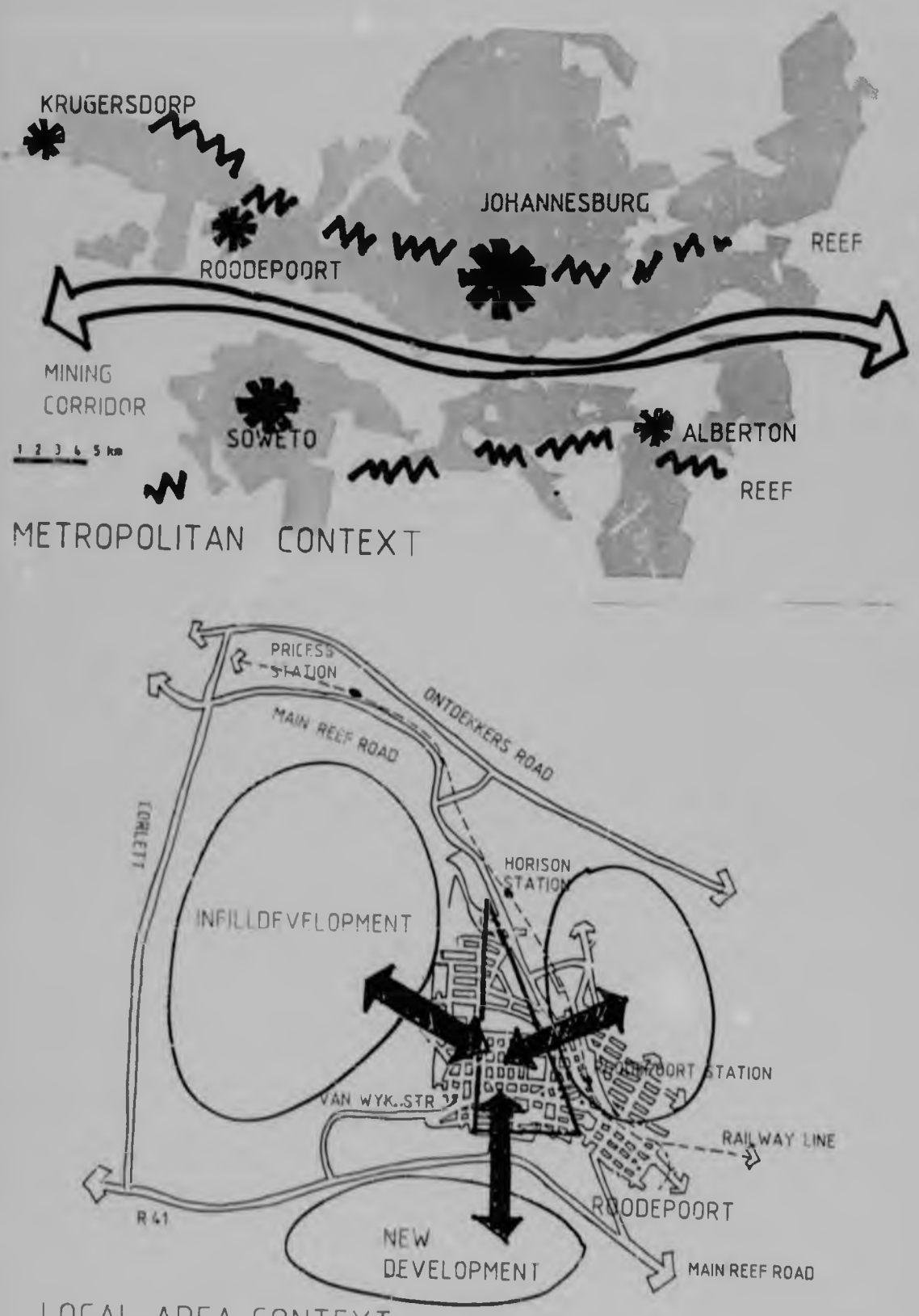
In terms of this study it is proposed that Roodepoort could act as a kingpin to anchor new proposals for dealing with urbanization. Opportunities for new development, redevelopment and infill development exist. Roodepoort will be used to generate the morphology of a spatial structure which will guide future growth.

- FIELD DEPLOYMENT

The spatial structure for the deployment of the urban fabric is illustrated by hierarchy and geometry:

* Hierarchy

The hierarchy of the traditional city indicates that urbanity is not achieved merely by adding parts to a hierarchy of assembly. In a dependency hierarchy, where different parts reinforce each other, each element in the development process must contribute to the whole.


KRUGERSDORP
JOHANNESBURG
REEF
ROODEPOORT
MINING
CORRIDOR
1 2 3 4 5 km
SOWETO
ALBERTON
REEF
METROPOLITAN CONTEXT
PRICESS
STATION
ONTDEKKERS ROAD
MAIN REEF ROAD
LOBLETT
HORISON
STATION
INFILLDEVELOPMENT
VAN WYK..STR
RAILWAY LINE
R 41
NEW
DEVELOPMENT
MAIN REEF ROAD
LOCAL AREA CONTEXT

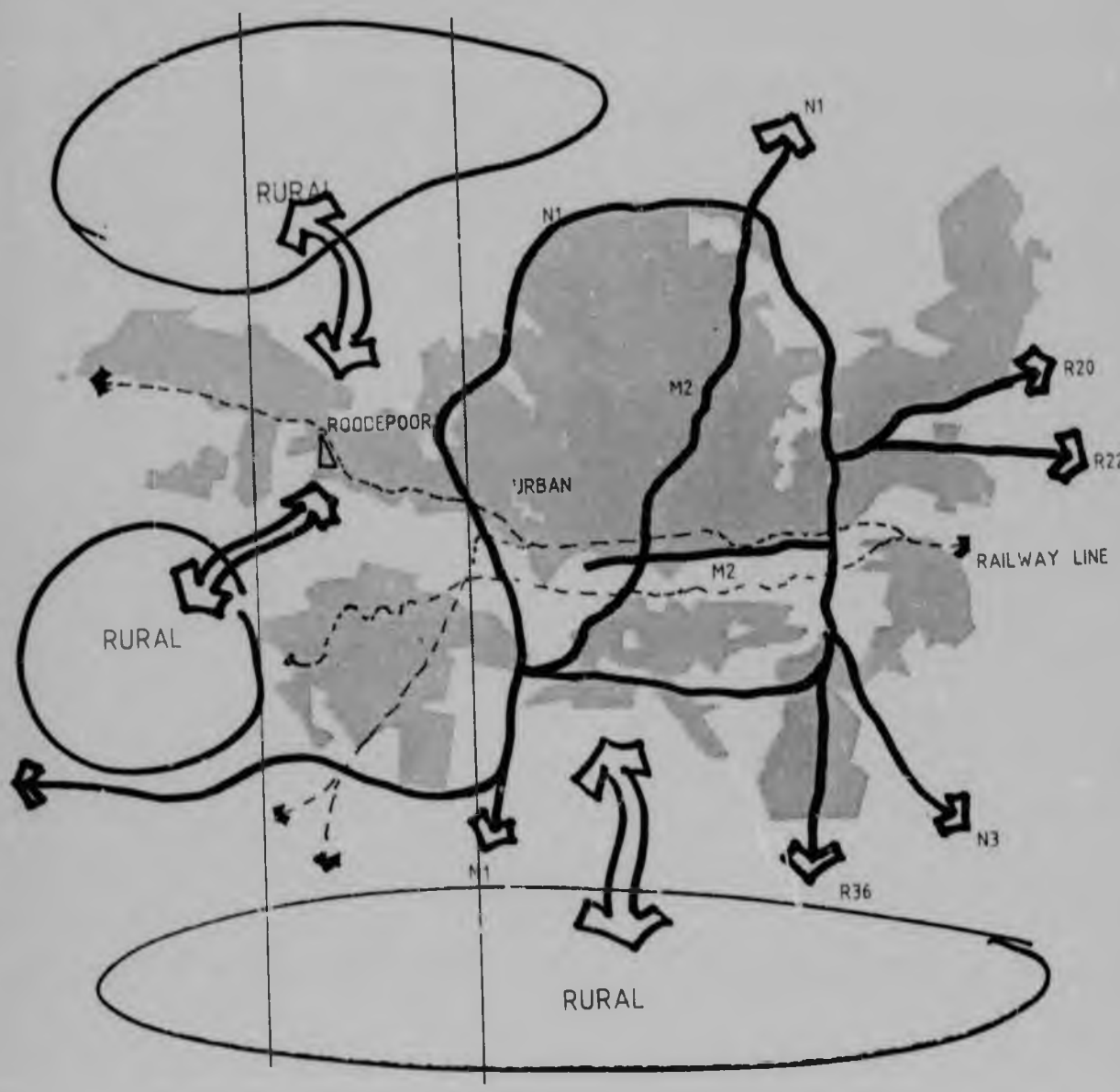
Dependency between Roodepoort and the rural and agricultural areas

Zuurbekom, now designated as part of Greater Soweto, is a viable agricultural area. Providing this area with a direct transport link in the form of an extension to the existing railway line, can enable this area to have cheap and direct access to urban markets. This has the potential of stimulating the participation of small operators in a "bazaar" type economy. These operators will then have access to the metropolitan area of the Witwatersrand.

An added advantage of a stable and defined urban rural edge is that it can serve as an effective control over urban sprawl. It will also make it possible to establish an interest zone which can specialize in the urban rural interface: industries serving the agricultural communities for example, as well as educational and research institutions with agricultural interests.

The dependency between Roodepoort and Metropolitan Johannesburg

Roodepoort is part of a metropolitan dependency hierarchy. To enhance and to optimize its position in a metropolitan context, the development must be well informed and alive to a vision of a metropolitan structure. Our study has identified two important elements in the metropolitan structure: freedom and constraint. The designer must be aware of the constraints to optimize freedom. The most important constraint in the Johannesburg metropolitan structure is accessibility for the man on foot.



URBAN RURAL DEPENDANCY

. Freeway channels

Freeways, carrying high-speed motor traffic, are not incompatible with a world of people on foot. These movement channels should be supplementary to the world of feet, however, and people should not be dependent on such systems, for access to the metropolitan context. The function of freeway integration remains on a metropolitan scale and the city fabric should, where possible, be protected from the pollus've influence of freeways.

The proposals put forward assume that the specialist movement channels designated for freeways have the capacity to facilitate a rapid public transport system when warranted.

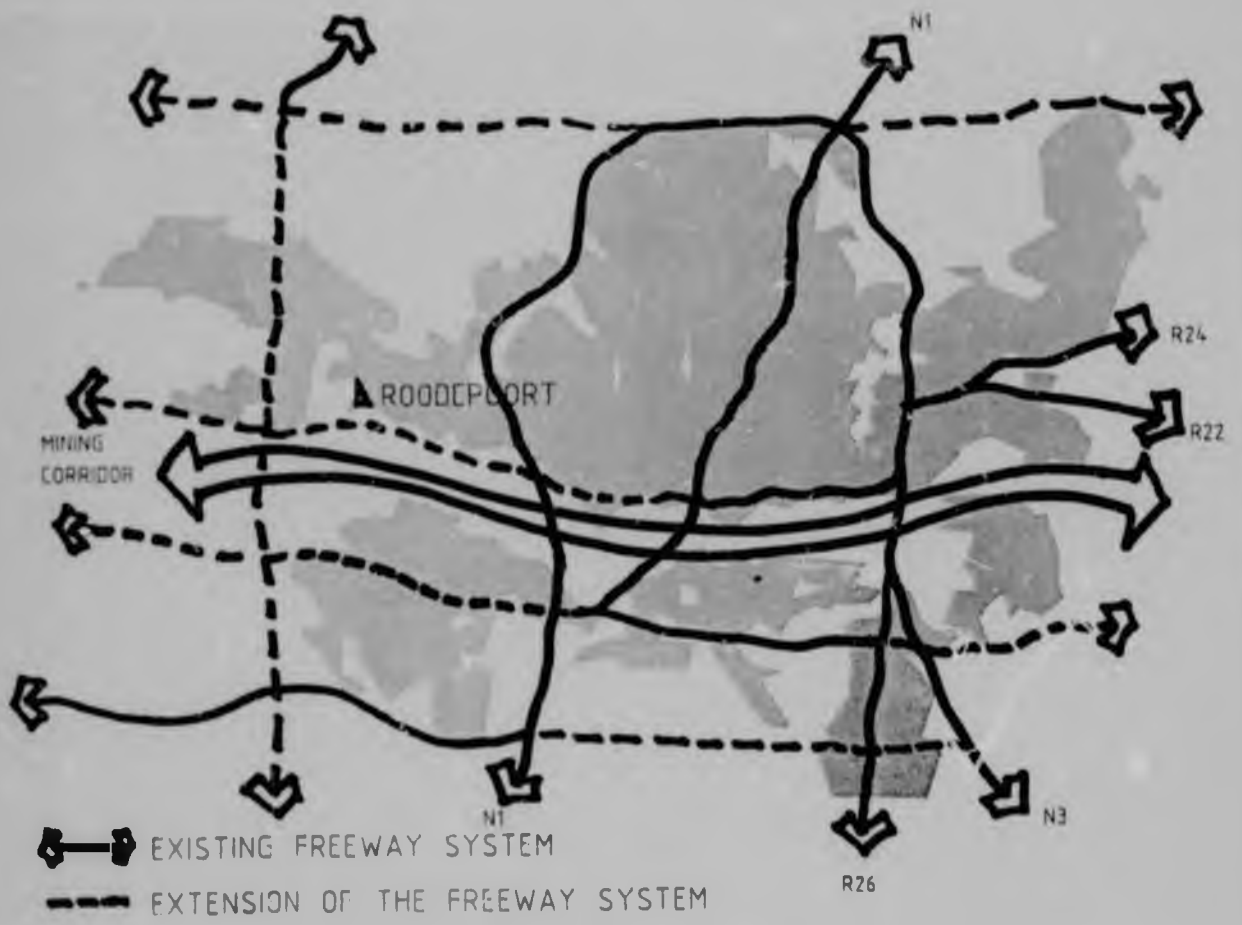
. The metropolitan development network

Urbanity, expressed as the product of different systems reinforcing each other, depends largely on the degree to which local areas are integrated into the metropolitan region.

The degree of integration is dependent on:

- The degree to which local areas are perceived to be part of a metropolitan area in terms of the response of potential growth to what has gone before.

- The degree to which new developments respond and are informed by major metropolitan routes.



THE METROPOLITAN FREEWAY SYSTEM

Routes that will be able to contribute to positive integration on a metropolitan scale:

- Must be able to carry sufficient volumes of traffic.

- Must allow for stop-start movement and not merely be movement channels, as is the case with freeway systems.

- Must be lined with intense activity.

