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REDESIGNING SUBURBIA

COLIN ANDREW HATTINGH

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

JOHANNESBURG 1992

25×10 32×10 25×10





Bateleur Bastion

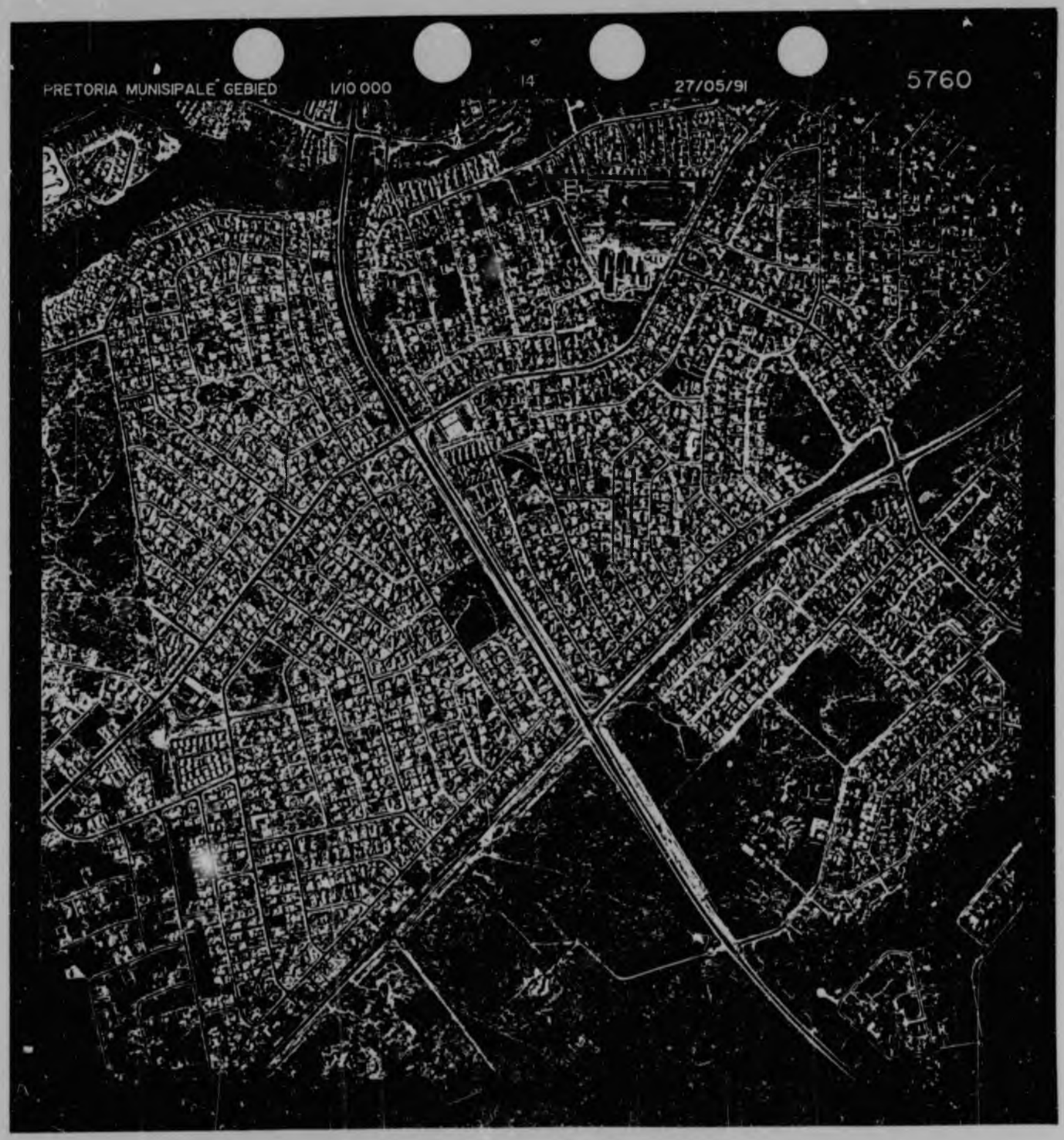
BEST OF BOTH WORLDS

Recent suburban developments in Pretoria
More low density sprawl aimed at the
upper end of the market.



Recent low density sprawl on the eastern edges of Pretoria





ABSTRACT

This dissertation studies the residential environment of suburbia. As urbanisation continues to increase, renewed questions on the costs of sprawl, its environmental impact and the livability of suburbia are being asked.

The major aim or purpose is therefore to suggest new ideas which will be capable of transforming neighbourhoods into places exhibiting the many qualities of urbanism that have been eroded away as standardised planning techniques and automobile domination, slowly but surely break down the fabric of urban areas.

The research method traces the historical beginning of suburbia up to the present day in order to clearly understand the factors fundamental in determining its structure and form. The results show a need to compact and integrate residential areas so that densities may be increased and sprawl curtailed. Livability is, however, an essential prerequisite as without it a return to the slum conditions of the pre-war years is possible, due to the ever increasing population growth and rural depopulation.

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

COLIN ANDREW HATTINGH

2nd day of November, 1992.

For Theresa, my wife to be

and the rest of my family.

Thank you for your love and support.

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PREFACE

This study deals primarily with the form and structure of suburban areas. The outward growth of cities is clearly manifested by sprawl which has engulfed vast tracts of land at the urban fringes. Added to this, the increasing rates of urbanisation; population growth and rural depopulation, demand a rethink of this costly and often mundane residential model.

The need therefore exists to accommodate people in a new suburban form, where integration of uses and activities, a variety of housing types and alternative forms of movement are available to all. Furthermore, the quality of living environments is often poor (squatter and township areas) with planning controls thoughtlessly imposed and the time has come for these trends to be broken.

The scope is fairly wide and a variety of issues such as suburban beginnings; the contemporary suburb; current trends and alternatives will be dealt with in order to fully understand suburbia's impact on the urban structure. Emphasis, throughout, is on the South African context so that solutions can be found to local problems.

The assistance from the University team of Roger Boden, Ron Kirby and Erky Wood is gratefully acknowledged. Also many thanks to Ruth Hattingh and Sandra Roberts for the typing, and Chris Nel for his computer expertise.

CHAPTER 1

INTRODUCTION

At no other point in time has urbanisation been as important and contentious as it is today. Amidst a wide range of serious social and economic concerns, the growth of cities worldwide remains central to the wellbeing of people and nations. Cities impact tremendously on all aspects of life and their management should thus respond to people's needs in a society that is constantly changing. Part of this management has to do with the rate of urbanisation and the resulting growth. In many cases the growth has been rampant and planners are left with the task of dealing with symptoms instead of focusing on the main issues.

In most cases the visual effects of urban sprawl and uncontrolled growth are clearly seen in the suburbs which cover vast areas of land around central districts accomodating the ever increasing urban population. The suburb is the central theme of this dissertation and will be discussed in order to evaluate its performance as the so called 'ideal residential environment'.

Suburbia has become the standard residential model in many countries and as such warrants close attention. Thus for the purpose of this study the residential suburb (as opposed to business or in 'ustrial suburbs) will be evaluated. It will be viewed from a traditional perspective as being a place where people bring up their families (as opposed to the inner city) and to which employees retire to sleep (dormitory towns). Suburbia is therefore seen as the sum collection of individual suburbs. Furthermore, it is important to realise the important role suburbia plays in the vitality and economy of the city as a whole. Originally designed to serve the city the suburbs had little independence of their own, but increasing decentralisation of employment opportunities has changed this initial role. Now, suburbs literally have a life of their own, supporting a wide range of actitivies and providing real economic impetus for other areas.

The origin of the suburb is traced back to the times of Roman rule, with the country villa idea being an expression of the desire to excape the pressures of urban life. This produced the tendency for more affluent people to move away from the city centre, being replaced by the poor who sought close proximity to employment opportunities.

This leads up to another central issue in the discourse - The phenomenon of suburban sprawl. According to Peiser (1984, p431) urban sprawl may be defined in many ways and he suggests that:

"It describes the result of urban growth in an unplanned and uncoordinated manner - what happens when small developers are allowed to determine community development patterns in a manner that maximizes their profits."

Taking that as a departure point suburban sprawl is seen as the growth of residential areas in a planned or unplanned manner, mainly at the fringes of existing

metropolitan or urban areas. The concept may be defined in various ways depending on the scope and aim of any particular study.

Suburban sprawl should therefore always be linked with its causative factors and these will become clearer as the discourse progresses.

Another issue which is highly debatable is the distinction between the terms urban and suburban. Both have embodied in them various physical and non-physical aspects. Non-physical referring particularly to peoples attitudes and lifestyles. Urban usually indicates a concentrated lifestyle with needs and facilities being located in close proximity to each other. A mix of uses therefore occurs. On the other hand, suburban brings to mind a rural lifestyle occuring in an urban context. A whole range of qualities thus need to be investigated and this will be done in a later chapter, based upon a project completed during my studies last year.

The word suburb literally means "beyond the city" and according to Fishman (1987, p5) refers to:

"any kind of settlement at the periphery of a large city".

Any suburb is therefore economically and culturally dependent on the urban core for employment and the major institutions of urban life (Fishman,1987, p5). Furthermore he states that for a suburb to be clearly recognized it must be:

"large enough and homogenous enough to from a distinctive low density environment defined by the primacy of the single family house set in the greenery of an open parklike setting."(p5)

It is dependant on a certain level of technology and requires a good transportation network. Suburbia therefore, includes a wide range of residential types, across the economic spectrum, and it usually excludes industry and most types of commerce.