Successful integration will have the following effects:

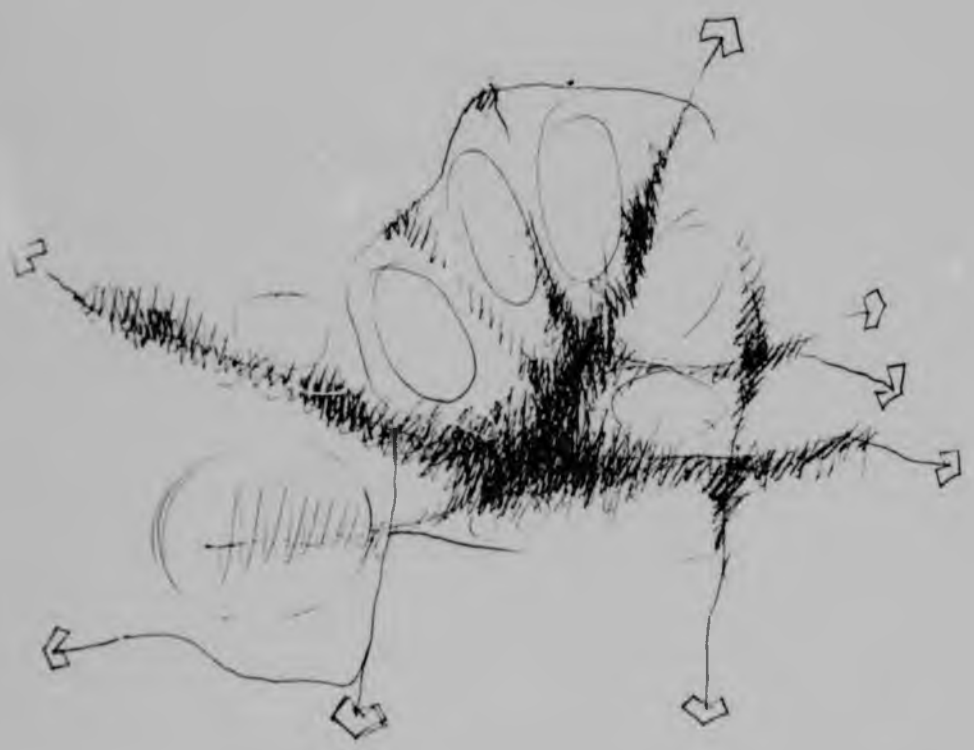
- Continuity and comprehensibility will be achieved. The routes are the threads that integrate the various parts of the metropolis.

- The various functions and qualities of the activities that occur along these routes reinforce legibility on a metropolitan scale.

- These movement routes are reinforced because they flank residential areas and so offer increased accessibility. This is achieved through railway stations, bus terminals and taxi ranks.

- Local support, as well as metropolitan movement, reinforces the activities along these spines.

Dependency hierarchies must be clearly legible and can be expressed in a structural framework. This framework is not obtainable through zoning, but through a natural process whereby the potential of different



ACTIVITY RESPONSE TO EXISTING MOVEMENT ROUTES

locations is realized; the potential to integrate a wide variety of land uses, with different location requirements and different degrees of compatability with each other and with the residential environment.

Large-scale integration is not only possible, but is positive in that different types of functions complement and reinforce each other in a dependency hierarchy.

The potential along the integrating routes does not only result from relative metropolitan positions, but also from context of place.

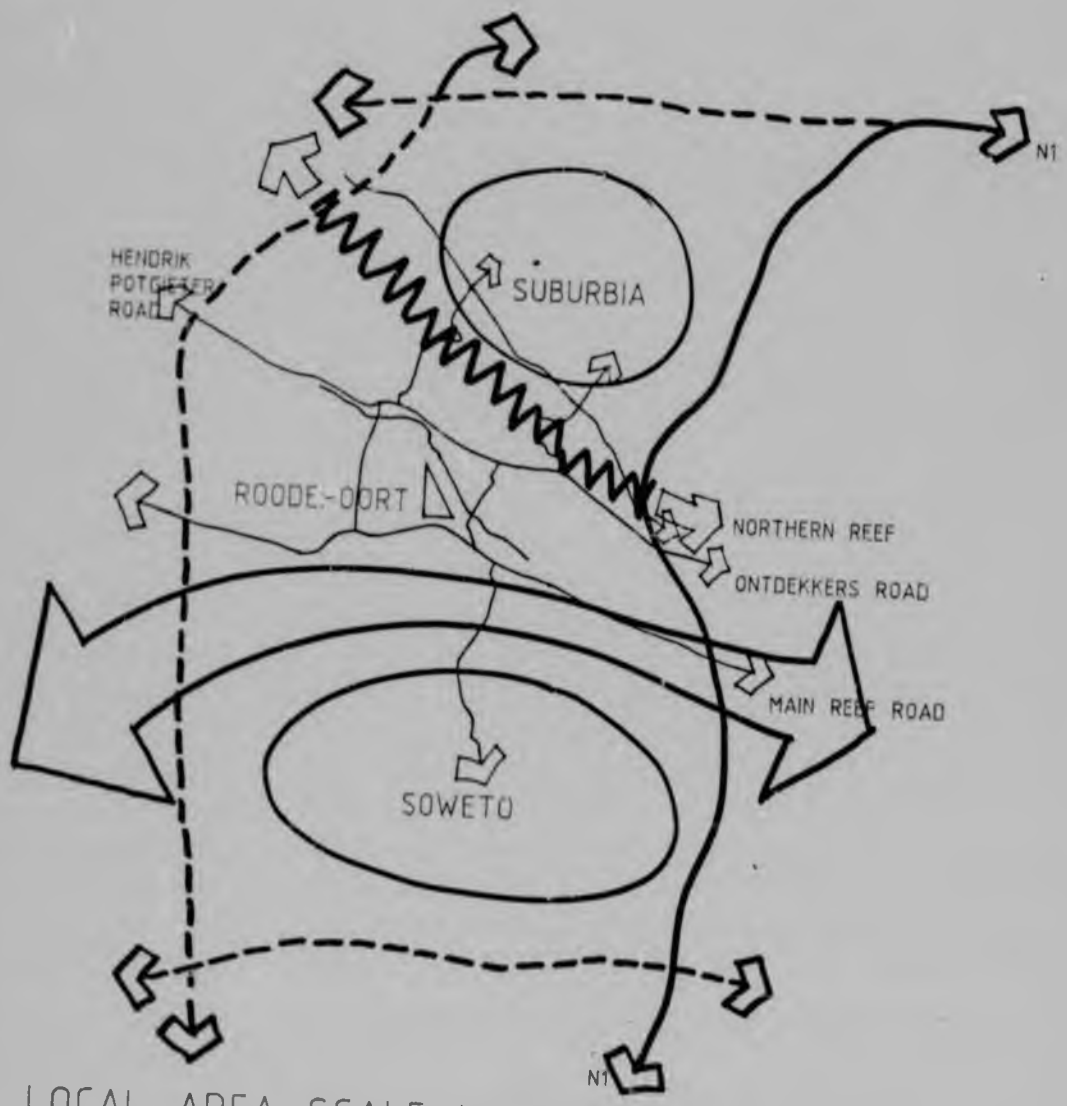
. Local area scale

The functions of movement channels on a local scale are as follows:

- These routes are the basic channels by which the local area functions within the context of the metropolitan region. Development of the local area is limited by the pace and volume at which its exports can be traded. At the same time the local area has an important concern. In a metropolitan context movement channels are vehicles for "export" and "import":

  . These routes are the vehicles for access to job opportunities outside the local area.

  . Through-traffic along these routes represents "imports" that can be capitalized on. It represents an additional "market" that, in turn, stimulates higher order facilities,



LOCAL AREA SCALE INTEGRATION ELEMENTS

which enables improvements in the skills, wages and salaries of the inhabitants of the local areas.

- Activities that attach themselves to these routes act as natural barriers which protect the more fragile fabric adjacent urban areas, such as residential areas.

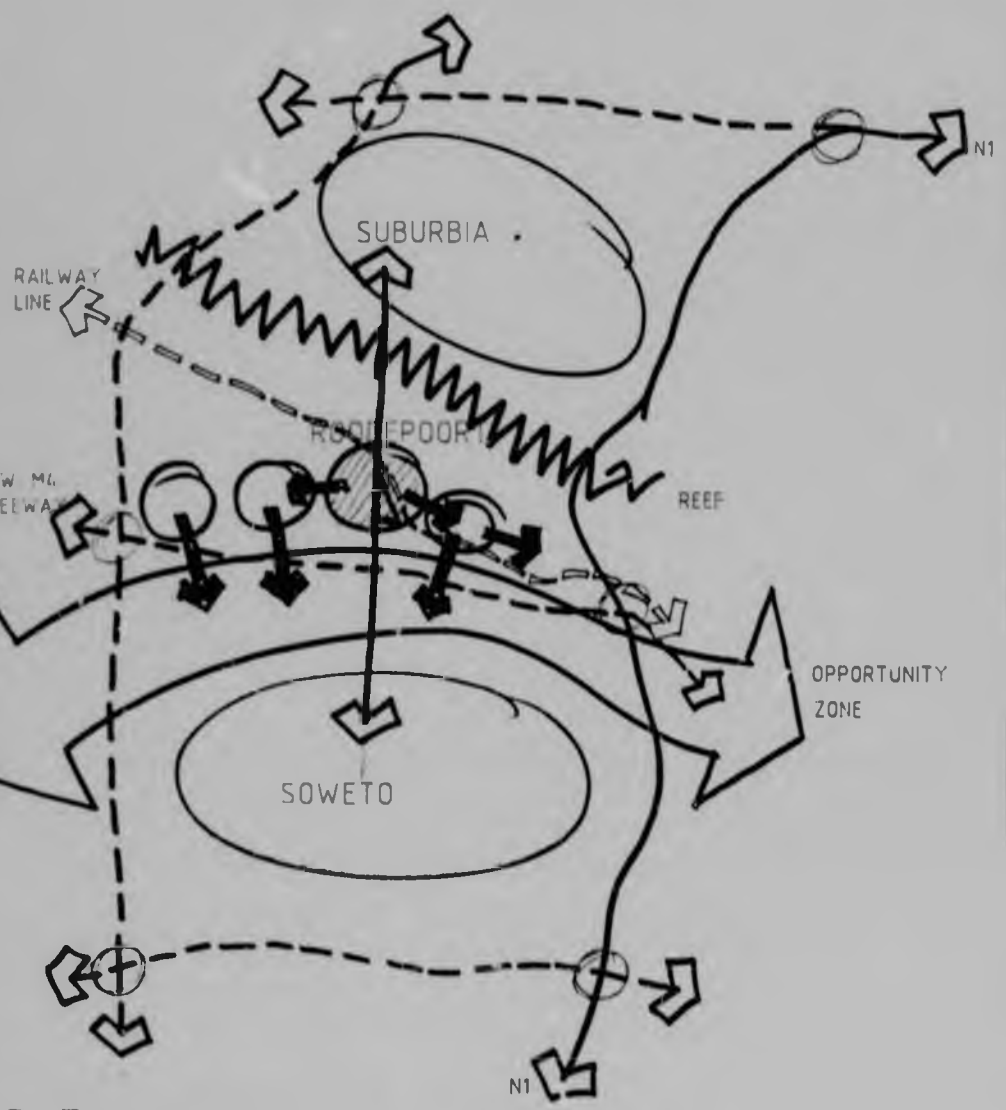
The degree of integration of a local area into the metropolitan area has profound implications for the inhabitants.

- The qualities obtained through integration with the metropolitan region are best achieved through evolution of the local area in the context of the metropolitan region. This is not something that can be achieved overnight. The enabling framework for development and positive integration is "clarity of structure". "Clarity of structure" is the force which enables traffic to gravitate through areas on dominant routes.

- Dominance of route makes it possible for local areas to capitalize on through traffic. The activities that result from capitalization have the added advantage of protecting sensitive urban fabric, by forming a shield that allows extremely fine-scaled residential fabric to exist in the immediate proximity of shops, work opportunities and cultural facilities.

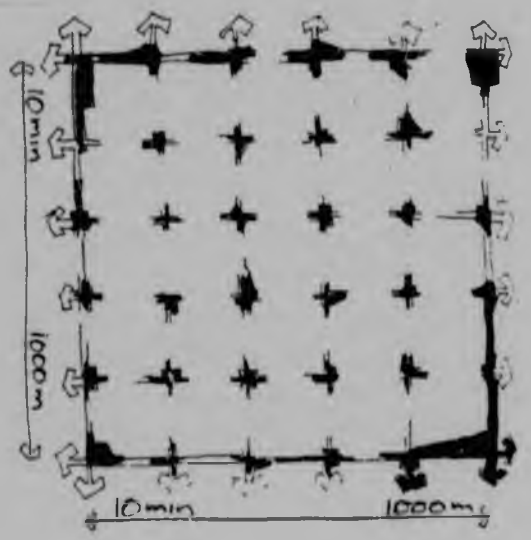
- Integration within the local area

The pluralistic concept of community holds that communities maintain different lifestyles that are

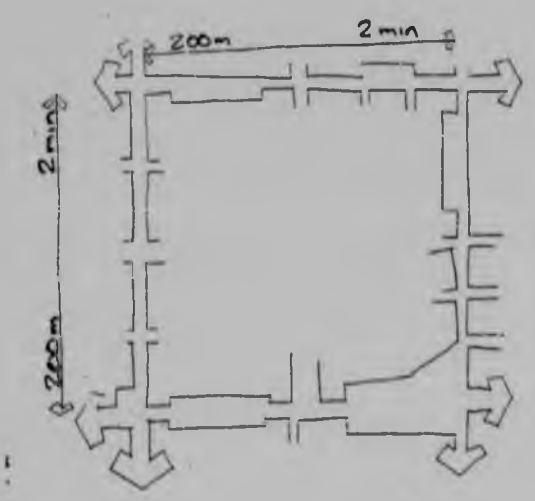


INTEGRATION WITHIN THE LOCAL AREA

The next level in a dependency hierarchy on a local area scale, is vested in acceptable walking distances. Ten minutes or a 1000 metres is presented as an acceptable standard, although walking further than this is common in a third world situation.