The suburb represents a complete rethinking of the relationship between the residence and the city (Fishman, 1987,p 8). In the eighteenth century city the urban core was regarded as the only proper place for the elite, with the fringe areas developing largely as shanty towns for the poor. The roles have been reversed and it is against this background that the discourse will investigate the modern suburb and its impact on city form and structure. Suburbia was driven forward by the possibility of transforming previously unused land into profitable building plots (Fishman, 1987,p10). This profit motive lies at the heart of many decisions taken today and is an expression of the state of our society. To put forward a problem statement for the discourse is almost impossible and a general discussion is needed to highlight a few of the more important issues.

Serge Chermayeff and Christopher Alexander commenting on urbanism today state that:

"While failing to produce satisfactory new environments we are losing the best of the old".

By this they mean that the powerful symbols and images, unique and irreplaceable places that characterized many ancient cities are not being reproduced by city builders

today. Nowhere is this more clearly seen than in suburbia. Up to 77% of Americans living in the suburbs would prefer to change and move to a smaller town. The trend in the United States is therefore toward more compact development, the setting up of "village communities" (King, 1990, p12). Why is this so? According to Victor Mirontschuk, an architect working on such a project, suburbs today produce neighbourhoods without neighbours, parks without picnickers and sidewalks without walkers. In a sense many new suburbs are characterized by a degree of placelessness and a loss of identity. Families start out in search of the suburban ideal but find out that this ideal is eroded away by the character and form of their new environment. The form is often dull and uninteresting with participation in community actitivies virtually non-existent. Poor design leads to a waste of land and people are separated further and further from facilities and work opportunites.

Many new problems are coming to the fore and these include a higher degree of traffic congestion (particularly at peak hour times); the related smog and pollution; less affordable housing close to amenities; a lack of usable open space - particularly for family recreation; a lack of security leading to stress and almost total dependence on the automobile for access to neighbouring areas.

Much of the blame is aimed at the planning authorites for not being able to properly manage the growth. Zoning controls have been used and abused many times proving that they are largely ineffective. Community values and ideals are dissolved and a unique suburban culture is created.

"Now it is a lifestyle of inconvenience for the real victims - mothers and children and the elderly in surroundings which are frequently plain ugly". (King, 1990, p12).

The suburban culture has to do with the thinking and lifestyles of people looking to move into a suburban situation. The visions are mainly of sweeping lawns, winding tree lined streets with no curbstones, and the goal of living in a village community in the countryside. Many of these false impressions stem from mixed messages sent out by marketing agencies in an attempt to maximise sales and profits.

Further consequences of the suburban trend is the fact that inner city suburbs undergo a type of invasion by the poor who need to gain access to housing, educational and employment opportunities. Around the fringe areas a conflict of interests occur between the classes. As Fishman (1987, p8) states:

"the emergence of suburbia required a total transformation of urban values, not only a reversal in the meanings of core and periphery, but a separation of work and family life and the creation of new forms of urban space that would be both class-segregated and wholly residential."

This model has changed somewhat since its inception with a mix of uses occuring, but the fundamental philosophy behind it remains in place.

The idea of community is also eroded away in suburban areas. The residents move in with a wide range of values, traditions, norms and behaviour patterns. This makes it impossible to design for a common culture - culture according to Rapoport(1979, p36):

"being about a group of people who have a set of values and beliefs and a world view that embody an ideal."

If this is available in an area then the settlement becomes a recognizable unit (i.e. a person could distinguish between different communities e.g. Greek and Italian.) Only through the application of a cultural and anthropological approach can settlements and their meanings be understood (Rapoport, 1979). The importance of such an approach to suburbia cannot be overemphasized.

From the preceeding discussion it is clear that suburbia is a complex subject and its analysis should reflect a clear understanding of the relevant issues. Despite the problems already mentioned, many young families still opt for this peculiar lifestyle. Any attempt, therefore, to introduce new design principles needs to acknowledge the fact that the current form and layout is very popular particularly in the United States and Canada. Indeed the single residential house is very much in demand across the whole spectrum of our society.

So then what of the future? All indications point to suburbia playing a prominent role well into the 21st century. The surburban Metropolis is the latest stage in the development process and is exemplified by the city of Los Angeles. According to Fishman (1987, p16):

"The creation of a suburban metropolis signalled a fundamental shift in the relationship of the urban core and its periphery, with implications extending far beyond Los Angeles".

This trend is very apparent in South Africa - Johannesburg in particular, where dormitory towns of the past (Sandton, Alberton) now function as perimeter cities virtually independent of the urban core. The suburb now takes on new meanings and forms which are completely different from those played out in the past. In effect this could mean the end of suburbia as it was originally intended i.e. the union of leisure, family life and nature. With all the urban functions and activities widely dispersed the landscape created is neither urban, rural, or suburban and may signify a rethinking of suburban form and function (Fishman, 1987, p17).

Moving away from the general discussion, the discourse aims to fully investigate the suburban phenomenon with a view of formulating design solutions to the problems already mentioned. The intent is therefore to learn from historical and present day examples and to apply these lessons in a case study. The goal would therefore be not to suggest a completely new form of suburb but to critically evaluate what has been "accomplished" before, with a view to influencing what is still to be done. In other words, the creation of a residential enviornment not governed by planning controls, wasteful design and false ideals, but one in which community values and expressions are enabled and encouraged - partly through design and partly through the experience of living in those new suburbs.

It is wishful thinking, in today's society, to attempt to create genuine village communities. This is due to the fact that areas are not self contained nor totally

isolated and with the high degree of mobility people move in and out of various districts on a daily basis. Design can facilitate community participation and aspirations but can never guarantee it. A more practicial aim would be the establishment of a city identity within each community and suburb i.e. pride in thei. city. This would encourage people to contribute to the development of the area as a whole. Apart from this various other objectives can be formulated and these can be summarized as follows:

a. The establishment of design guidelines for new developments.
b. The application of these guidelines in existing areas.

The recommendations which will be made can therefore be implemented in new and older suburbs. The study methodology can thus be broken down into the following basic steps:

a. Theory investigation: Historical and present day
b. Conceptual Framework: Giving directions for the study's rationale.
c. Case study : For a new suburb.
d. Conclusions and Recommendations: What can be learnt from this study locally and universally.

The structure of the discourse will therefore be as follows:

Chapter 2 is a brief historical analysis looking at the compact form and many urbane qualities the cities of old possessed. Current suburban forms have lost this quality of urbanism (i.e. the character of life found in cities including its organisation the movement of people and their behaviour and the problems of urban life) and examples from the past provide clues toward the attainment of a beter living environment.

Chapter 3 discusses the start of suburbia as the compact forms began to disintegrate under the pressure of population growth; technological advances and industrialisation. People sought after an alternative, an utopian ideal, which was reflected in many designs at that time (a brief overview of a few will be given).

Chapter 4 deals with the contemporary suburb in order to evaluate its components and qualities. The many form constraints and suburban concepts of community and lifestyle will be investigated so that concerns for urban quality and human need existing in suburbia may be realised and addressed.

Chapter 5 debates the current day issues of growth, sprawl and the economic impacts of both. Many writers criticise suburbia for its cost implications, poor design and environmental impact and therefore the validity of these arguments should be assessed. Also, alternatives for South Africa, based on two examples will be given.

Chapter 6 seeks to highlight relevant urban design principles and illustrate how the

application of these can lead to a more livable, urbane living environment in both upper and lower income areas. These principles along with the issues raised by the preceeding chapters form the basis of chapter 7 which is the Conceptual Framework where the theory is drawn together in order that the important lessons may as far as possible, be applied in the case study.

The case study site lies south of Pretoria on the edge of existing suburban development. It remains undeveloped as the City Council cannot decide how the land should be utilized. The site has potential for accommodating a wide range of activities and its close proximity to an existing suburb makes it ideal for the discourse.

Chapter 8 therefore, presents a design of the site in the form of an urban design framework. Finally in Chapter 9 conclusions and recommendations will be made so that others locally and internationally may be able to apply the lessons learnt.

The process, throughout, is basically a deductive one, according to the available relevant information. Selective readings are necessary due to the bulk of existing literature and logical conclusions will be made where necessary.

Suburbia is one of the main determining factors of city form and as such influences a wide range of people and activities. This discourse will contribute to its understanding which may then lead to more effective control and management, and ultimately a better environment for all its residents.

CHAPTER 2

HISTORIC STRUCTURE AND FORM

Modern cities today undergo rapid urbanization and the resulting sprawl is evident particularly in the suburbs. The process of urbanization is a complex one and its impact on city structure and form undeniable. Rapid growth is breaking down much of the urbanity which existed in cities of the past. This urbanity manifested itself in the clear structures and well-defined limits that characterized cities such as Rome and Venice. These cities were and still are able to enrich a person through the unique forms and places which occur. A balance existed between the elements and this produced environments able to withstand changes and, therefore, display the quality of 'timelessness' so lacking today. This is due, in part, to urban renewal which transforms older suburbs and may result in poor environmental quality.

This chapter briefly examines some of these qualities by looking at the form and structure of the ancient city. Many valuable lessons and principles are available but their application is lacking. City building today is still concerned with the making of successful human environments and to do this requires the correct management and form making techniques. As Dewar and Uytenbogaardt (1991, p14) state:

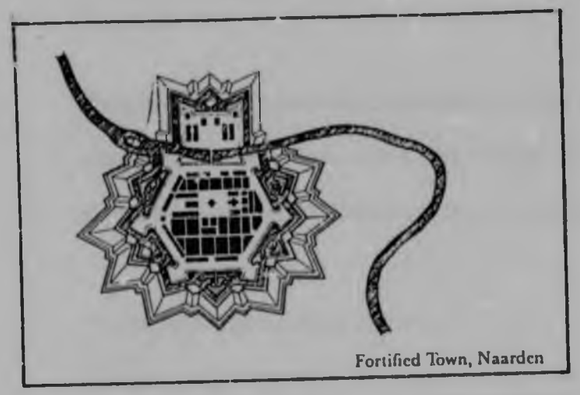
> "In the making and management of environments, there are certain underlying physical relationships and principles which generate or capture these qualities, free and stimulate individual creativity, accommodate life and are enriched by time and change".

The extensive suburban sprawl breaks down these urban qualities and learning from historical cities can provide clues and methods of how this negative process can be slowed down.

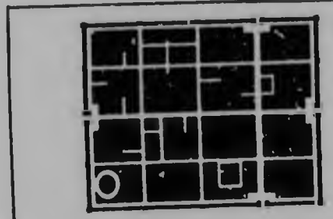
2.1 QUALITIES OF URBANITY

Evidence is available to suggest that our cities are dissolving and people today tour the ancient cities to find positive places capable of enriching the soul. They are places that provide physical evidence of origin, growth and purpose (Chermayeff and Alexander, 1965, p51)(fig 1). It is this kind of 'place quality' that needs to be rediscovered. A striking example of this is Pretoria which fails to install a sense of belonging and identification in the hearts and minds of its residents. Despite being the capital city of a country, it is characterized by a failure to celebrate and emphasize its important buildings and public spaces. The so-called culture route is merely a collection of buildings (old and new) representing various architectural styles, which fail to present a clear picture of the city's form and plan. The historically important main square performs the function of a bus terminus and this type of neglect for origin leads to the lack of belonging and loyalty amongst the residents. Furthermore, much of the community do not identify with the Afrikaner symbols and this leads to community isolation and in many cases, tension.

According to Chermayeff and Alexander (1965, p51) ancient cities were given identity by the interaction of inhabitants, a social purpose and the manner of



Fortified Town, Naarden



Roman Camp, Aosta



Amsterdam



Nördlingen

Fig. 1 Ancient cities that display real urbanism
Source: Chermayeff and Alexander, (1965)

buildings. Each had a distinctive purpose, order and plan (eg. Amsterdam and Peking) which showed clearly their internal organization and the fact that they were well-defined wholes. This quality has been lost today with suburban sprawl cutting off any possible link with nature. No longer do urban and suburban environments stand apart from nature, and the boundary which existed so clearly in the past has been eroded The ancient cities were, understandably, not subjected to the same growth and technological forces which operate today. This combination of factors meant that expansion could largely be contained within existing defensive walls. The form was therefore largely in response to security considerations which in effect enabled the city to develop slowly, and this in turn had the effect of ensuring the prominance of public spaces and focal points.

"The direct relation between form and pressure, and the slow process of development, generated a clear plan" (Chermayeff and Alexander op.cit., p55).

This clear plan is not evident in most suburban areas which have grown at alarming rates. It is therefore essential to understand the implications of growth and sprawl, because only then can proper management begin to create areas exhibiting a sense of place.

Planning and design disciplines have to once again understand that city building is not primarily about the accommodation of vehicles and activities, but rather about the residents and their needs. As Dewar and Uytenbogaardt (1991, p13) state:

"the art of urban planning is concerned with the making of human settlements".

This principle was for the most part evident in the ancient cities which enabled

people to develop a sense of pride and joy in their living enviornments. Qualities of urbanity are mostly form based and if they are to be successfully created the prevailing conditions, traditions and human expectations should be considered.

2.2 FORM CONSIDERATIONS

According to Mumford (1961, p90)

"The size of the typical early city was modest and its scope confined to its neighbouring region".

The street plan was usually quite regular with practical considerations (wind, sun, topography) having a large impact on form and structure. The ancient Mesopotamian cities are typical of this. Their walls contained a network of narrow streets or alleys, and the people were housed in the same one, two or three storey buildings. Each house had the same roof top and dominating the city were the ziggurats (Mumford, 1961, p91). This type of simple city form displays qualities of coherence, and readability. Prominent places and buildings were celebrated and each contributed to the urbanity of the city as a whole. As already stated the growth of our cities today, and the resulting sprawl is a central issue for decision makers to resolve. Whether growth should be encouraged or impeded is a question which is largely undecided. In this regard the ancient cities provide many insights. The early Greek cities according to Mumford: (1961, p151) "never lost their connexions with their countryside or villages".

This in turn meant that the countryside could be easily reached by foot. Contrast that with the situation today where a one to two hour drive is needed to escape any urban influence and arrive in a countryside setting. Obviously, many factors need evaluating but the principle of maintaining contact with nature is still applicable today. Larger open spaces can, in certain cases, replace the need for a variety of smaller parks which are often unmaintained and under-utilized.

The Greek cities ensured small populations by starting colonies when signs of over-crowding became evident. Size was further constrained by the limited land available for agriculture and the scarce water supply (Mumford, 1961, p155). The towns and cities were able to be relatively self-contained and relied on themselves for food production and the provision of other essential services. As Mumford (1961, p216) states:

" No one can define the Greek city in the early Hellenic period better than by the saying that it was a community that was determined for its own good to remain small".

A person could, therefore, from the highest point see the whole city and recognize its boundaries. This kind of form is one in which identity and legibility play a big role in fostering urban environments capable of satisfying every human need. In this regard politics may well be the determinant, as form can become the manifestation of policies and ideologies. The philosophy of apartheid, through the Group Areas Act of 1950 and 1956, was ethnical segregation to protect the interests, values and identity of groups - especially the White nation. The impact of this on a city structure is vast and likely to remain in place for many years to come.

To gain a few more glimpses into the form of ancient cities the Roman influence is worth mentioning. According to Mumford (1961, p241) the Roman city began with a defensive wall and was then laid out in the form of a rectangle. The two main streets are well documented with the cardo, running north and south and the decumanus running east and west. They met in the middle providing the ideal place for prominent buildings. This type of simple layout reflects cultural and religious influences sadly lacking today. An example of this is Church square in Pretoria, which was originally established as an area for the town's church and market. The first building was constructed in the year 1856 and in 1911 the layout was done by the South African architect Vivian Sydney Rees-Poole (1883 - 1965). Anton van Wouw's statue of Paul Kruger was moved to the square in 1954 and is one of Pretoria's most well known sites. Unfortunately its present day function (a bus terminus) shows disregard for the past. The space is still maintained but fails to speak strongly about the Afrikaner-Voortrekker influence on the city's origins.

Any new town that was built during the period of Roman rule, was designed for a limited population and was characterized by its quality and self-containment. Other characterisitcs were the geometric layout, the open spaces containing prominent public buildings, and the market places along arcaded streets (Mumford, 1961, p241). Further influences of the Roman way of city building were the prominent shopping streets and a mix of uses along their length. Problems naturally occurred, such as overcrowding and poor sewerage disposal, but despite the trials of population growth, industrial revolution and technological changes, many forms and patterns still exist today - a testimony to their inherent qualities of adaptability and permanence.

Growth and its management were big issues at that time and according to Mumford (1961, p277):

"The disintegration of Rome was the ultimate result of its over-growth, which resulted in a lapse of function, and a loss of control over the economic factors and human agents that were essential to its continued existence".

A lack of control with increases in population and wealth contributed to this breakdown and it is a lesson in city management that still applies today. Growth which is poorly managed and controlled leads to disorganization which can spill over into increased crime and pollution. Ultimately good management implies a balance between freedom and control, creating the preconditions for human expression and satisfaction.

After the Roman empire, the growth of cities declined during the Dark Ages. However, this trend was reversed and urbanization during the century was pushed forward by trade, industrial production, technology bringing mechanization and capital accumulation. A suburban movement has basically always existed - being largely unnoticed and this will be expanded upon in the following chapter.

Medieval towns represented the final phaze of real attempts to control and limit expansion. According to Mumford (1961, p359) the original limit of these towns was

defined by the wall. Gradually as expansion took place the policy would be to simply break down the wall, and enclose those areas that were outside its original position. Distances to the centre were, however, still kept relatively small and towns were able to maintain security and provide for all the needs of their residents. New inhabitants were accommodated in independent self-sufficient units built nearby, so contact with the mother city was always ensured. Examples of this are Edinburgh and the medieval town of Valenciennes, where growth and expansion were natural extensions of their structure This period highlights the fact that growth produces a necessary expansion of any towns' limits. The sprawling suburbs of today are the ultimate expression of this, but the Medieval period illustrates the fact that any new area need not develop in isolation from the core. Today, distances from the core to the suburbs tend to be too far to maintain any real contact, and this can lead to a breakdown of social and cultural bonds. The role of trains, automobiles and population growth in this regard has been an important factor.

2.3 CONCLUSION

This short chapter has shown that many ancient cities were characterised by urbanity and a richness of form. The chapter was not intended to provide an indepth analysis but merely to emphasise the fact that our cities and suburbs today can be improved through the application of relevant principles. It is felt, therefore, that much can be learned from how the ancient cities fostered and maintained urban life.