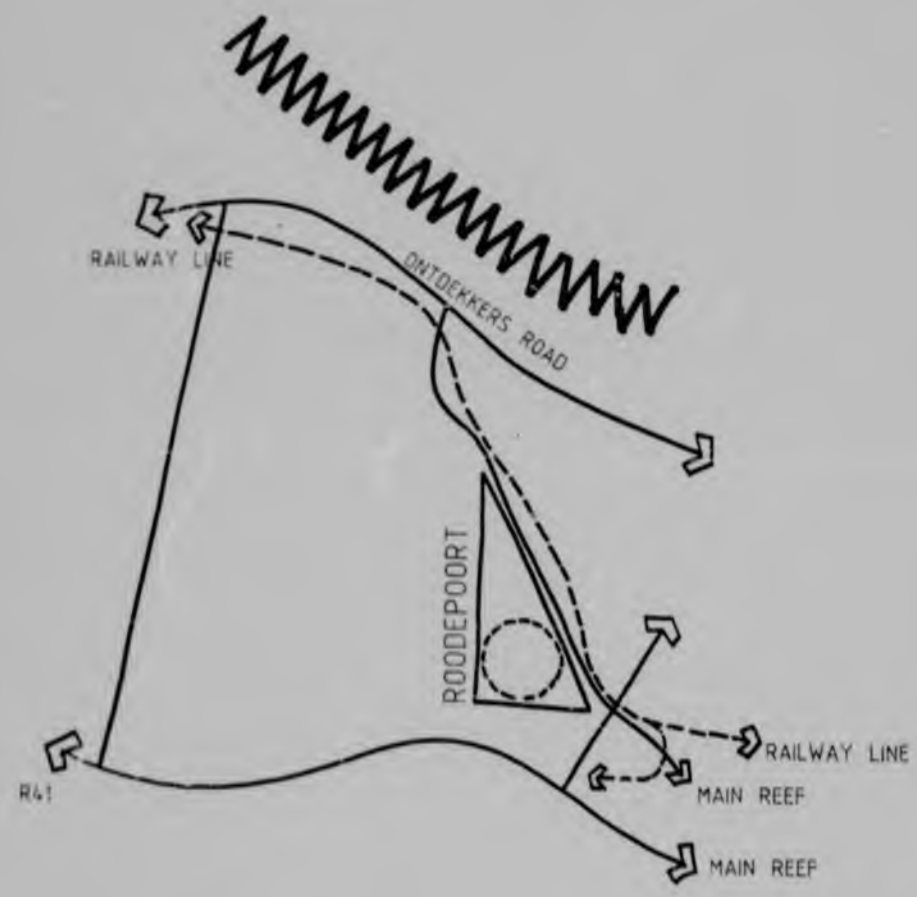


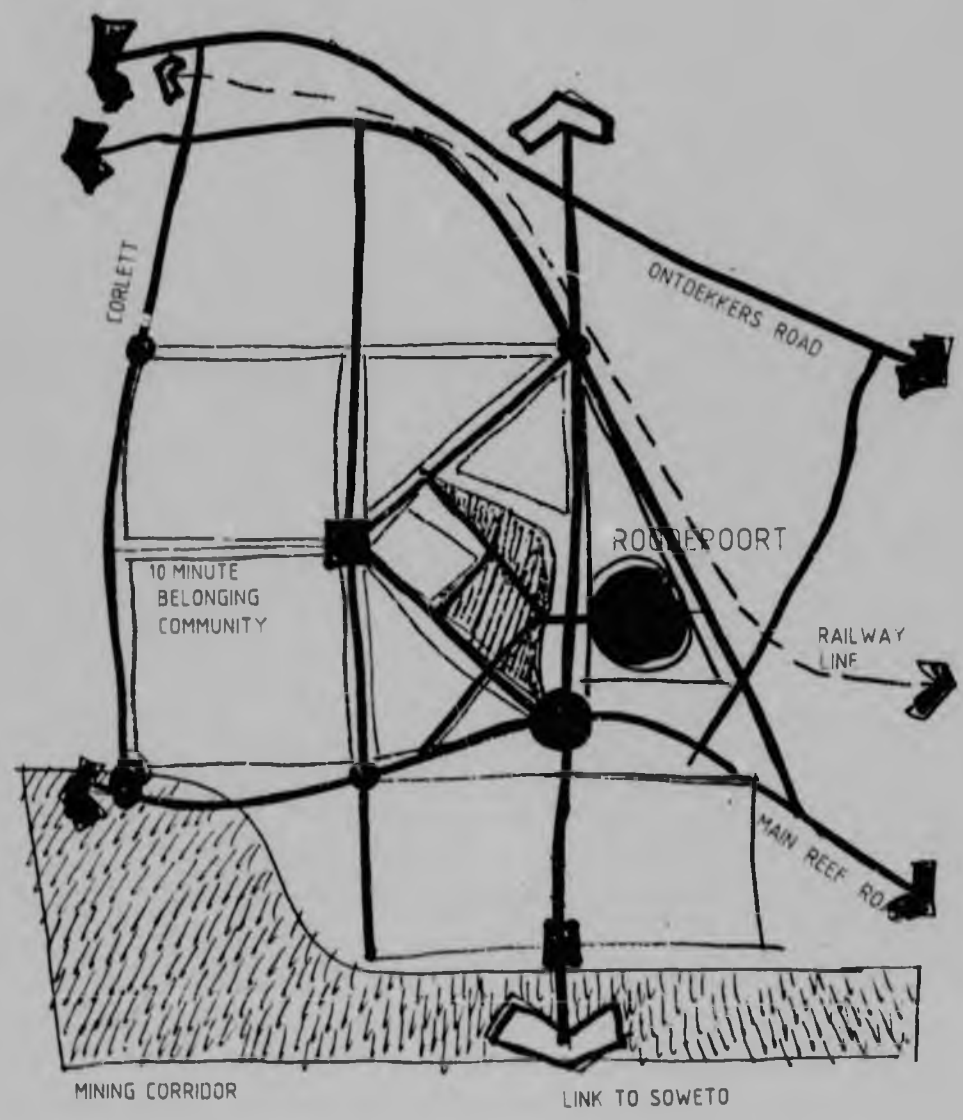
The last level of integration in the dependency hierarchy is a two-minute or 200 metre convenience level:



internally cohesive and exclusive. This results in communities with different behavioral patterns and values. The physical manifestation of these "belonging communities" are without regular boundaries. These communities constantly re-define themselves through different profiles, depending on the reason for their existence - be it social, economic, political or personal. Community, as an urban order, reveals itself in the public domain of the city. Integration of local areas depends on the degree of integration of the public domain as revealed in society's common denominator - man on foot, in the larger metropolitan context.

The first hierarchical level of the "belonging community" is vested in the political and economic potential of the local area scale, which is defined as follows;

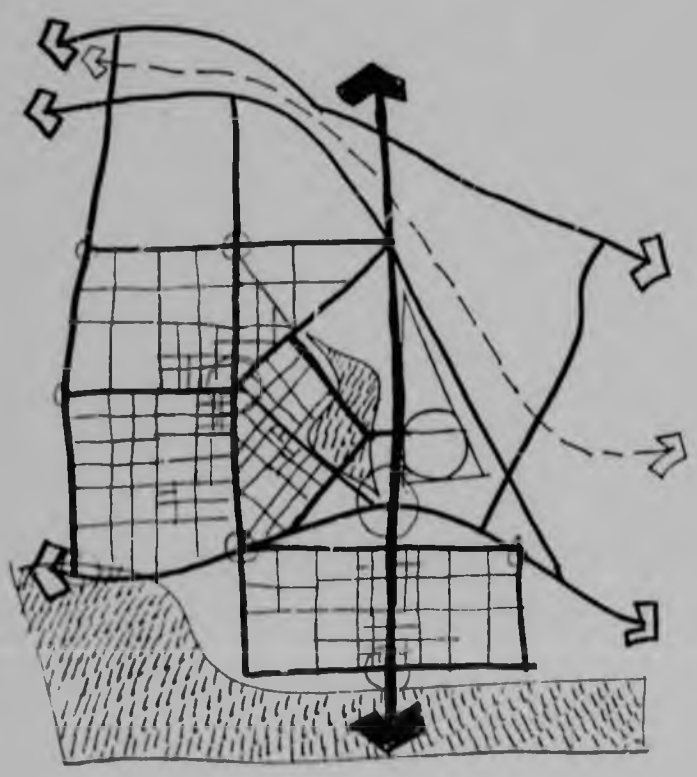




HIERARCHY CONCEPT

Grid-iron plans existed even before Jesus Christ:

> "A city, if it is really a city, has a very compound rhythm, based on many kinds of movement, HUMAN, MECHANICAL and NATURAL. The first is paradoxically suppressed, the second tyranically emphasized, the third inadequately expressed:- Wheels, or no wheels, man is essentially a pedestrian."
>
> (Aldo van Eyck: IN: Lüchinger, 1980: 4)



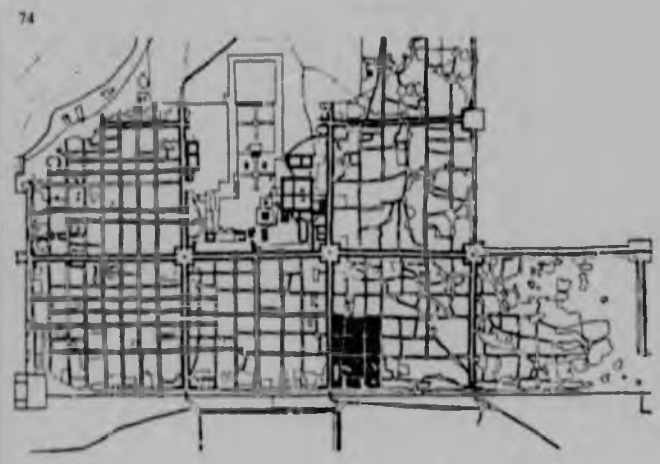
ROODEPOORT

* Geometry

An important principle that underlies the traditional urban city is the permeability of the movement structure - the grid. The most important characteristic of a permeable structure like the grid is its multi-dimentionality.



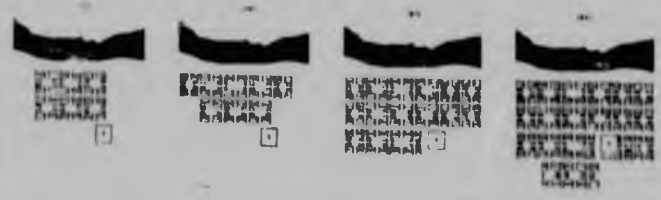
MILETUS 494 AD



JAIPUS 1728



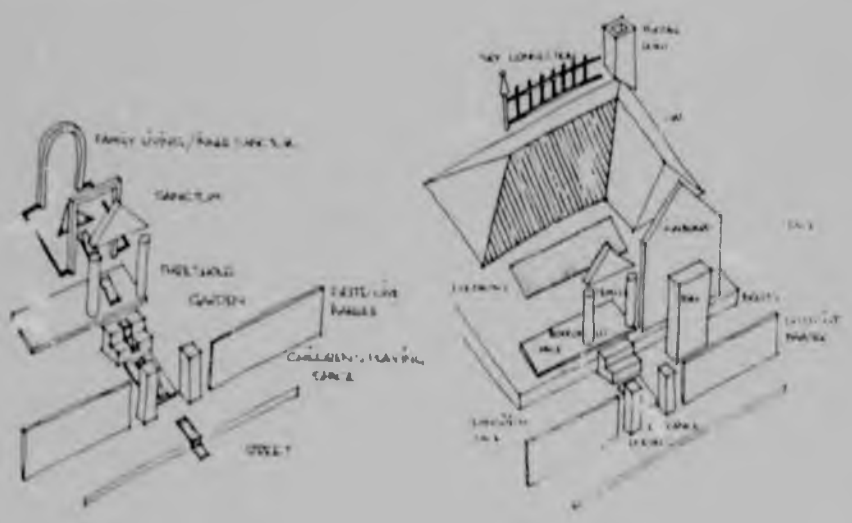
GRAAFF REINET



SAVANNAH 1733

Territorial structures as reflections of patterns of inhabitation are the most general expressions of use and function, and represent an interpretation of lower-level functionality. We could say that the arrangement of houses in a community is a functional interpretation, but it also reflects a territorial interpretation within the larger context of the city.

RADFORD SEE CHAPTER 3



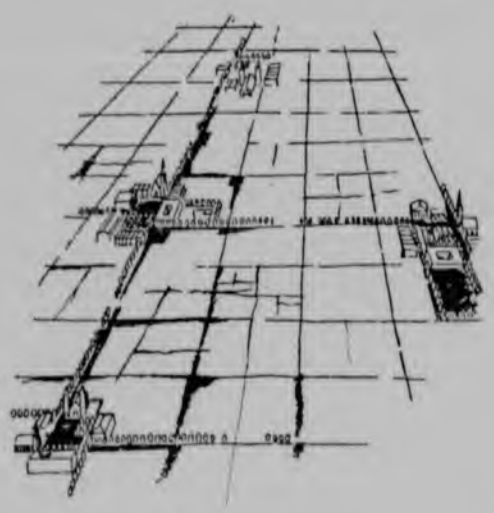
- TERRITORY - PUBLIC AND PRIVATE

One of our basic sources of choice stems from the ability to live both public and private lives (Bentley et al., 1985: 12). Public and private realms do not function independently and people need access across this interface. The distribution of realms in space is basically guided by their control of space. Public and private realms are not antagonistic opposites. While the individual and the community are ambivalent, together they form a twin phenomenon.

Territory, as a symbol of inhabitation, is not only an interpretation of a given physical organization, but also an expression of cultural and individual values.

When a culture is familiar to us, we are very adept at reading territorial clues:

- plants on a doorstep
- a room door ajar
- stool and umbrella arrangements on the beach.



* The centre of town

It is possible to say that a community begins and ends with the town centre. The restoration of communities as "belonging communties" must begin there. The town centre represents the community as a whole. Unity is expressed in visual coherency, as well as spatial configuration and the symbolic capacity inherent in the town centre. Thus, it is able to give meaning to the personal as well as the cultural life in the community. In the traditional city the notion of centre lies in concepts such as mundus, forum, marketplace, etcetera. These indicate a complex of inter-related urban types and not individual buildings or places. The fact that the formation of a town centre is vested in time gives it a rich overlay of meaning.



ARLES

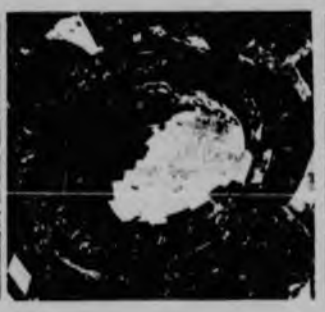




SPLIT JUGOSLAVIA



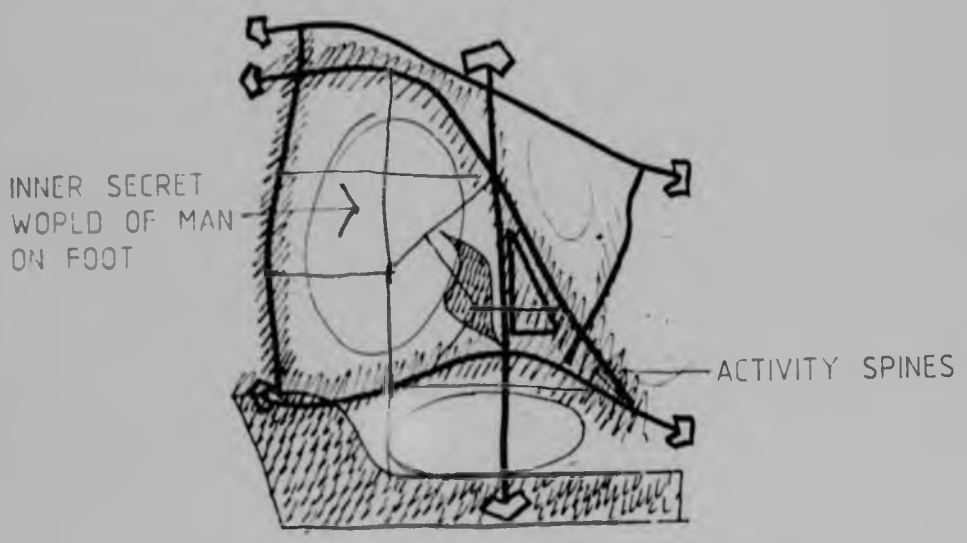
LUCCA ITALY





SPLIT JUGOSLAVIA

Conversely, a territorial interpretation of the community will frame the arrangement of individual residential units. A house, for instance, receives its location, firstly, by being situated in a street, square or garden, secondly, through its relation to important places and other buildings and, only then, through its appearance.