As Dewar and Uytenbogaardt (1991, p18) state:

" the most fundamental task of urban management in South Africa, and, indeed, in all other countries as well, is to create qualities of "city" as opposed to suburbia".

Similar sentiments are expressed by Chermayeff and Alexander (1965, p56) when they state:

" the contemporary urban picture not only lacks clarity - it is crude, composed of coarse outline and color".

This type of thinking is particularly applicable to the changing nature of the urban system in South Africa. Our cities represent a mix of first and third world cultures which are constantly undergoing adjustment and modification as the future becomes clearer. Our suburbs are dominated by white middle and upper classes yet the large majority of the population live in 'townships'. The situation is sure to change and it is essential that new developments recognize the need to accommodate everybody equally in the future i.e. discrimination on a race basis can no longer be a consideration.

Again, urban planning and design is concerned with the creation of human habitats and it is felt that the suburbs, as they stand today, can greatly benefit from the application of the above principles. Design needs to be an agent in creating opportunites for everybody. Our cities and suburbs alike need to be developed with a range of qualities capable of installing pride in the hearts of the residents. These qualities have, to a large extent been lost as the process of growth speeded up

during the 20th Century. The planning and design of new urban and suburban areas is accomplished quickly according to need, which means that the pre-conditions for complexity and variety are not in place. The reasons for this will become clearer in the following chapter which deals with the start of suburbia.

CHAPTER 3

SUBURBAN BEGINNINGS

Almost every urban centre in the world is characterized by the existence of suburban areas (fig. 2). They take on a variety of forms and sizes and adapt easily to each new landscape and condition. They are, furthermore, fundamental determinants of city structure and are essential for the maintenance of growth and development.

Historically the suburb, or a form of it, can be traced back prior to the eighteenth century. As Mumford (1961, p550) states:

"But the fact is that the suburb becomes visible almost as early as the city itself, and perhaps explains the ability of the ancient town to survive the insanitary conditions that existed within its walls". (eg. medieval town of Valenciennes)

In this chapter an attempt will be made to trace some of the factors behined the early suburban movement. The industrial revolution, along with the technological advances made in transportation will also be evaluated. Finally, schools of thought such as the Garden City and New Towns movements will be investigated. Many of these ideas continue to play a role today and were fundamental in shaping early suburban forms.

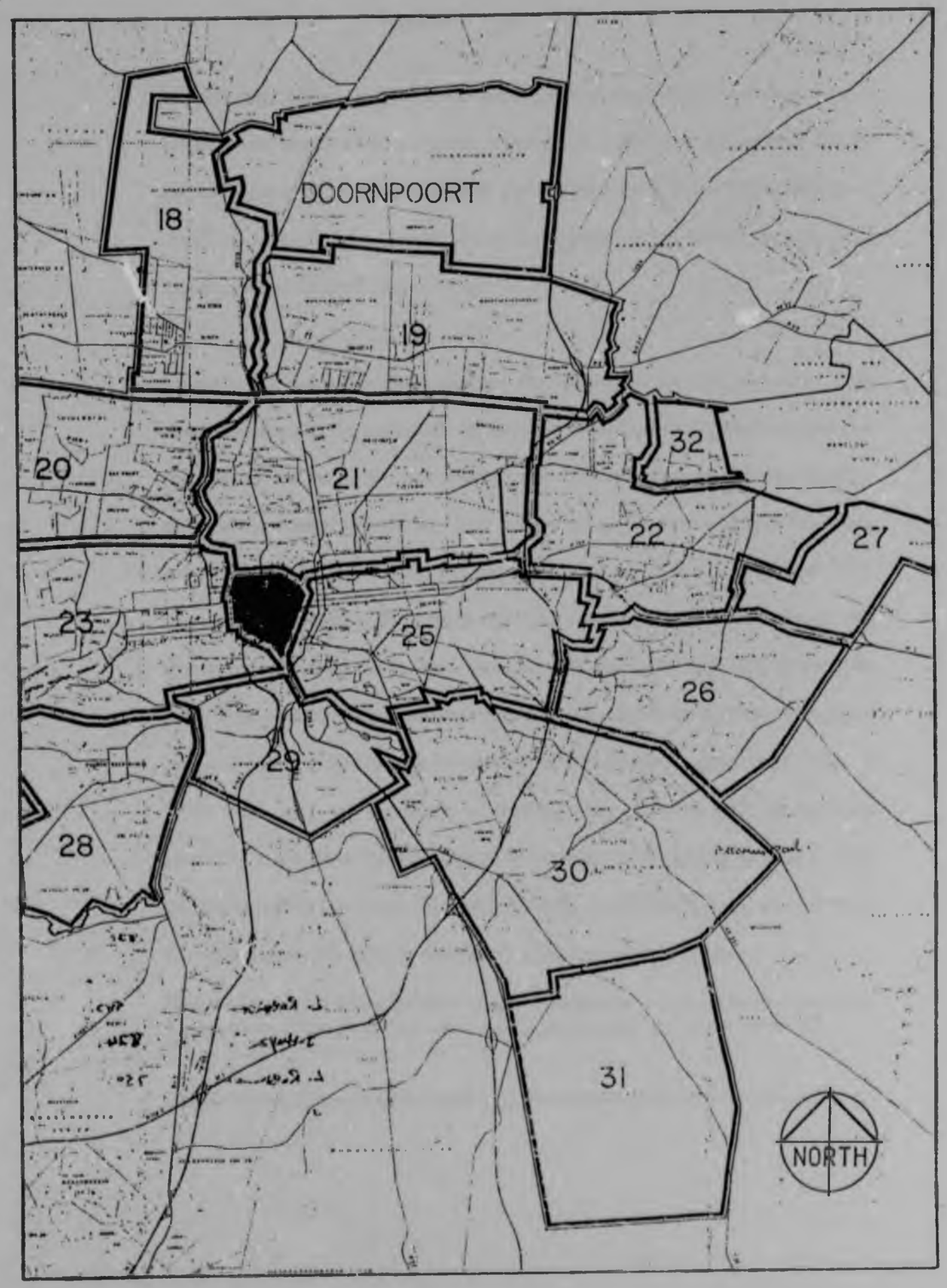


Fig. 2 The spread of Pretoria's eastern suburbs

3.1 HISTORICAL ACCOUNTS

Today, many people consider the suburb to have started in reaction to the poor living conditions found during the industrial revolution. This is only a part truth. Evidence is available (Mumford, 1961) to suggest that suburban locations were available, and used, as far back as biblical times.

The early city was relatively compact and people were thus able to own or rent a piece of land just outside the city's walls. This proved to be fairly popular and although inner-city locations were still the most attractive, the advantages of a rural location were becoming apparent. Furthermore, according to Mumford, (p550) groups who needed a large amount of space (academic and sporting bodies) settled naturally in these locations.

The medieval period also displayed a strong tendency or desire to escape the boundaries of a town. Furthermore, these locations were needed in the production of food, for recreation and the provision of other life maintaining agencies (Mumford, 1961, p550). Thus, it can be clearly seen that the suburban movement was existed long before overcrowding and pollution forced people to locate in areas previously unthought of.

In the sixteenth century, therefore, people in Britain and Europe had already built cottages and villas, surrounded by large gardens which were used mainly as a summer residence and for recreation. Already, at that time it was evident that the suburbs were only for the wealthy and represented a lifestyle markedly different to urban life. People were free to do as they pleased and it proved to be a more healthy, relaxed way of life.

Fishman (1987, p18) however argues that the true suburban movement only manifested itself in the eighteenth century. Its birthplace was London - a medieval city that by the year 1800 had undergone widespread urban growth causing it to overcome traditional boundaries. The modern suburb, according to Fishman, grew out of two trends (p19). First, the inability to deal properly with largescale urban expansion and secondly, the growth in wealth and size of the London bourgeoisie (mainly upper-middle class merchants). Growth was encouraged and people took pride in the expanding trade and commerce. At this time the wealthiest people lived and worked in places close to the urban core. These places guaranteed a flow of information and were the centre of trading. The poor, as well, sought close proximity to the downtown and as growth occurred overcrowding increased. With the overcrowding came dirt, noise and unhealthy living conditions which forced the elite into the suburbs to live. Therefore, Fishman (1987, p26) states:

"Every true suburb is the outcome of two opposing forces, an attraction toward the opportunities of the great city and a simultaneous repulsion against urban life".

The above description is in its most basic terms the start of suburbia and even today

the same dilema exists . People need quick access to work opportunities but prefer to raise their families in a setting away from the percieved problems of over-crowding and pollution of the urban downtown. Suburbia provides a solution and indeed, is a popular option to those who can afford it.

3.2 INDUSTRIALISATION AND TRANSPORTATION

Suburban growth and expansion reflect dynamic ongoing process. At its start growth was relatively slow due to limited demand and the high cost involvement. However, the advent of the industrial era, signalled a quickening up of the process.

The classic industrial city, according to Fishman (1987, p77) displayed the following qualities: a central business district or downtown almost completely devoid of residents; a factory zone surrounding this with densely packed workers housing, and a peripheral zone for the housing of the wealthy. The fundamental shift is evident - no longer was the downtown considered to be fit for housing and bringing up a family. It was associated with noise, dirt and pollution and so forced people to change location and live in areas that were more acceptable. The freedom to choose was then, as it is today, limited by the economic capabilities of the respective family. The form of industrial cities around the 1850's was therefore markedly influenced by this flight from poor urban conditions.

The suburban movement had, therefore, changed its ideology. No longer was it purely a 'romantic' movement for now the increasingly smoky and overcrowded industrial town provided a new impetus for the suburban exodus (Mumford, 1961, p551). This exodus continued at a relatively slow pace until the middle of the 19th Century. It was during this time that technological advances in transportation methods began to speed up. Now the establishment of new forms of transport such as commuter trains and streetcar lines opened up many new areas and sites for development (Rothblatt and Garr, 1986, p1). These sites were mostly beyond the city limits and had only become accessible due to the improvements made in these various transport modes.

This outward expansion was further enhanced by the development of the private motorcar or automobile. This phenomena, during the 1920's (particularly in the United States) had the effect of making people independently mobile. They could now move about freely and even larger areas at the periphery were opened up for development.

Initially though, it was the railway commuter trains and later developments such as the underground railway that shaped the resulting suburban form. These railway suburbs, being dependent on the available station stops, were properly spaced and had a limited population size (Mumford, 1961, p574). This resulted in a compact satellite area which was able to control and manage it growth effectively. Houses

were within walking distance of the station and activities would naturally gravitate around this focal point.

Expanding cities were particularly affected by technological advances . An example of this is London where many writers believe the tube was one of the primary catalysts of suburban sprawl. London, like Birmingham and Manchester, were entering time of mass suburbanization and the key factor was transportation. The rail network enabled speculative housing to grow and the city's area continued its unprecedented expansion. (Hall, 1983, p66) The tube system reached its height in the 1930's and according to Hall, had a significant influence in the emergence of satellite towns that were built at that time. These satellite towns (mainly in the form of local authority housing estates) were linked to the parent city by tram bus or rail. Accessibility therefore is a pre-requisite for growth and expansion.

Another worthwhile case study is Los Angeles which is considered to be the ultimate expression of the suburban phenomenon. According to Wachs (1984, p297) Los Angeles' dispersed, low density pattern was fashioned not by freeway building after World War II, but by interurban street railways encouraging decentralization in the 1890's, and the automobile during the industrial boom of the 1920's. The contributing factors during this period are therefore clear : Growth of industry and population; Improvement in transportation technologies; Investment in infrastructure and housing and an abundance of land. This combination of factors almost always lead to decentralization and sprawl during the early 1900's.

The Los Angeles example is particularly interesting for with the above factors existed a desire amongst the residents to attain a better lifestyle. As Fogelson (1967, p144-145) states:

" ... their vision was epitomized by the residential suburb - spacious, affluent, clean, decent, permanent, predictable and homogeneous - not violated by the great city - which "was": congested, impoverished, filthy, immoral, transient, uncertain and heterogenous. The late nineteenth - and early, twentieth - centry metropolis, as the newcomers in Los Angeles perceived it was the receptacle for all European evils and the source of all American sins".

This statement makes the point clear: that without a desire to seek an alternative lifestyle, suburbia probably not have become such an acceptable alternative during those formative years. Largescale roadbuilding has obviously been a catalyst to the process and still today priority is given to the pursuit of a city which is 100% accessible for every automobile.

These transport developments lead to widespread land speculation with owners sub-dividing their land after making sure that it was accessible. By 1920 many of the affluent residents owned an automobile and a boom in the petroleum industry meant that sprawl was further encouraged. More and more people now were began to rely on this form of transport. According to Wachs (1984, p304) the rapid growth in automobile ownership had two important effects on Los Angeles: firstly, congestion increased rapidly and secondly, the automobile led to the decline of the street railways. With this increased congestion and to avoid a further decline in conditions,

planners and politicians strove after a dispersed city form (Wachs, 1984, p306).

Growth however, could not be stopped as Wachs (1984, p302) states:

" The decade after the First World War was the city's period of most rapid growth, decentralisation and automobile acquistion, and the low-density single family life style that has come to be identified with this city was solidified during that period of dramatic growth".

The results are clearly seen today with Los Angeles being recognized as a suburban metropolis. No longer was the suburb dependent on the railway, and the last 60 years of suburban transport development is summed up by one phrase: The Automobile Suburb. Large scale investment in highway or freeway construction meant rapid access to the urban core as well as to the outlying suburbs.

The South African situation is largely a replica of the above. Suburban areas display a total dependence on transportation. This 'pushes' the sprawling effect and leads to haphazard and disjointed development. Further issues in the transportation debate will be highlighted in Chapter 4, but already it is clear to what extent transportation has shaped the suburbs since the early 1900's.

3.3 PHILOSOPHICAL IDEALS

Each field of study has its primary authors - people that are looked up to and respected. Their ideas are taken as gospel and have the ability to influence many decisions that are taken. The same is true of Urban planning and Design. More specifically - after the Industrial revolution a strong move toward decentralization and suburbanization was evident in the writings of people such as Ebenezer Howard and Frank Lloyd Wright. This short section aims to briefly highlight some of these ideas that have since had a big influence on how planners perceive the suburban environment - its form and quality.

One of the first and most prominent was Ebenezer Howard who produced his famous book : Garden Cities of tomorrow in 1902 His central concern was the widespread overcrowding of the city and accompanying depletion of the outlying areas. Furthermore, he was opposed to the values of the industrial system and therefore came up with a plan for transforming areas into a type of urban utopia (Newton, 1971, p454).

The key to the solution according to him was to "... restore the people to the land" and this was to be achieved by starting new communities instead of improving the old. To further explain his ideas he produced the image of three magnets. (fig.3). They were 'town', 'country' and 'town - country'. Each has its advantages and disadvantages except the 'town - country' option which was ultimately to be his Garden City. According to him the 'town' and 'country' magnets would be linked to produce a new hope, life and civilization.

The main components of his Garden City (fig.4) can be briefly summarized as follows: (Newton, 1971 pp454-455)

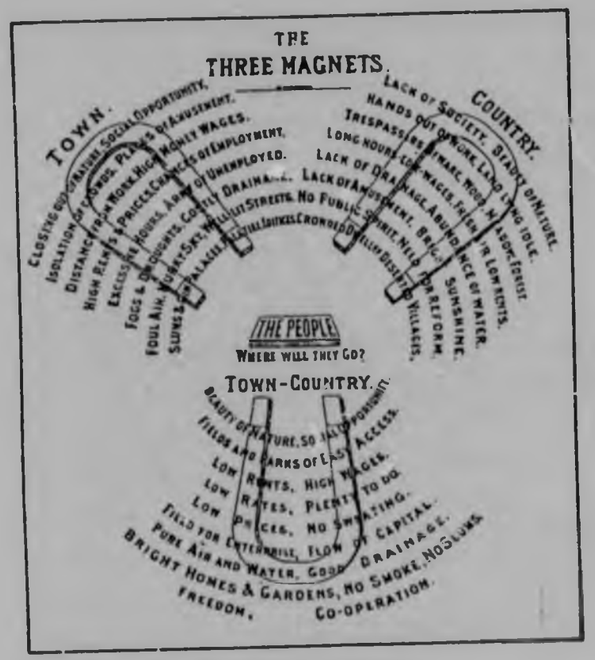


Fig. 3 Howards' three magnets
Source: Fishman (1982)

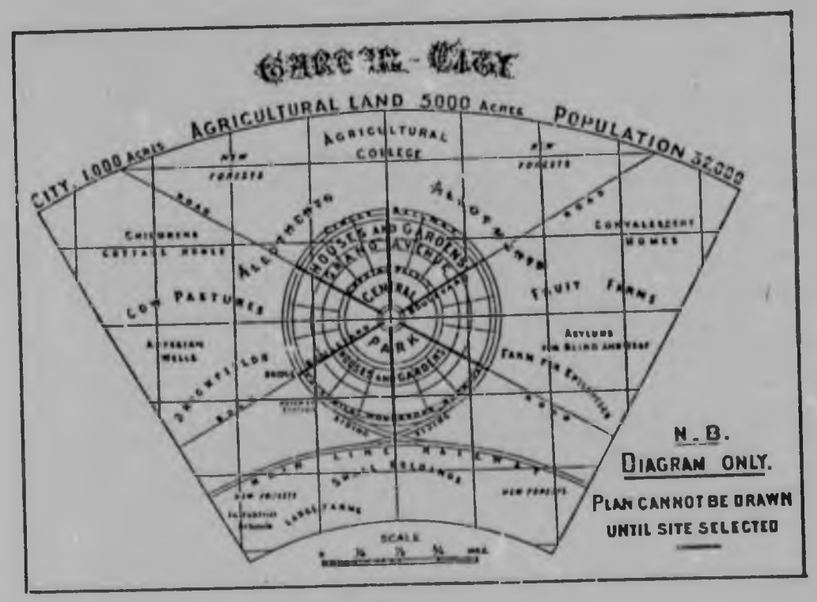


Fig. 4 Plan of the Garden City
Source: Fishman (1982)

a. Town-country: a populated centre surrounded by a larger agricultural zone.

b. Transportation: available railway facilities

c. Limited size: a total area of 6000 acres with 1000 acres as the town for 30 000 people and 5000 acres of country.

d. Land held in trust: the whole area was legally held in the names of four men to avoid land speculation.

e. Control of planning: densities and layout would be determined before construction.

f. Wards: each town was divided into six equal parts of 5000 people functioning largely in an independent manner.

g. Spaciousness: roads were designed to be wide in order to let air circulate and recreation sites were available to everybody.

h. Industrial employment: industry was located on the 'outer ring' of the town to avoid noise and air pollution.

i. Dispersed towns: as a town reached its capacity new ones were started to avoid overcrowding.