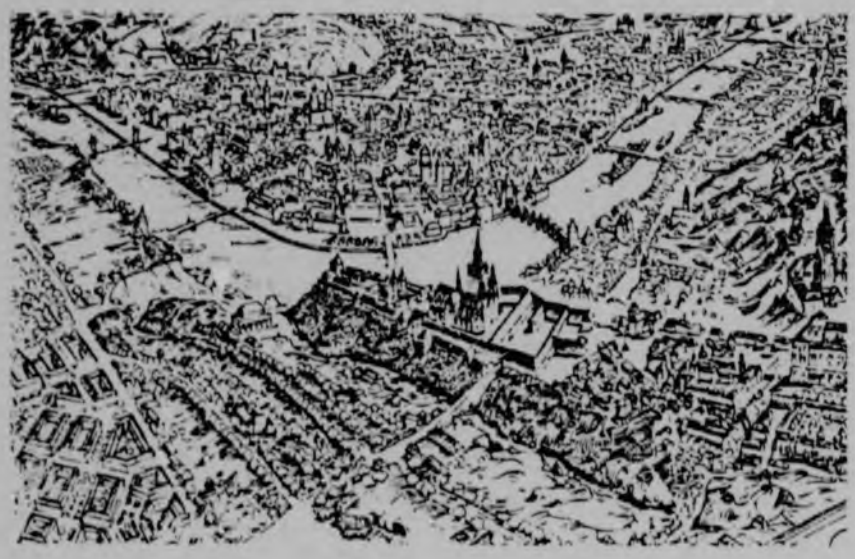


- TYPE

Type is seen as the shared properties within a culture. Type exists only in a social body, as shared values and knowledge. As time passes, type becomes institutionalized in living structures. A formal description of type is, however, inevitably a reduction, and will therefore, destroy the holistic power of that type. Institutions (or types) of the urban order such as religion, education, government and exchanges, etcetera, are remnants of a specific society at a specific time. It is vital for responsive environments to accommodate and reflect these types as a way of structuring the urban environment. They are symbolic determinants of the idea of urban living and vital in creating a sense of place.

* Holy ground and the thresholds of life

Places of worship are above all gateways. The church plays a fundamental part in our lives. We are born into it and buried by it. The presence of the dead among the living should be expressed as part of the environment, as an every-day fact. Instead of large, lifeless cemetries, small pieces of land should be allocated throughout the community as grave sites.



* Places of learning

Instead of the conventional system of schooling in a fixed place, places of learning could be provided in a piecemeal fashion. This would decentralize the process of learning and enrich it through contact with many places and different people all over the city. Higher education should be part of a communal place and places of learning for adults should be scattered throughout the town centre.

* The urban forum

The urban forum is often represented by the town hall, the town theatre and gardens. These elements are controlled by the town square, represented in the traditional city in the form of an agora, forum, campo or plaza.

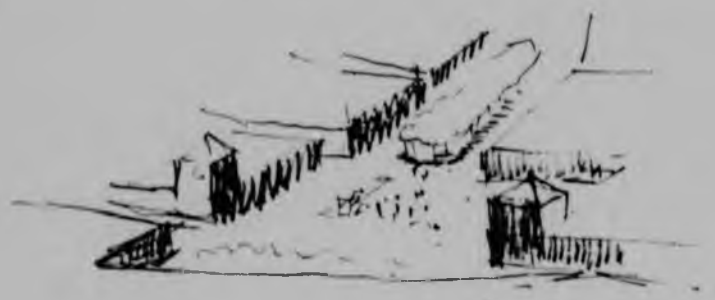
In modern cities these elements have moved away from the square and are, to some extent, preserved in the street. The square could be restored as an extension of the street, to create city rooms which take on their own specific character. The town square does not only have a political function, but can accommodate carnivals, tournaments, displays, music and street theatre.



VENICE



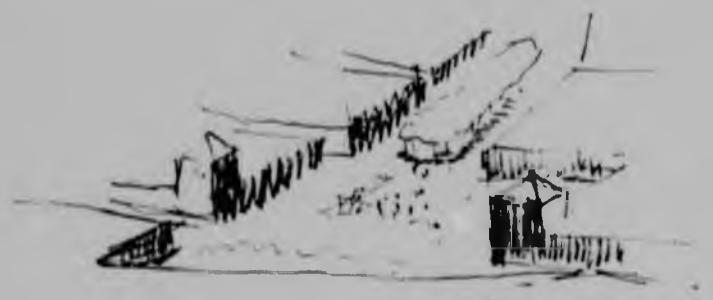
TODI



THE GATEWAY FROM THE SQUARE OF A HUNDRED THAIS

* <u>The main street</u>: A market of many shops

Instead of the modern supermarkets, numerous marketplaces, made up of many small shops, should be established. These shops should be autonomous and specialized. The structures for these markets should be minimal, nothing more than a roof and columns with basic services where needed. These markets should be allowed to create their own environment according to their individual tastes and needs.



THE GATEWAY FROM THE SQUARE OF A HUNDRED TAXIS

* <u>The main street</u>: A market of many shops

Instead of the modern supermarkets, numerous marketplaces, made up of many small shops, should be established. These shops should be autonomous and specialized. The structures for these markets should be minimal, nothing more than a roof and columns with basic services where needed. These markets should be allowed to create their own environment according to their individual tastes and needs.

* Health care

In the same way as places of learning, health care should also be decentralized and a network of small health centres or clinics should be scattered throughout the community. Each of these clinics should be equipped to treat every-day diseases, but the emphasis should be on healthcare, with the aim of a healthier community.

* The interchange: Gateways to the town centre

The centre of town should be reinforced, emphasizing its distinctness and making it more vivid. This can be achieved by creating and celebrating the gateways at the entrances to the town centre. These are at their strongest at the interface of different transport nodes. The qualities inherent in gateways can be enhanced by reinforcing these interchanges with pedestrian networks and small shops, stalls, vendors, etcetera.

THEMATIC ELEMENTS IN ROODEPOORT











* The promenade

The promenade is central to every community, it is needed as a place where you can go to see people and to be seen.

- THEME

The physical structure of the traditional city has characteristics that can be described in terms of: thematic structures and unique structures.

Thematic structures refer to the pattern produced by the recurrent elements of the basic components of the urban area. These elements give the area its homogeneity.

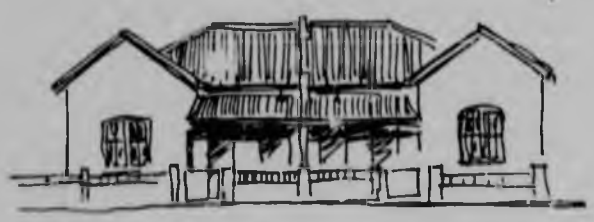
Non-thematic or unique structures consist of those elements and relationships, which tend to be different to the typical. The most important role of these structures is related to the organization of the whole network, by referring to larger areas than the generic theme elements.

THEMATIC ELEMENTS









UNIQUE ELEMENTS

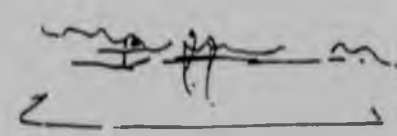


LIBRARY



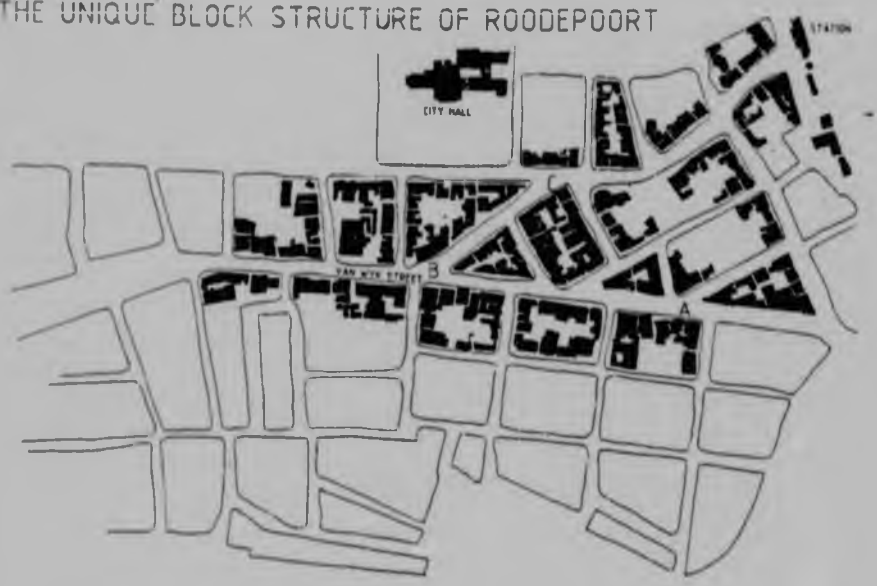
MOSQUE





CITY HALL

THE 'UNIQUE' BLOCK STRUCTURE OF ROODEPOORT





A



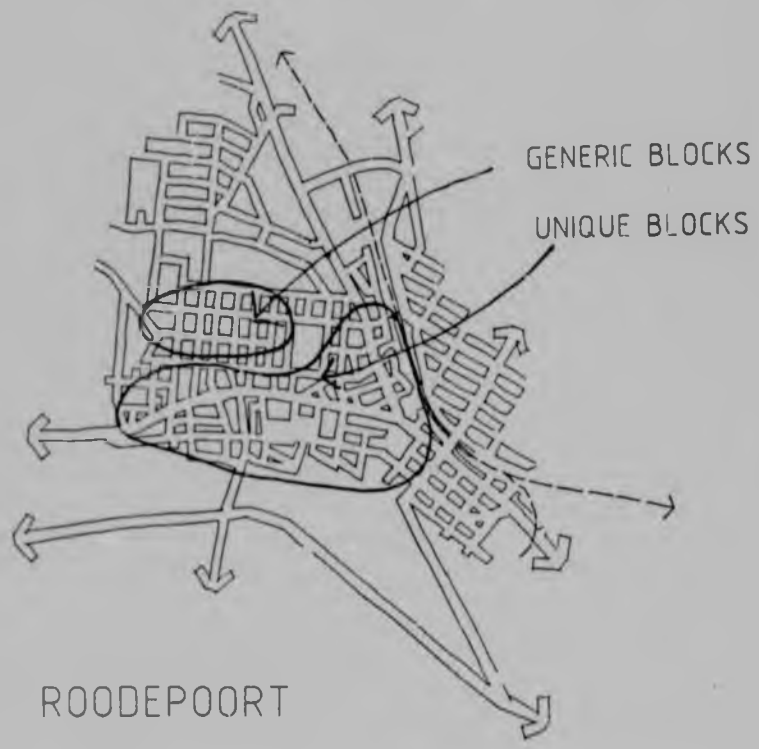
B



C

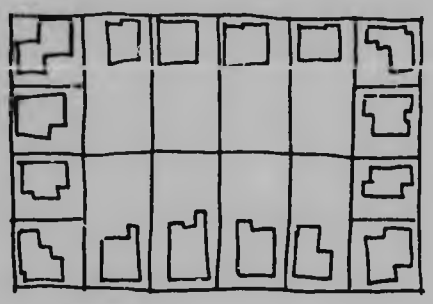
NON-THEMATIC FORM CHARACTERISTICS GENERATED BY UNIQUE BLOCKS IN ROODEPOORT

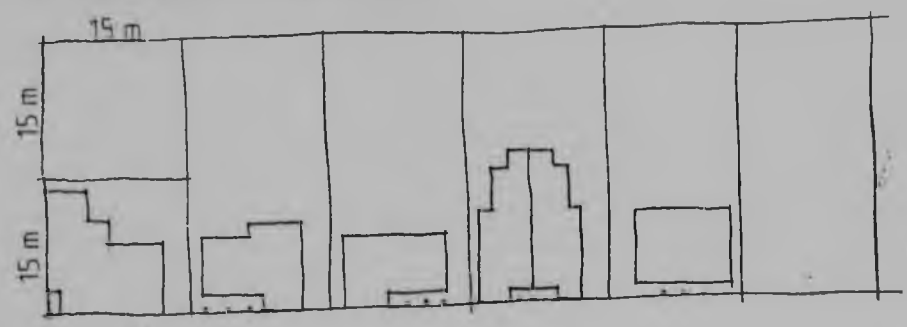
• The city-block as generator of theme elements.