These basic ideas, although dated, still have the ability to shape people's thinking. Garden cities such as Letchworth and Welwyn have since been established, but they represent a scaled down version of his ideal. For example, Letchworth which was the first garden city, was established on a site two-thirds of the intended size and was bisected by a railway line. Full unity was therefore, impossible to achieve. The

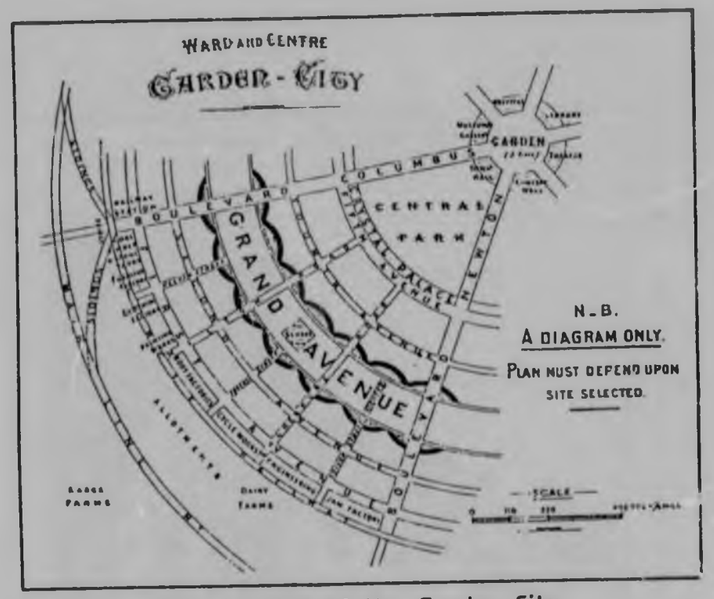


Fig. 4 (cont.) A section of the Garden City
Source: Fishman (1982)

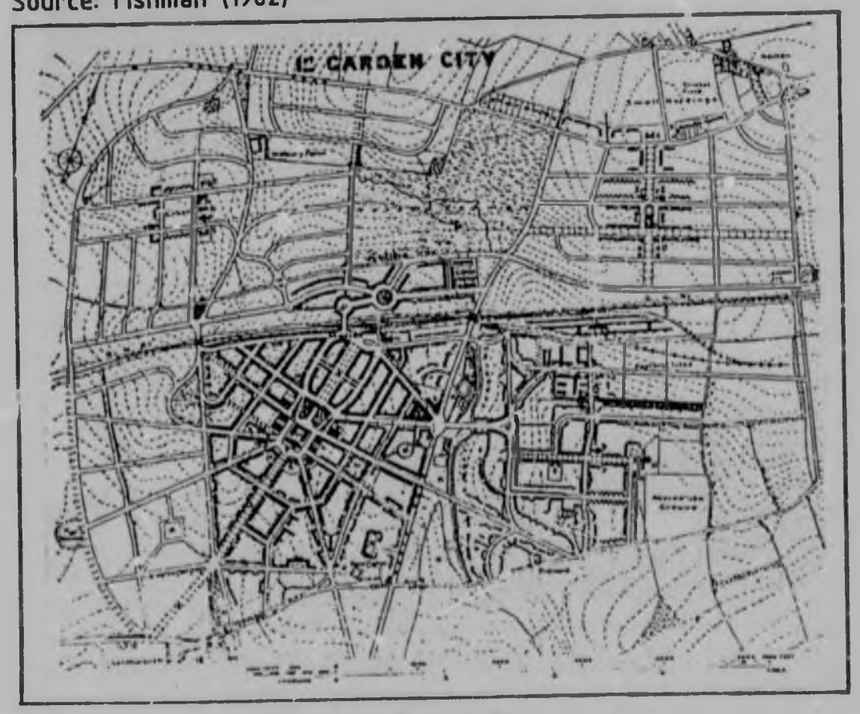


Fig. 5 Letchworth- The first Garden City
Source: Fishman (1982)

design centered around a town square from which the main street was extended to residential blocks on one side and the station on the other. Three roads crossed the railway and onto this a road system using the cul-de-sac was developed. (Newton, 1971, p451). The plan (fig.5) was therefore essentially a simple one but could not emulate Howards' original vision. Today building setbacks, wide roads, individual houses, parks and neighbourhood centres are still the norm and they too are a representastion of 'ideal', suburban living.

Howard's ideas had their problems, particularly with finance, and the economic viability of his new communities was hard to achieve as investors failed to get a profitable return on their investment (Barnett, 1986, p88). Furthermore, he failed to take into account the massive role the automobile would play in suburban structure and on the whole social diversity was lacking. His ideas, though, influenced many people including Raymond Unwin and Barry Parker who worked on the design for Letchworth.

Todays developers and architects strive for projects exhibiting landscape quality comparable to those earlier garden city projects, and as Barnett (1986, p88) states:

" the suburb of curving streets and cul-de-sacs, where houses are built in a lawn-and-garden setting, has become standard planning practice written into thousands of subdivision regulations".

Utopian thinking is largely absent today, and it is essential to plan and design in a





Fig. 5 (cont.) A typical housing layout in Letchworth
Source: Fishman (1982)

manner whereby the residents are able to participate and develop their own communites. Designs need to be fully adaptable and robust in order to promote the creation of opportunities for people prepared to make a real input. Visionary thinking, though, is still needed as without creative and original ideas, many of the current day issues will not be solved.

After Howard, the New Towns movement in England gained momentum. According to Allen (1977, p3) suburbanites in the 1940's were faced with increasing problems such as dependence on the automobile and a lack of facilities. New towns were seen as the answer. The planners of these new towns saw them as places rich in urbanism and pluralism. In Britain the New Towns Act was passed in 1946 and this paved the way to further push forward the suburban ideology. This ideology is said to be strongely anti-urban and reflects the belief that suburbia is able to counteract every evil produced in the city.

New Towns were, therefore, models of the suburban dream, and were marketed in such a way that people could hardly turn them down. As Allen (1977, p11) states

"sales promotions stressed the themes of building "true" community, increasing social participation, reducing alienation and re-discovering the pleasures of neighbouring ...".

Typical plans of that time used the neighbourhood concept. Each superblock would house about 10 000 people and a school or shopping centre was provided as the focal point. Family centered lifestyles were typically catered for with the hope that cultural activities would blossom thereby helping in the creation of communities that

were balanced and self-contained. The reality was, however, that people returned to the city for facilities and communities suffered from class segregation and isolation. Many similar problems occur today and areas therefore need to be planned to accommodate ethnic, racial and class pluralism if any true urbanity is to be achieved (Allen, 1977, p15). The New Towns movement spread to the United States and many towns have been established through the years. Their influence on today's planning and design thinking still remains and the New Town school was influencial in suburban history as a whole. South Africa too has established new towns catering largely for workers in areas previously uninhabited but these towns depend largely on the availability of minerals and use of available resources.

An example of this is Mosselbay which has experienced a decade of unprecidented growth and expansion due to the Mosgas Project (offshore gas and oil). During the construction phase of the project work opportunities were abundant and workers had to be accomodated in substandard housing built at the outskirts of the town. The injection of capital had many other spin-offs for the area and economic growth took place. Secondary facilities (schools, shopping) were also built but not much thought was given to the environmental and physical quality of the new areas. The situation has since worsened, with construction completed, many workers have been retrenched and are unable to find alternative employment. The once quiet tourist town now faces a set of new problems (pollution, social ills) and is testimony to the need for careful long-term planning and design.

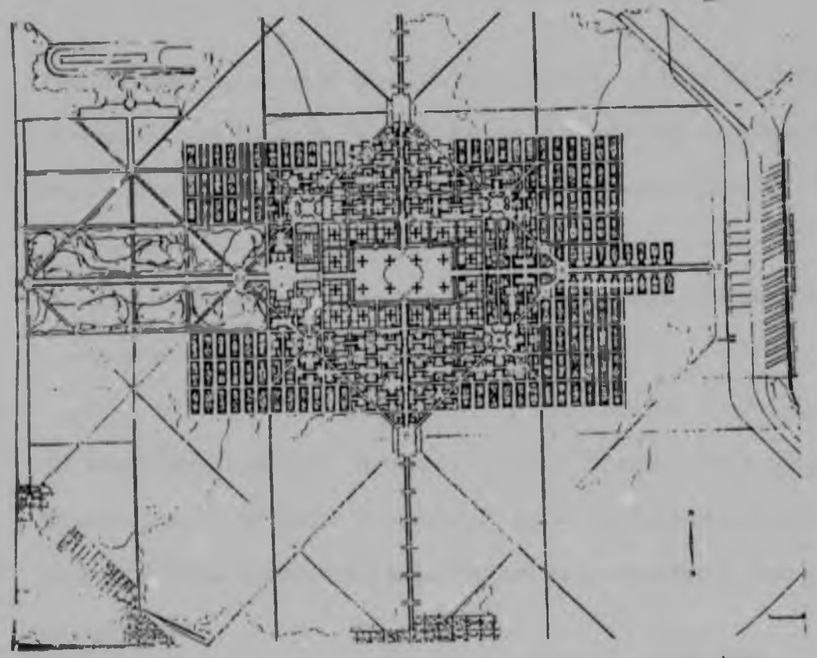
The search for an ideal city is perhaps best illustrated by the work of Le Corbusier. According to Fishman (1982, p163) he believed that industrialisation had produced the conditions for a new era of justice, harmony and beauty. He envisaged all cities being replaced by new forms suited to the new age. The city to him was the natural home of centralised power and he pictured the future city as:

"a Radiant city of glass and steel skyscrapers set in parks; it would be an efficient and beautiful center for the great bureaucracies whose total administration of society would bring the order and harmony he sought." (Fishman, 1982, p164).

His ideals stretched beyond the city to individual houses and he saw them as "machines to live in" i.e. functional, orderly and precise. Amongst the plans he produced, the ones that stand out are:

a. The Contemporary City: (fig.6) designed for three million people it had a perfect symmetrical grid of streets with two super highways intersecting at the exact center. Industry, housing and offices each occupied a separate sector. People were housed in vast appartment blocks which were surrounded by parks and recreation facilities. Furthermore there was a multi-tiered pedestration promenade facilitating easy access and flow. 85% of the ground was left free for recreation and his ideal was the combination of leisure, order, meditation and production.

b. Plan Voisin: (fig 7) a plan to transform the center of Paris in 1925 with 18 skyscrapers surrounded by luxury apartments and gardens making Paris the world center for administration. The plan was never implemented.



The plan of the Contemporary City. At the exact center is the transportation interchange for automobiles, subways, trains, and airplanes. Around the center are first the twenty-four towers of administration, and then the luxury apartments for the elite. Beyond the central district lie satellite cities for industry and workers. The north-south, east-west axes are aligned with the points of the compass. From *Oeuvre complèt de 1910—1929.*

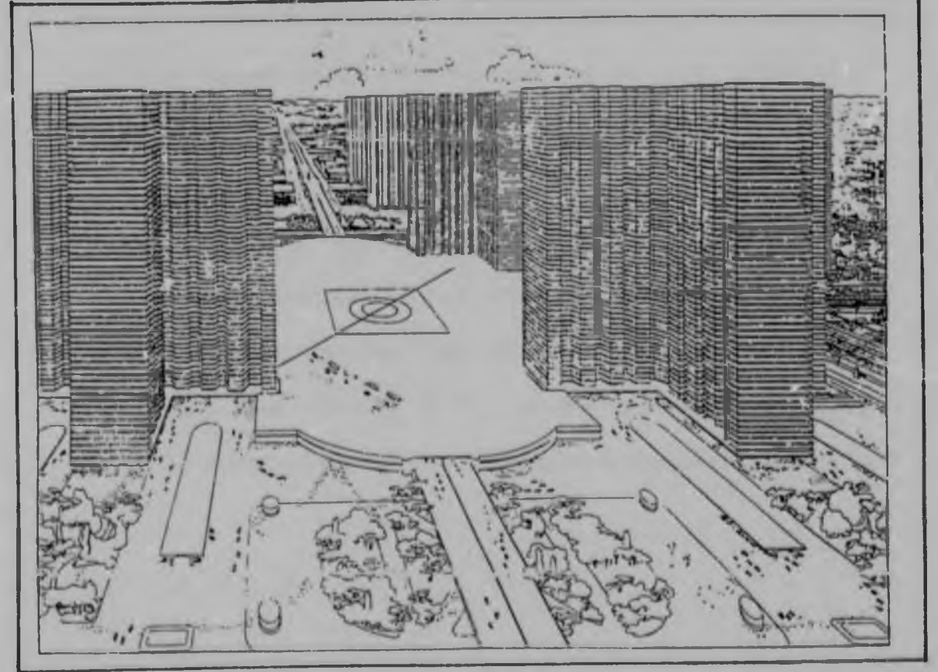


Fig. 6 The Contemporary City (above & below)
Source: Fishman (1982)



A scale model of the Plan Voisin (1925). The Seine and Ile-de-la-Cité are at the lower right. From *Oeuvre complèt de 1910—1929.*

The Plan Voisin. Eighteen skyscrapers in the center of Paris opposite the Seine and Notre-Dame. From *Oeuvre complèt de 1910—1929.*



Fig. 7 Two representations of Le Corbusiers' Plan Voisin for Paris
Source: Fishman (1982)

Two other important names to appear during this period were Frank Lloyd Wright and Frederick Law Olmstead. Wright's thinking revolved around the automobile - oriented suburb and the various issues that went with it. According to Hall (1988, p288) he held a "Usonian Vision" of "the low -density marriage of suburb and countryside with every citizen simultaneously an urbanite and a farmer".

His ideas were fundamentally anti-urban and were expressed in his design of Broadacre City in the 1940's. It provided for spacious well landscaped highways designed to eliminate conflict and ample facilities each surrounded by 'cultivated' grounds so that:

"each citizen may have all forms of production, distribution, self-improvement and employment within a radius of say, ten to twenty miles of his own home."

(Wright, 1945, p34). Each house was to be individually designed and could, in some cases, be surrounded by acres of land. Broadacre City was never built and his ideas were widely rejected but the vision remained, and was partly fulfilled by the suburban boom which was to follow.

Olmstead, on the other hand, worked with suburbia long before Wright was publishing his ideas. During the 1860's American suburbanization was being pushed forward by mass immigration, industrialization and machine politics (Fishman, 1987, p120). The problem, according to him, was that as the city expanded quiet neighbourhoods were being transformed into noisy, dirty, and unhealthy places. The solution, was not in distance from the city but as Fishman (1987, p121) states:

"Olmstead saw the solution in a conscious process of planning and design that would isolate a tract of underdeveloped land from all "undesirable" uses and define that land as a suburb suitable only for middle-class dwellings."

Olmstead worked on the design for central park and later produced a plan for Riverside, Illinois in 1859. (fig.8). The plan was really his suburban vision for the future and included extensive tree planting along the curving roads as well as a landscaped public park along the natural river. Nature was his answer to the problems of city life and was a central theme in many of his designs. Again his approach was essentially anti-urban as he wished to cancel out high densities and overcrowded living conditions. This type of thinking has been behined many developments of the last half-century and has had a large impact on the physical size of today's cities. He, furthermore, strove for a balance between man and nature on the one hand, and between the family and community on the other (Fishman, 1987, p129). His main aim of uniting family life with community and nature has been one of the fundamental suburban ideals over the years and proves how influential his writings and designs were.

3. 4 CONCLUSION

Suburbia as we know it today has developed out of a complex set of thoughts and circumstances. From the time of Olmstead through the industrial revolution and on to the automobile suburbs of Los Angeles, many factors have played their role.

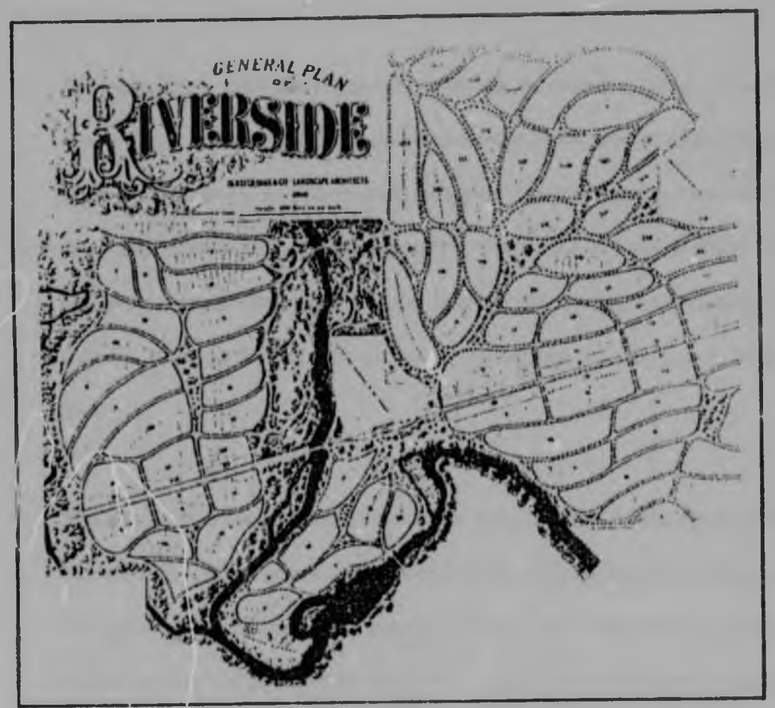


Fig. 8 Olmstead's plan for Riverside, Illinois
Source: Fishman (1982)

Technology, and transportation in particular have demonstrated the point that our cities are capable of rapid growth. Sprawl today is a big issue but it is one which developed over a relatively short period of time. Problems too, have been caused by population growth and it has been left up to city builders today to provide answers to the many issues that continue to plague our urban areas.

Early suburbia was furthermore shaped by the idealistic and visionary thinking of planners and designers such as Ebenezer Howard and Frederick Law Olmstead. From this point on the dissertation deals with more current day issues and problems. The visionary thinkers of today are people like Lynch and Bacon but the topics under discussion differ markedly from those of the past.