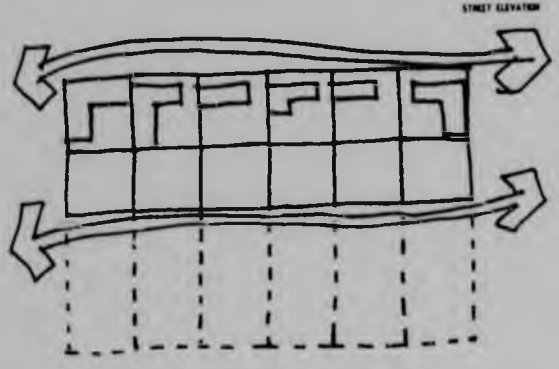
EXISTING

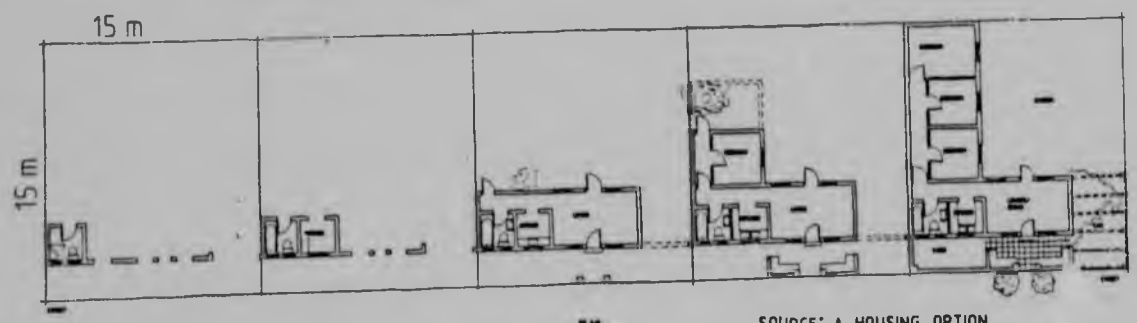




STREET



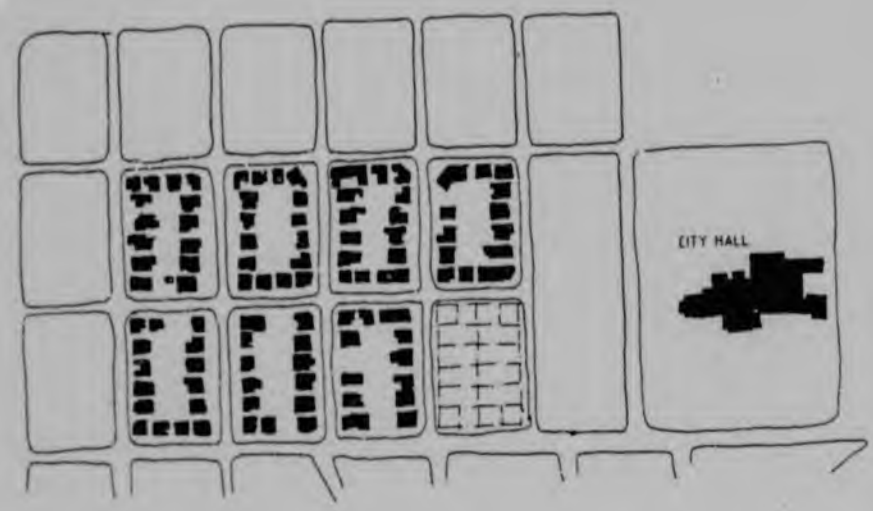




STREET

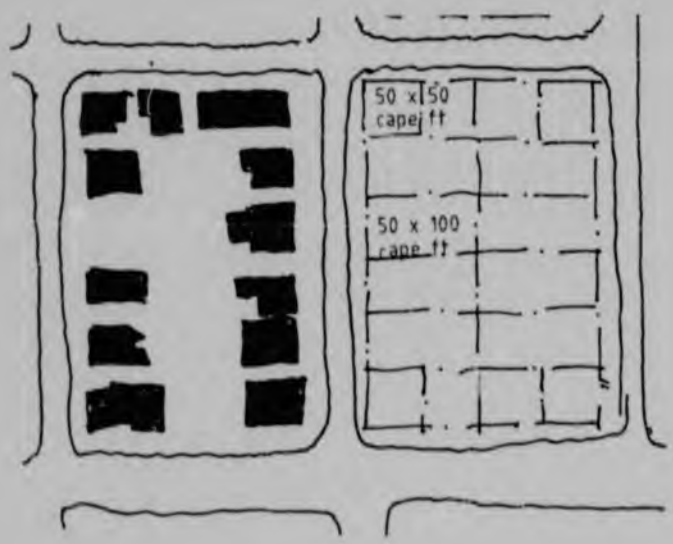
SOURCE: A HOUSING OPTION
ASSESMENT MANUAL
AN URBAN FOUNDATION STUDY- 1988

THE GENERIC BLOCK STRUCTURE OF ROODEPOORT

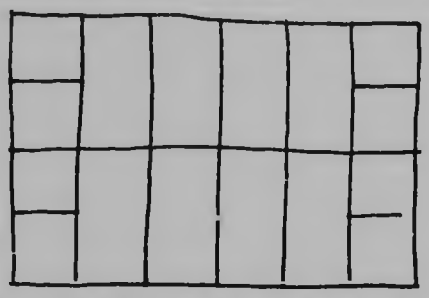




THE CORNER HOUSE









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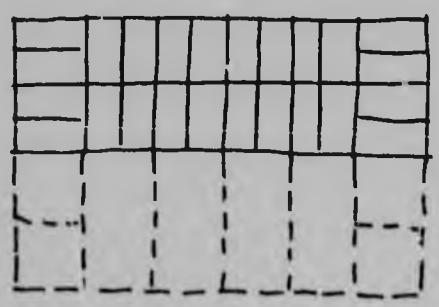

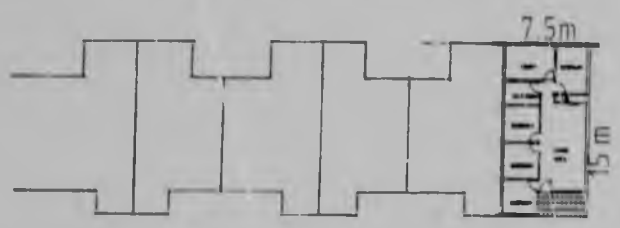

STREET



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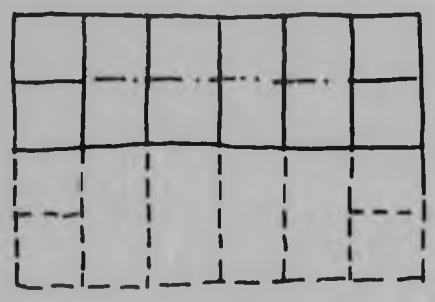
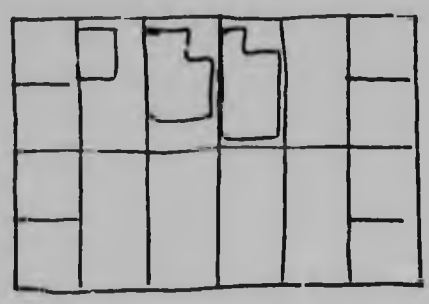
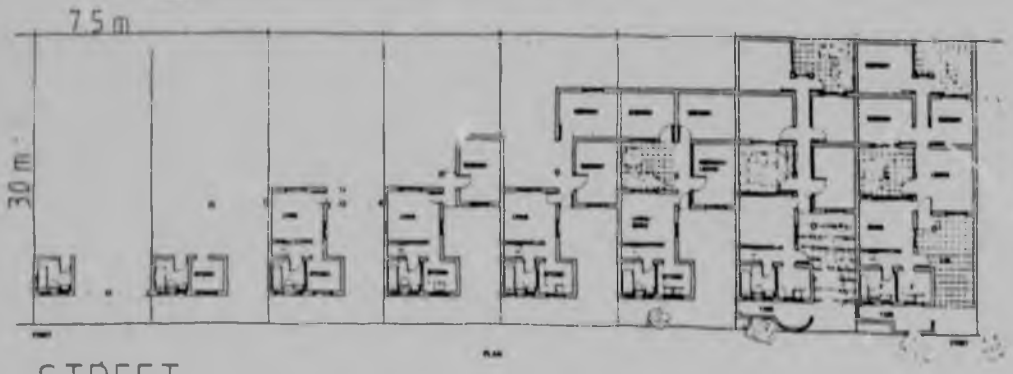




STREET







STREET

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ASSESMENT MANUAL
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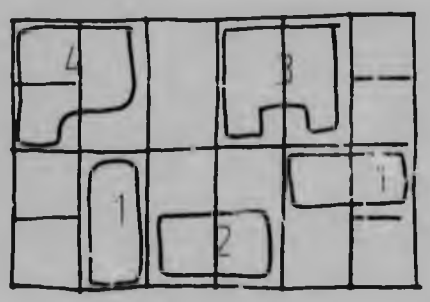

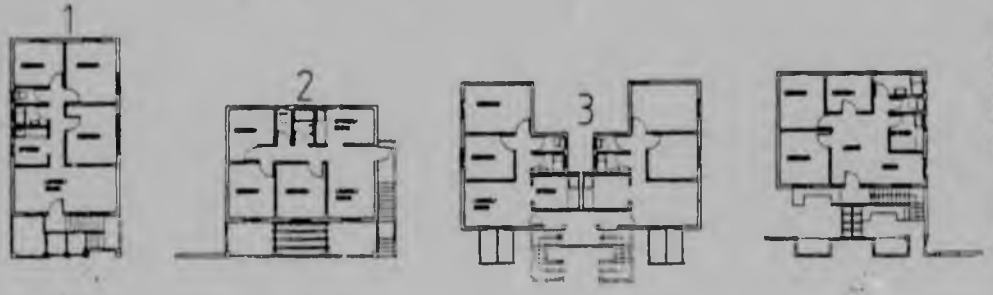

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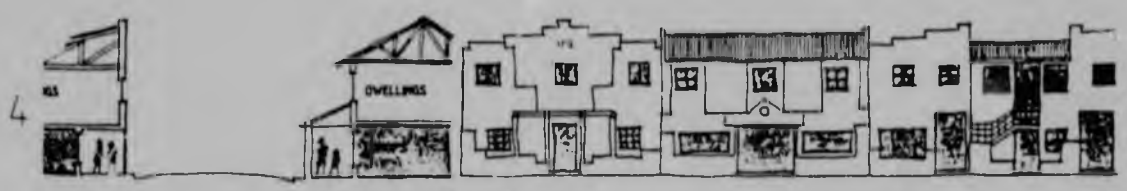


Shops at ground with dwellings above

SOURCE: A HOUSING OPTION
ASSESMENT MANUAL
AN URBAN FOUNDATION STUDY- 1988


STATION
CHURCH
CITY HALL
SYNAGOGUE
POLICE STATION
LIBRARY
COURT
POST OFFICE
MAGISTRATES OFFICE
LIBRARY
MOSQUE
PUBLIC BUILDINGS
COMMERCE
MANUFACTURING
COMMERCE / FLATS
COMMERCE / OFFICE SPACE
SINGLE DETACHED HOUSING
SEMI-DETACHED HOUSING
FLATS
0 10 50 100 200m

LAND USE



Existing Roodepoort:

The figure-ground analysis revealed a pattern of compact block structures, with strong internal structural elements but with linkage problems. There is a general lack of cohesion and few meaningful moments in the figure-ground analysis, with which to create linkage opportunities.



FIGURE GROUND ANALYSIS

Infill development:

* New infill development is derived from the surrounding spatial context. The driving force when creating infill is continuity of public space, rather than private buildings as objects.
* It enables the continuance of the important street edge.
* and the creation of cohesive pedestrian structures.



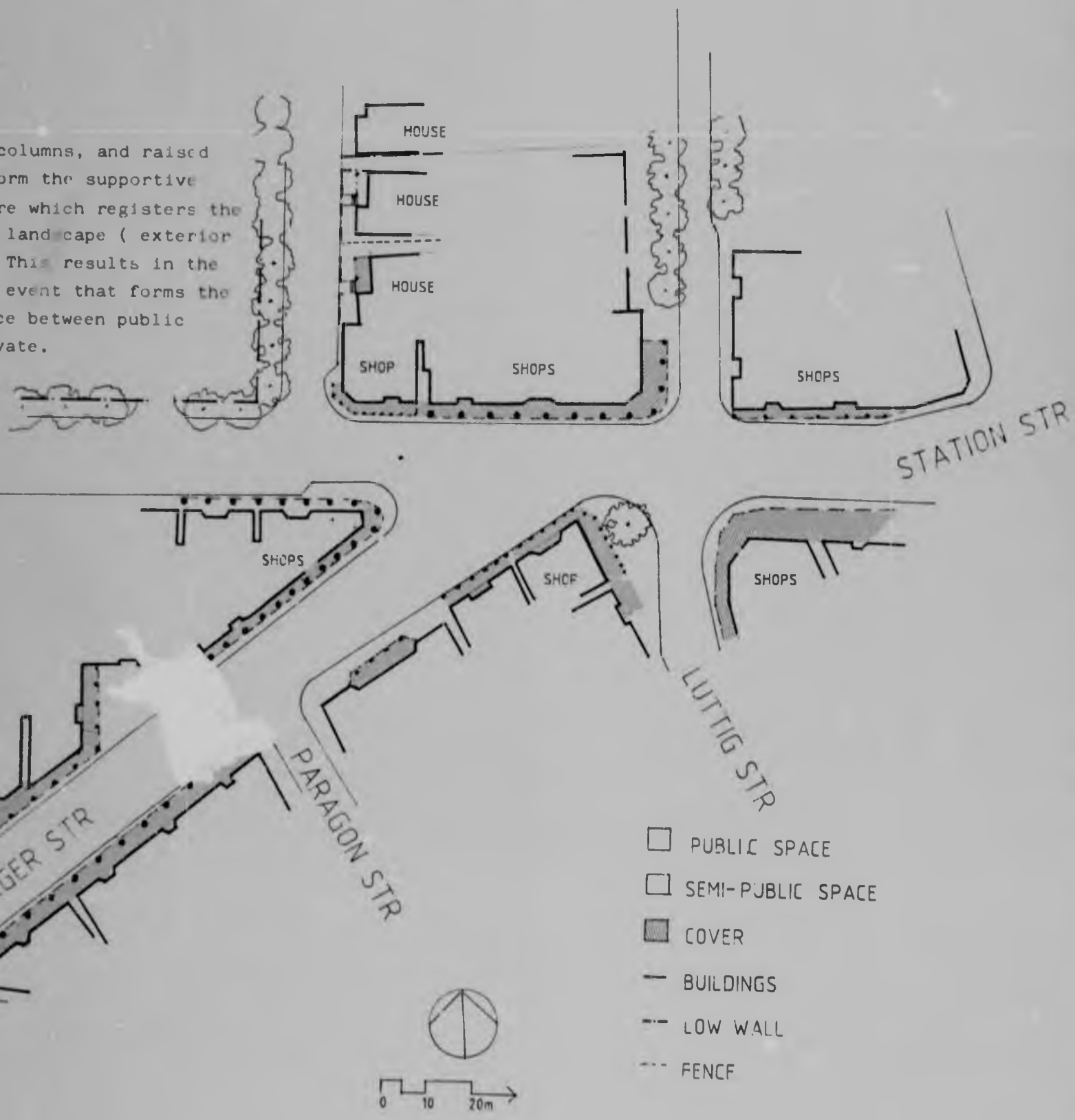
The relationship between building space and the exterior space:

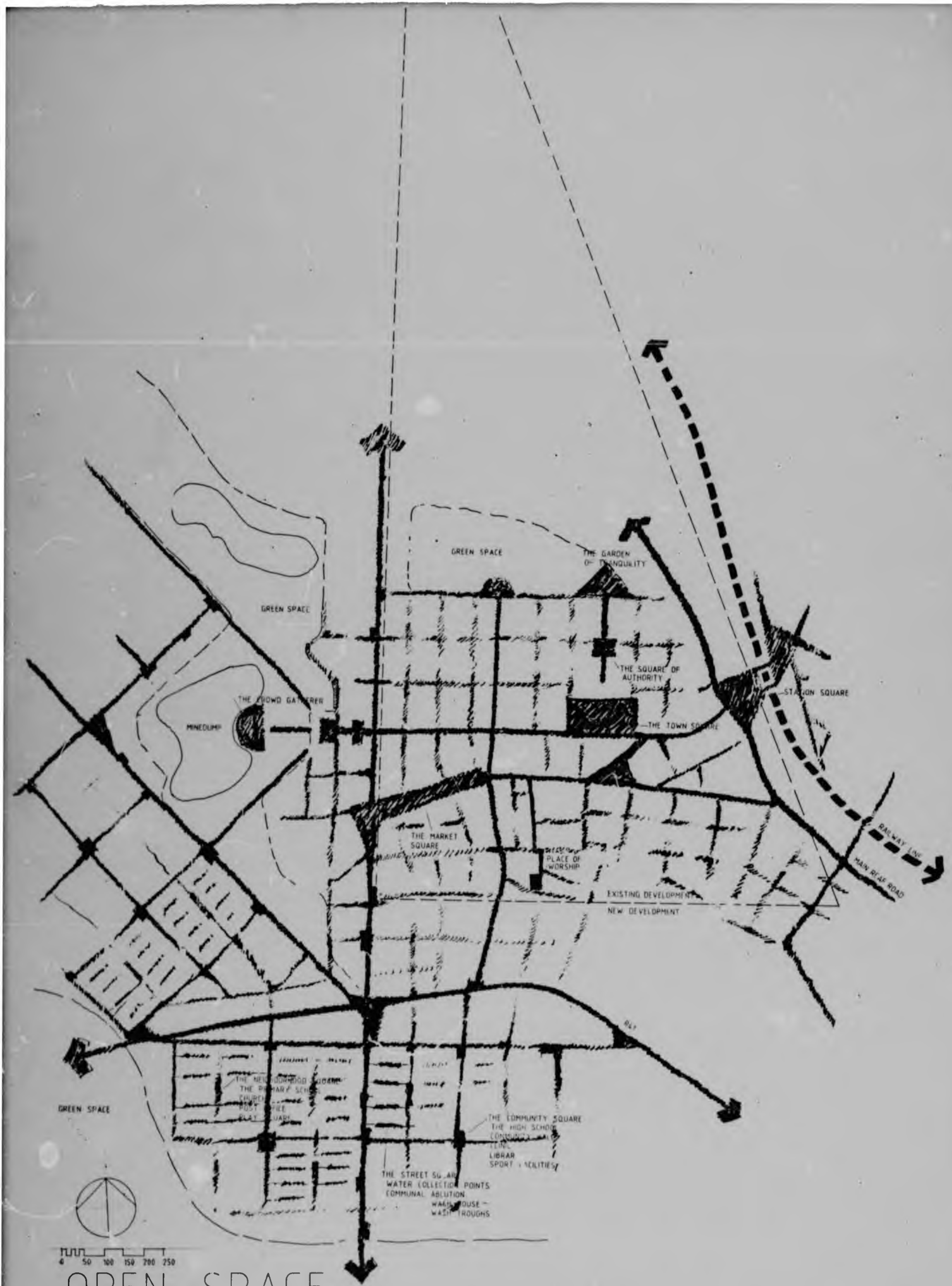
This shapes public space into positive voids - space as object.

The specific figure-ground pattern revealed in our analysis is ideal for exterior space to become positive or more figural.
The figure ground relationship acts as a mesh between block patterns and individual buildings.
Spatial continuity is dependent on this relationship.

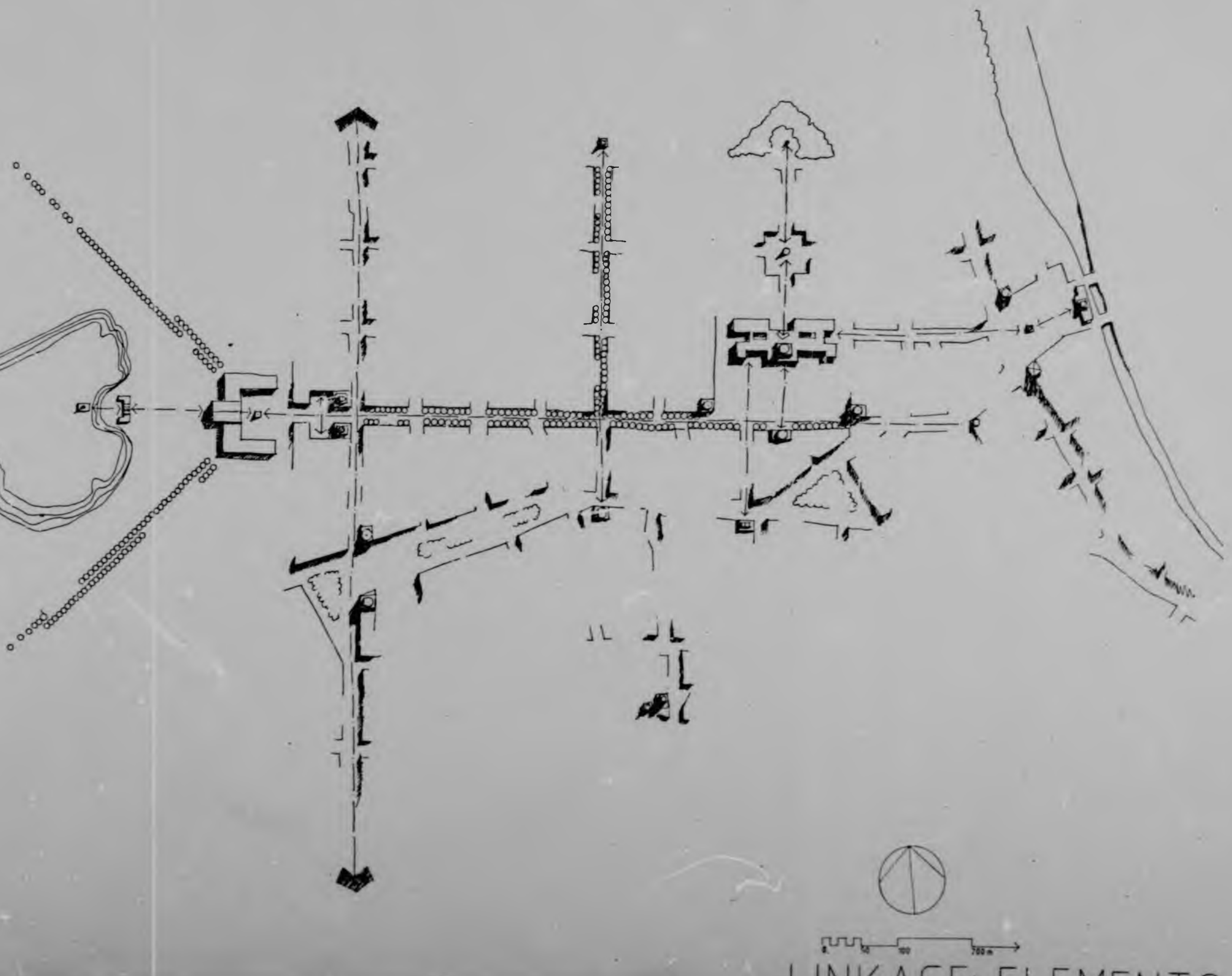
The crux of the figure-ground theory lies in the manipulation and organization of urban solids and voids . When the dialogue between the urban solids and voids is complete and perceivable, the spatial network tends to operate successfully. Fragments are incorporated into the framework and take on the character of the district. It the relationship of solids to voids is poorly balanced, fragments become disjointed, falling outside the framework; the result is lost space. In order to reclaim our lost space, there must be a willingness to reconsider the object and evaluate the ground rather than worship the figure. Design of the object must be considered in conjunction with structuring the void, so that building and space can effectively coexist.
(Trancik, 1986: 106)

Walls, columns, and raised areas form the supportive structure which registers the spatial landscape (exterior space). This results in the spatial event that forms the interface between public and private.

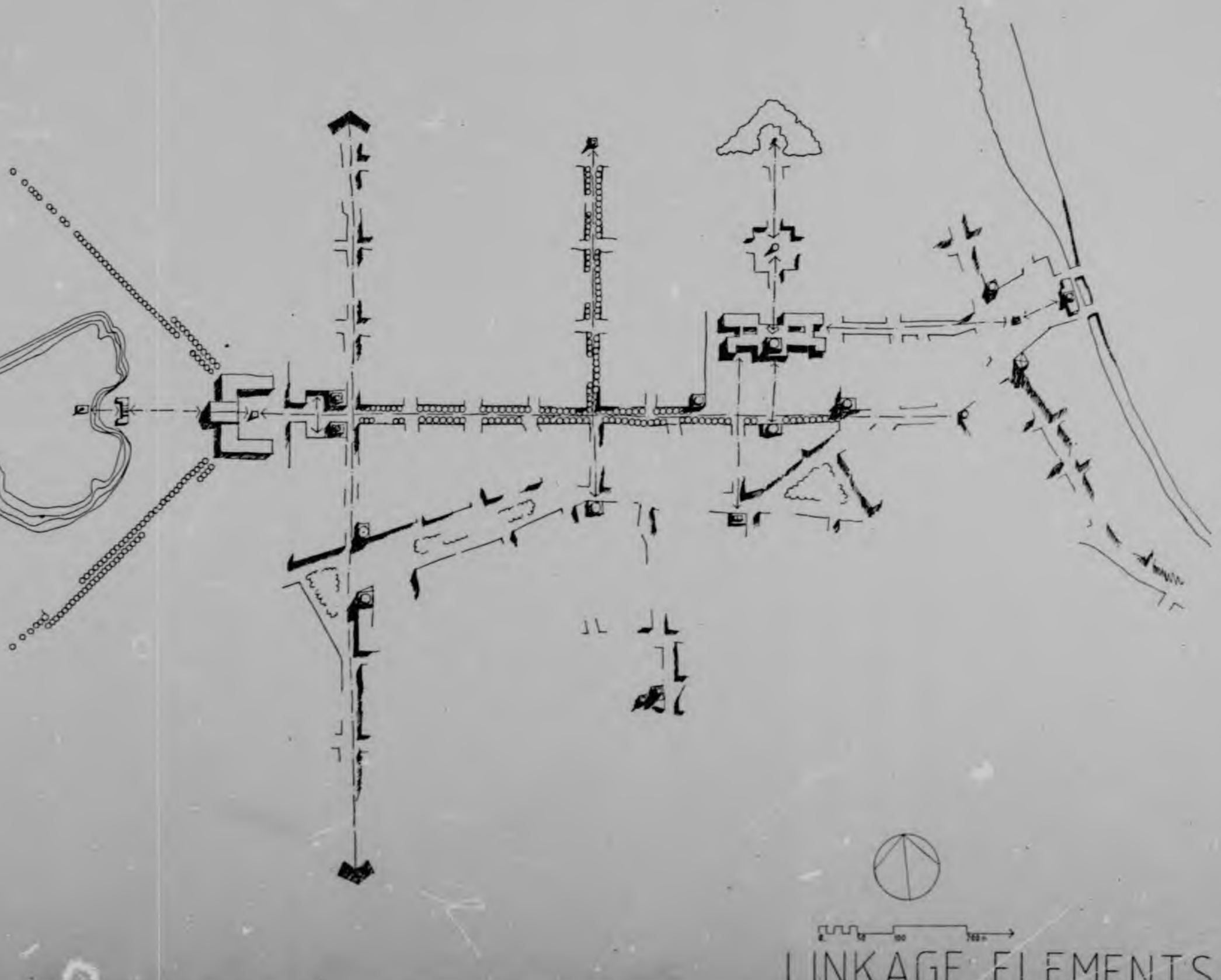




OPEN SPACE SYSTEM



LINKAGE ELEMENTS



LINKAGE ELEMENTS

LANDMARK

SYMBOLIC GARDENS

ADMINISTRATIVE BUILDINGS

CITY HALL

STATION SQUARE

MINEDUMP

A HIGH PLACE TO TO SURVEY YOUR WORLD

THE PROMONADE

TOWN SQUARE

MAIN STREET

THE POST OFFICE

THE MARKET OF MANY SHOPS

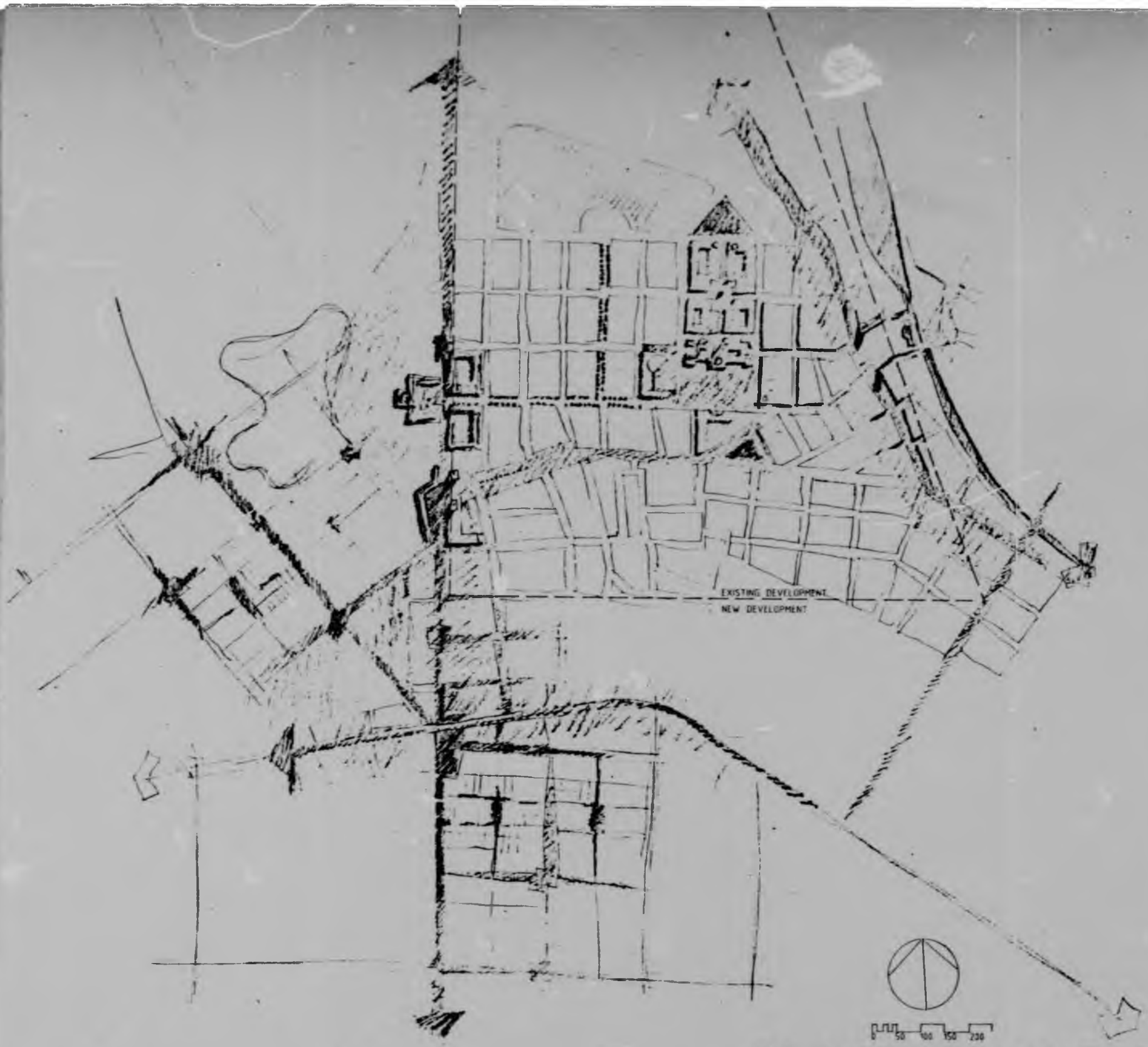
MAIN REEF ROAD

THE SQUARE OF A HUNDRED TAXIS

THE HOSPITAL MAIN BUILDING

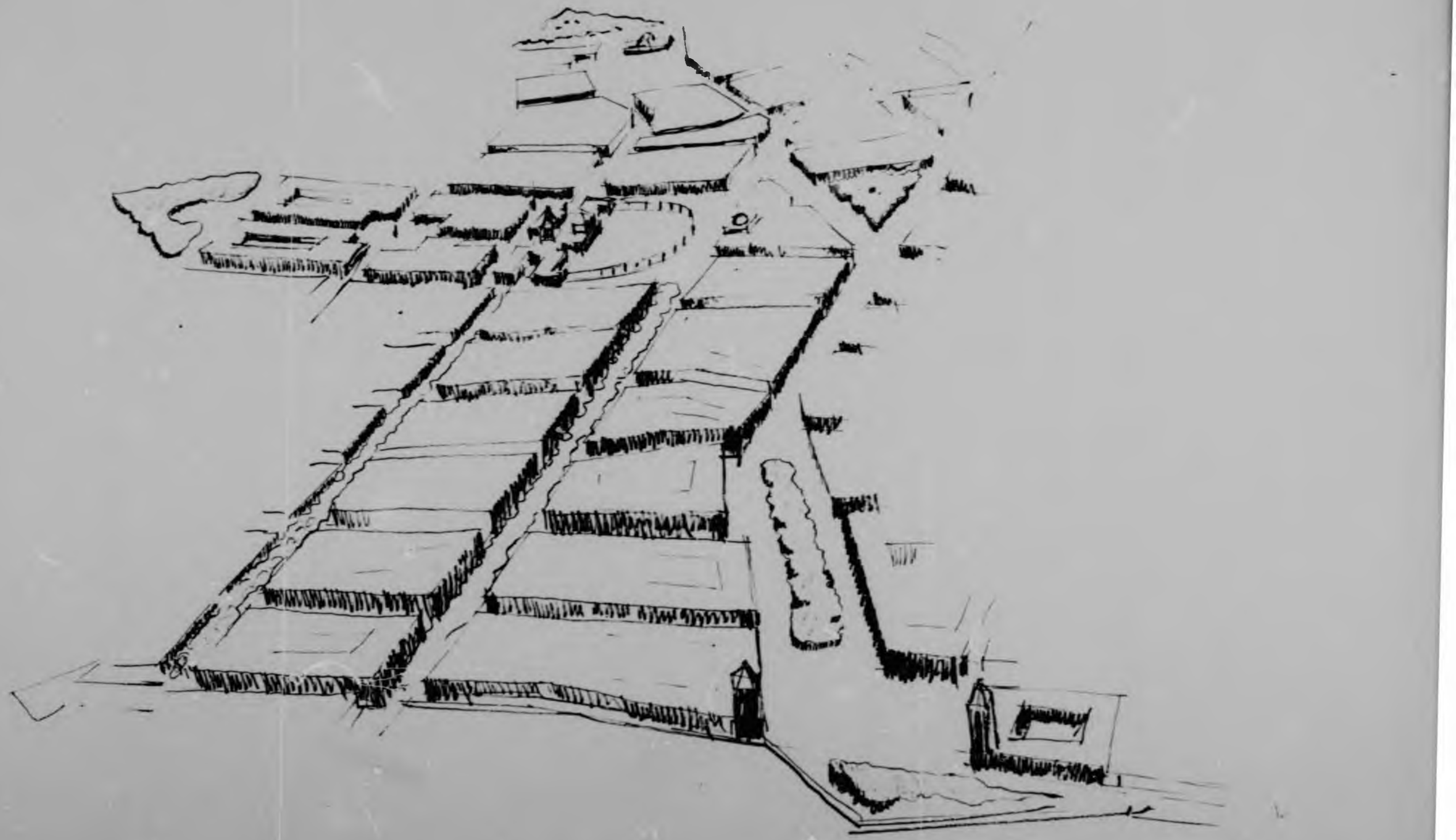
THE TAXI WAY

PLACE MAKING 1



PLACE MAKING 2

In our examination of the three theories of urban spatial design : the figure-ground theory the linkage theory, and the place theory. A common problem in modern environments has been indicated by Trancik (1986: 124) as, that designers have become obsessed with one of these theories , setting aside the other two in their urban design pursuits. This is an inadequate approach, as the living city consists of a layering of elements in each theory. For instance, if an urban complex is designed around the linkage theory alone it falls short because the product becomes nonspatial and therefore nonexperiential. If the place theory is applied without regard to linkage and figure-ground, important connections outside the design area and new spatial opportunities within may be lost. Conversely, if the figure-ground theory is exclusively used, the results often become totally spatial and possibly unrealistic in terms of user needs and implementation. The key, therefore, is to apply these theories appropriately and collectively to achieve responsive environments.



PERSPECTIVE 1



PERSPECTIVE 2

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CHAPTER 7

CHAPTER 7

THE CHOICE PHASE

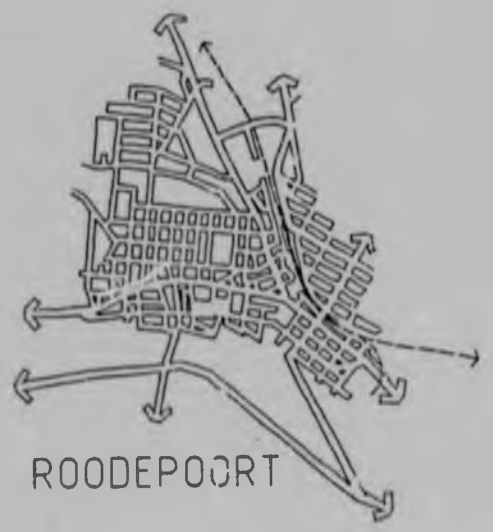
The choice phase does not always exist as a separate entity in urban design. The question of urban performance is a constant factor in the process of argumentation between society and the realities of living in the urban context. The primary unit of performance measurement (Dewar, 1984: 28) remains the choice available in terms of easy access to opportunities and experiences in the city. The urban environment cannot simply be seen as a by-product of social and political attitudes, but is rather a political system in its own right. Political ideas are not enough, they have to be argued in the physical dimensions of place and urbanity.

The choice phase is in essence a conscious assessment of the urban environment as a democratic setting, maximizing the potential freedom offered by the urban enabling framework, in terms of choices available to people.

Bentley (1985: 9) calls places with a variety of choices responsive because:

- they affect where people can and cannot go - permeability,
- they affect the range of opportunities and experiences available to people - variety,
- they affect the ease with which people find meaning in their environment - legibility,

Both physical and visual permeability is dependent on how the network of public spaces divide the environment into blocks - areas of land completely surrounded by public routes.



Good permeability is maintained through relatively small blocks. The smaller the blocks, the greater the area's investment in public space. Visual permeability is increased because visual distances between junctions are less, increasing the awareness of choice.

Bad permeability is a result of increased scale of developments, the use of hierarchical layouts and the tyranny of the motorcar, which has lead to a strong segregation in the public spaces of pedestrian and vehicle movement.

- they affect people's ability to innovate and change - robustness,

- they affect whether the detailed appearance of place makes people aware of the choices available - visual appropriateness,

- they affect people's sensory experience of their environment - richness,

- they affect the extent to which people can put their own stamp on a place - personalization.

- PERMEABILITY

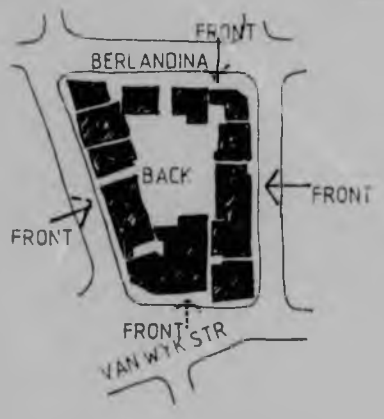
The external forces which refuse permeability are reinforced by the designer's own habits, particularly the tendency towards an assembly hierarchy in a spatial organiza ion. This is clearly illustrated by Christopher Alexander in his article The city is not a tree and Jane Jacobs' Life and Death of great American Cities. Only places accessible to people can offer them choice. Permeability is essential for choice and has fundamental layout implications.

* Permeability: Public and private

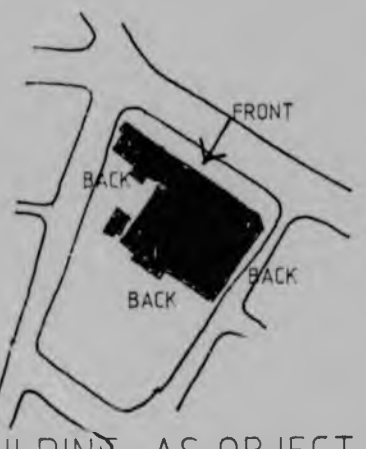
The basis of visual or physical territory is one of our basic sources of choice and enables us to live both public and private lives. The division between the public and private realm, as well as the interface between them, is one of the basic enabling frameworks in this design. The interplay between public and private is a major source of richness and choice in the urban environment.

- The relationship between front and back

The block structure is important. It should be as small as possible, with the minimum determined by the forms of perimeter development and the use of the private outdoor space within the blocks themselves. Blocks must have two facades: the front, onto the public space and the back, for private activities.



PERIMETER BLOCK



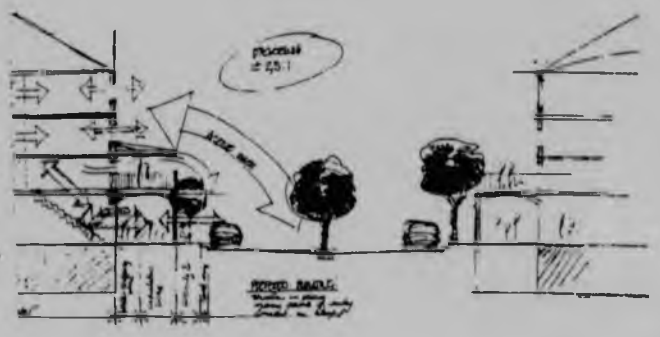
BUILDING AS OBJECT IN SPACE

- The effect of the interface on private space

The public/private interface must strive to make private life as rich as possible, without destroying privacy altogether. The degree of permeability depends on elements like level changes, windows, verandahs, curtains, etcetera.



VAN WYK STREET



Since physical access to the private space is necessarily limited, permeability across the public/private interface is largely a visual concern.

- The interface: Visual permeability



GOOD PHYSICAL AND VISUAL PERMEABILITY -
STATION STREET ROODEPOORT

- The interface: Physical permeability

This occurs at entrances to buildings or gardens.

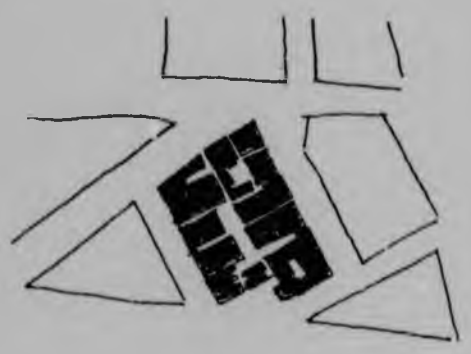


18 ENTRY POINTS

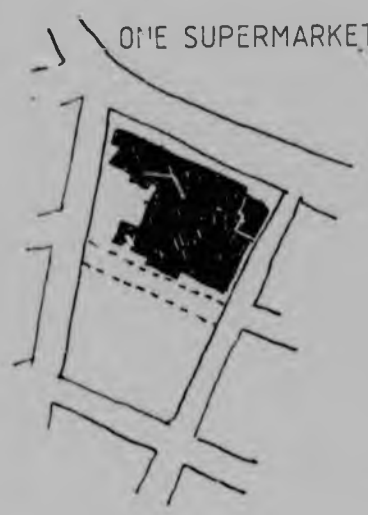
4 ENTRY POINTS

Variety within blocks is reduced as sites are amalgamated into larger units.

A VARIETY OF 13 SHOPS

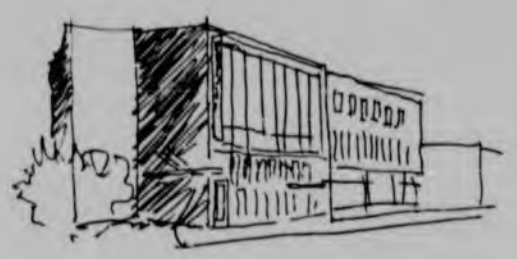


ONE SUPERMARKET



Variety within a building is reduced by large-scale developments with single usage buildings.



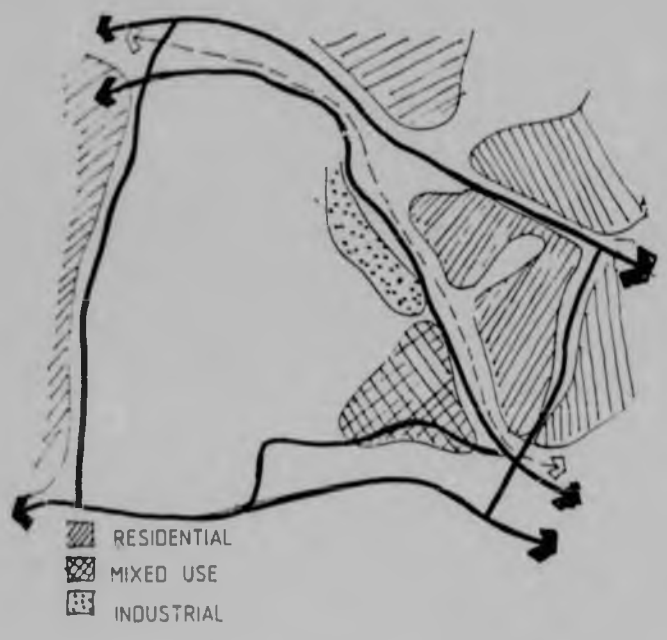


VARIETY

The social advantages gained from variety is widely explored by authors like Richard Sennet, Jane Jacobs and Jonathan Barnett (Urban Design as Public Policy). Variety of experience implies places with varied forms, uses and meaning.

The purpose of promoting variety is to increase choice. But choice also depends on mobility. Mobility for the man on foot is determined by the variety of activities within a reasonable walking distance.

For the man on foot real choice depends on a tight grain of variety. Variety within the scale of the local area is a problem, because of specialized zones of single use.



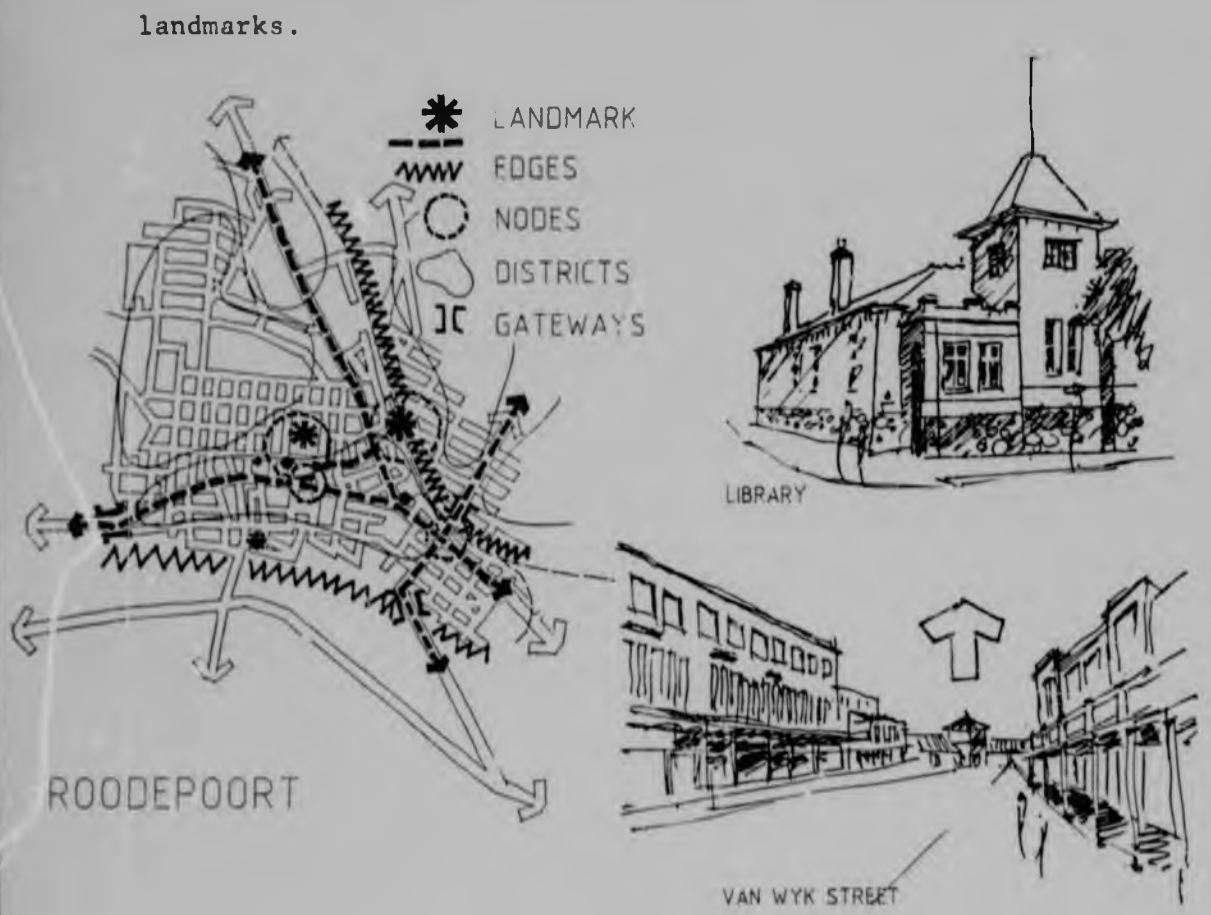
ZONING MAP OF ROODEPOORT

- LEGIBILITY

The need for legibility owes much to Kevin Lynch's pioneering book, The Image of the City. The topic explores the qualities that give meaning to places. Legibility is important on two levels:

- physical forms and
- activity patterns.

Certain physical features play a key role in the content of shared images. Lynch (1975: 3) has suggested that these features can be grouped into five key elements: nodes, edges, paths, districts and landmarks.



* The maximizing of variety

The variety of use an area can support depends on four main features:

- Demand (social or economic).
- Affordable space.
- Positive interaction between demand and need.
- Positive integration.

There should be a careful balance between new developments and older existing buildings, with the result that medium and high rent buildings exist alongside each other and support a variety of uses.

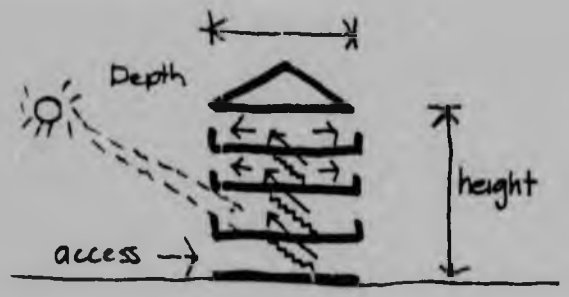
* The integration of activities

Variety is optimized where activities are mutually supportive. Primary uses should be identified and located at central points where they will function like magnets. In contrast, secondary uses lack the pulling power to attract people, but live from people drawn to an area by its primary uses.

* The time element

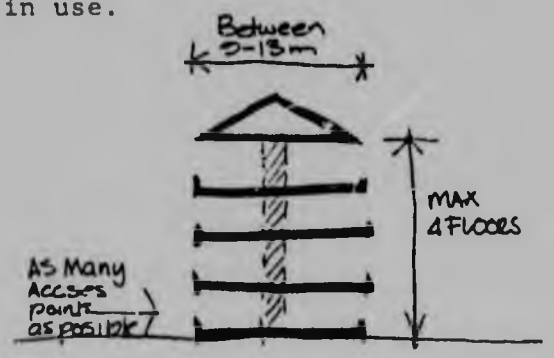
The time element is vital to the idea of mutual support. The viability of restaurants, pubs and small enterprises depends on a long working day. The larger the support given them by primary users, the better. A variety of primary users, who operate over an extended period of time, are most beneficial for variety.





Building depth

The majority of buildings require natural light and ventilation. Buildings that are too deep for this cannot easily change in use.



Access

It is essential for a building to be accessible from the outside, for it to be able to adapt to a variety of uses.

Building height

Tall buildings have restricted access to their upper floors, because users must depend on mechanical aid.

A preferred building configuration is obtained by buildings that are:

- ROBUSTNESS

The urban environment does not usually promote the user's choice. Decisions over the environment lie in the hands of a patron. Cities are designed around efficiency as it pertains to people as rent-payers, office workers or drivers, but never in their totality as human beings.

Modern architecture tends to provide specialist spaces for different activities. This specialization makes it very difficult for buildings to adapt to change. This attitude is also true of public space. Parking space is divided into areas that specialize in traffic, parking, etcetera.

The robustness of buildings has a profound influence on public space, in that buildings strongly influence activities on their edge. Large-scale robustness is concerned with the ability of built forms to change in use. As buildings grow older and move down market, it becomes financially feasible for them to accommodate a great range of uses.

Design implications

Experience suggests that there are three key factors which support long-term robustness (Bentley, 1985: 57):

- building depth
- access
- height.

- VISUAL APPROPRIATENESS

Visual appropriateness is important because it affects the interpretation of the urban environment. It is supportive of territorial rules within society and provides society with clues of conduct for different areas. The interpretation people give to a place can reinforce responsiveness at three different levels (Bentley, 1985: 71):

- by supporting its legibility in terms of form and use,
- by supporting variety,
- by supporting its robustness on a large and small scale.

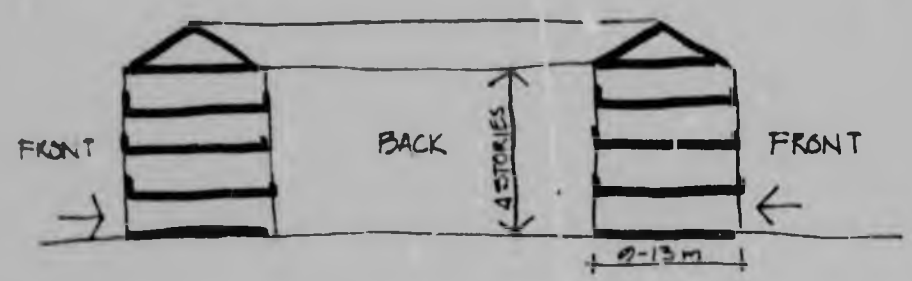


MOSQUE IN KATRINA STREET.



CITY HALL.

- shallow in plan
- have many points of access
- are limited in height.



Not all buildings can have these forms. Specialist buildings have unique features that offer the environment different opportunities.

The robustness of public space is a complex matter. Important determining factors are the boundaries of public space. The character of this space can be influenced by capitalizing on, and stimulating, active elements on ground floor level. Active building fronts do not only contribute to public space, but also stand to benefit from it. The success of public space depends largely on the micro-climate in that space, as well as the ability for a variety of activities to co-exist in a public realm without inhibiting each other. This has important implications for the way vehicular and pedestrian activities are handled.

- PERSONALIZATION

The central task of the urban designer was identified as the provision of a spatial framework, as a constraint that will enable individual decision-making and ingenuity. Although this spatial framework needs to be robust enough to establish the direction of development, it must remain flexible enough to enable the personalization of the environment.



People interpret visual clues as having a particular meaning because they have learnt to do so (Bentley, 1985: 77). But people do not learn in a social vacuum; the greater the shared body of knowledge within the community, the better the chances of a common interpretation of place. It is, therefore, important for the urban designer to seek relevant clues that will support meaning in the environment, as well as introduce acceptable new ones that will support legibility, variety and robustness.

- RICHNESS

Richness is not a purely visual matter. Our sense of smell, motion, hearing and touch also have design implications.





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CHAPTER 8

CHAPTER 8

CONCLUSION

Urbanization is undoubtedly one of the most dramatic and far-reaching dynamics moulding our society, and it is leading South Africa into a new era (Mallows, 1099: 79). Mallows indicates that the degree of urbanization, the percentage of whole population living in the cities, is as a direct result of the material development of the country. It could become a sensitive barometer of the changing social values and priorities and could be used as an indicator of a future vision of society. South Africa stands on the critical threshold of 50% urbanization (Mallows, 1988: 82). For the first time the balance between country and city begins to shift towards the city, indicating a whole new direction in the economy of our country.

This study attempts to add an urban design dimension, to a vision of a future South Africa. This account is based on the historic genius of city living - a place of opportunity where the challenge to live is free and open to all who are prepared to accept the risks as well as the rewards.

In South Africa the realization of this vision of city living is blurred by urban environments created as a result of ideological dictates and amidst a fear of the big city. This resulted in urban areas that are not fulfilling the potential inherent in the urban order.

It was this fear of the big city and its political consequences that lead to attempts to rationalize the city in value-free "scientific" terms. These trends

were supported by an era where technology far outstripped the knowledge of the inner meaning of the social phenomena. It is now recognized that we desperately need to look for knowledge and skills of how to better man's happiness and well-being. The realization of these values might once again restore faith in city living. The city may once more be restored as one of humanity's greatest achievements in co-operation and communication.

This study attempted to realize in design terms a mode of city building responsive to the needs of rapid urbanization, in such a way that it would offer maximum survival chances and the richest possible choice.

The study attempted to address the concept of a "total living environment" as a means of integrating the urban poor into the fabric of urban life. By creating opportunities of new-, infill- and redevelopment around Roodepoort, the design attempts to create integrated environments capable of accommodating a full range of human activities. It is essential that living, working and shopping, as well as public, spiritual and recreational activities occur reasonably well dispersed throughout the urban fabric.

This study committed itself to the creation of a spatial framework bedded in the urbanity of the traditional city. This spatial framework constrains, guides and enables individual decision-making, which is believed to be necessary for a rich overlay of activities and events. The challenge for the urban designer lies in mediating between the urban order, as represented by the spatial structure, and the urbanizing society, managing the relationship between public and private activities.

The first challenge lies in determining the minimum public investment in the spatial structure necessary achieve urbanity. Investment in public space and place is vital as a collection of resources, which have the ability to extend the city of opportunity to within the reach of the urban poor.

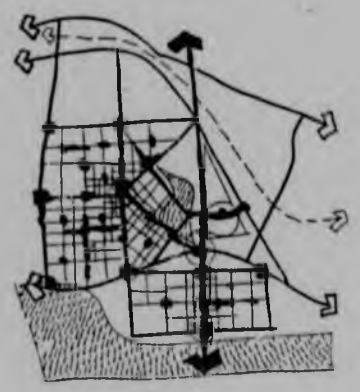
The second challenge involves a meaningful fulfilment of the essential precondition of minimum density, necessary for viable urban environments. Density of people is very important, in the absence or presence of certain uses and services, that are important to urban living. It is not possible to develop efficient public transport systems, or a viable small-scale economy, or to provide an adequate level of communal and social services, when density thresholds are too low to support these.

The third challenge lies in utilizing the spatial framework to the extent that people's sense of possibilities about their environment are widened.

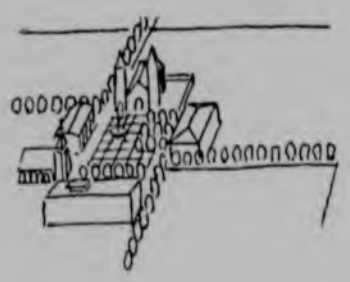
The fourth challenge is the challenge of place. A search to find forms and processes which are appropriate to place and which enhance the uniqueness of place is needed. This determines the appropriateness of the urban design action.

In answer to these challenges, the study presented five main elements in a publicly provided urban spatial framework, which could guide public and private actions.

3. The reinforcement of the public realm as a vital component of city life through the creation of a system of positive urban space to structure public and private action.



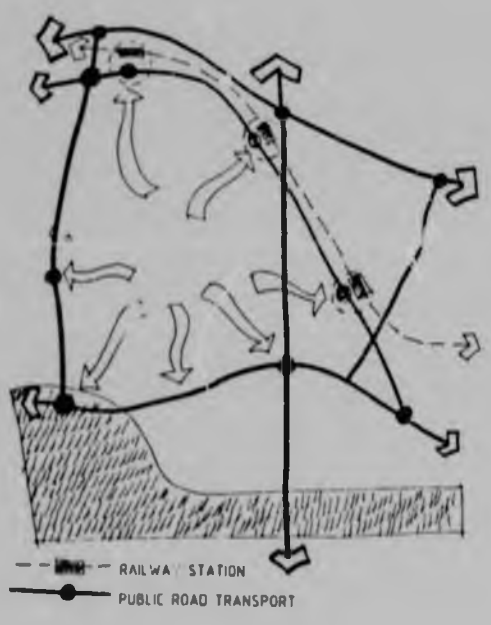
4. The use of man's major social institutions as key building blocks in city building.



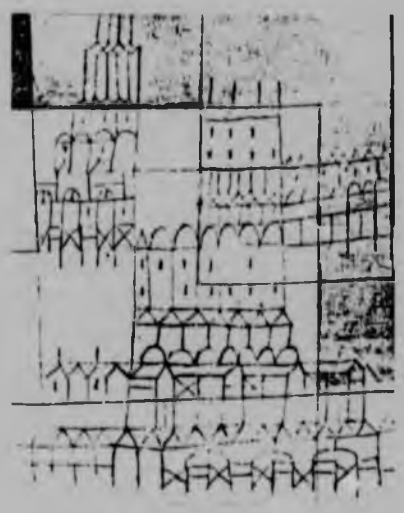
1. The integration of the urban area and its rural base in the form of a defined and fixed urban edge.



2. Accessibility to the benefits of urbanity, creating a city for a man on foot and supplementing it with an efficient transport network.



5. The introduction of "the city of a thousand designers", to create a more complex process of city building.



With these elements as guidelines it could be possible to develop a city which is more responsive to future needs than present urban environments.

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Author Fourie W J
Name of thesis Responsive environments for urbanizing South Africa 1989

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