CHAPTER 4

THE CONTEMPORARY SUBURB

Suburban areas dominate the structure of our cities today. They have spread out almost like a disease, and although the traditional urban core remains, it possess little of its former impact and dominance. Chapter 3 highlighted the fact that the suburb originally represented an elitist lifestyle - the ability to build a unique home in a unique landscape. Through the years, however, the uniqueness has disappeared and suburbia, through the lack of alternatives, has become the only option for most urban dwellers.

The city of Pretoria has proclaimed about 4000 hectares of middle class suburbs in the last decade (City Council of Pretoria, 1991). This figure may not seem alarming, but when one considers the vast majority of residents excluded from these new areas, then it takes on a different meaning. Prospects for the 'new' South Africa seem little better with the rate of urbanization set to dramatically increase. Now, all races will have to be accommodated equally in the township establishment process, and this represents a major challenge for those involved.

This chapter will briefly examine the contemporary suburb as we know it today. In examining it the major aim is an evaluation of the factors influencing today's form, structure and layout. Of particular relevance is suburbia's impact on peoples lives and of how they adjust to their environment. Attention will be given to the major roles played by transportation and planning standards in the formation of suburbia's present day form and structure. Other topics to be discussed include the neighbourhood concept and the resulting density implications.

Lewis Mumford (1961, p486) describes the 20th century suburb as:

"... a, multitude of uniform, unidentifiable roads, in a treeless communal waste, inhabited by people of the same class, the same income, the same age group, witnessing the same television performances, eating the same tasteless prefabricated foods, from the same freezers, conforming in every outward and inward respect to a con mon mould, manufactured in the central metropolis".

This evaluation contains a lot of truth and the task ahead is to build suburban environments that encourage and are characterized by variety and opportunity for all sections of our society. This is often not possible due to the various form constraints which exist and are propogated through the township establishment process.

4.1 PRIMARY FORM CONSTRAINTS

By the end of the first world war suburbanization in Europe was underway. However, from the second world war and in the 1950's the great American autobased form of suburbanization took shape. The four main pre-conditions for this to happen, were in place. According to Hall (1988, p4?) they consisted of the following: new roads opening up vast tracts of land; zoning laws producing uniform residential

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environments; government - guaranteed mortgages; and lastly a sudden population increase. These initial forces then drove the process foward - a process which has continued ever since but is now gradually showing signs of slowing down.

The American example has since been followed in many countries across the world. Indeed, the last four decades has produced suburban areas at an unprecidented rate. The suburb today. according to Mumford (1961, p554) represents an experiment in the open distribution of urban functions and uses. Each true suburb displays this characteristic, where housing dominates amongst a spattering of local centres and schools.

A suburb needs space. Every family seeks an individual plot of their own and the logical result of this is the outward expansion of our cities. The problem ultimately lies, not with land ownership, but with how the land is divided and developed. Ideals too, need to be readjusted and South Africa provides an example of this. Recent figures indicate that one out of every four households find themselves in a squatter situation. Adequate housing is therefore the problem, and a solution seems unattainable when the ultimate goal of providing serviced sites for every family is considered. This basically implies a four roomed house, for everybody, and places renewed questions on the impact urbanization will have on the environment . It also questions traditional suburban layouts and planning standards and implies that alternatives need to be investigated.

This type of issue illustrates the need for a new suburban ideal in our design and planning. No longer can the form be dictated by traditions and standards of the past. Visionary thinking, therefore, should be developed and encouraged. Today, the suburb, and indeed the city, is characterized by one element - the single family detached house. This demand for housing requires new open spaces and is largely responsible for the growth at the city edge. However, the one factor which has surely played the most important role in this outward growth is the automobile. As Fishman (1987, p156) states, speaking on Los Angeles: "The ascendancy of the private car and the creation of the freeway system to support it has been the all-purpose explanation for Los Angeles and for all subsequent cities that resemble it".

It is this dominance of the automobile that ensures the single-family dwelling house character of most suburban areas. Today access to and from the urban downtown means that using private vehicles far outweighs the benefits of public transport. Other factors include shorter journey times, lower levels of inconvenience and the freedom to move independantly and quickly from place to place. This all means that public transport systems run at a loss - but ultimately the loss is felt by the city as a whole.

The true effects of new transportation technologies have been particularly manifested in the city of Los Angeles. Large investments in freeway building during the 1950's saw expansion take place at a tremendous rate. The ultimate goal was the creation of a truly decentralized city, in which mobility and low densities are characteristic. The city's grid system of roads further contributed to the ideal in that functions and

facilities formerly confined to the central areas, could now be widely distributed over the city. By 1940, 25% of the city's area was used for roads and the freeway building simply continued. Up to the present day over 500 miles have been built in an attempt to alleviate increasing congestion due to population influxes. The programme has, however, not lived up to many expectations and as Fishman (1987, p178) states:

"The city has thus seen a massive race between growth and conjestion, each new freeway temporarily averted traffic paralysis, only to create new areas for growth that overwhelmed the freeway system anew".

Los Angeles' example clearly demonstrates the danger of pursuing a low density suburban structure. Expansion usually brings renewed growth and eventual congestion. The suburb of Sandton in Johannesburg illustrates this well and at present the existing infrastructure is unable to cope with the traffic pressure. No quick fixes to the problem exist and unless densities are increased and improvements made in the public transport system it will ultimately mean further investment in upgrading and rerouting of the road system. Slowly but surely, suburban areas undergo a change in character, exchanging natural serenity for the continual hum of passing traffic. Planning policies also tend to be disregarded, a situation aptly illustrated in Pretoria where a new road has destroyed a local park despite an explicit structure plan policy statement to avoid this. The park was located in the densely populated Sunnyside area - further testimony to the apparent dominance of traffic related issues over human and community considerations. A comprehensive highway scheme is also proposed and it moves through many old and valuable districts. Land values fall, buildings are destroyed and an area s traditional character is changed almost overnight. It is, therefore, important to reevaluate priorities and especially in light of the future, which is likely to bring a fall in vehicle ownership. Energy conservation is also essential and in the light of diminishing world resources people need to be persuaded to use their vehicles on a less frequent basis.

These issues need immediate consideration in view of the changes South Africa is currently undergoing. As Dewar and Uytenbogaardt (1991, p90) state:

"... this form of transportion (the private vehicle) is simply beyond the means of a large and increasing proportion of the people".

Today, transportation policies need to concentrate on integration and not separation i.e. the road network should function in a way that brings together the various transportion modes so that public choice is enhanced and the economic viability of public transport is increased.

This implied need for an efficiently co-ordinated public transport system is at the heart of any solution to growth containment and densification. The road network in the suburbs needs to regain a range of traditional functions other than mere movement, and the idea of them functioning as activity channels is widely recognized and accepted. It is therefore clear that suburban life has become entirely dependant on the ability to be mobile. A new set of urban priorities thus need to be established in order to develop suburban areas exhibiting qualities of community and identity.

Another group of constraints which needs re evaluation are the planning standards applied in the suburbs today. They have, in many cases, been developed in order to ensure 'white first-world communities. Typically in a middle-class suburb they determine building densities, erf sizes, setbacks, street widths and so on. They are fundamental form making tools and are evident in every aspect of a suburbs character and layout. According to Dewar and Uytenbogaardt (1991, p99) planning standards have produced spaces that are often illformed and inappropriate. This applies particularly in lower income areas, which are susceptible to wind, sun and rain and can therefore, result in an environment becoming extremely unpleasant to live in.

Furthermore, they effectively keep densitites at low levels due to the generous spaces given to each urban element (Dewar and Uytenbogaardt, 1991, p100). In any contemporary suburb, this is reflected clearly through minimum erf sizes, coverage, parking requirements and public open space standards. Each individual erf has a set of building lines and in combination with coverage and bulk has the effect of limiting dwelling house sizes and can result in a suburb loosing its character and uniqueness. Building lines are particularly generous - up to 10m in many areas of Pretoria.

Apart from the density implications these standards have a number of other effects (Dewar and Uytenbogaardt, 1991, p101)

a. Facilities become free standing elements and are not integrated into the fabric.
b. Maintenance costs are increased due to the larger open spaces.
c. Each element is considered in isolation and the economic need for multi-functional spaces and uses is not emphasized.
d. Areas take on a dispersed character which leads to an increase in transportation costs.

Areas may also experience a loss of community as elements and facilities become separated and people begin losing contact with neighbours and friends due to increasing distances and travel times. Planning controls, furthermore, influence the type of land uses in any area. The concept of zoning is widely applied in South Africa and again, is a primary element in the determination of a suburbs character. Zoning is used to separate uses from each other, and was developed to control and regulate development. It has, however, proved to be largely ineffective and is no guarantee against suburban decline. This situation is illustrated in Pretoria's suburbs of Hatfield and Arcadia. Rezonings and consent uses over the years has transformed their character from peaceful neighbourhoods into areas which are suffering from the results of haphazard and uncontrolled redevelopment. Office complexes have replaced housing at such rate that they now stand empty and those homes which were left are now 'illegally' occupied by smaller businesses and communes. These redeveloped areas are unsafe at night and place heavy burdens on the road netword during the day. It illustrates a lack of ability by the authorities to plan for the future and highlights the ineffectiveness of existing controls. The lesson here is the need

to achieve a balance between control and freedom. A mix of uses in certain areas is highly desirable, but careful planning is needed to ensure that there is no negative impact on the suburb's character and residents. As Dewar and Uytenbogaardt (1991, p19) state:

"The mechanism which creates positive freedom to act is constraint. A major judgement in the making of urban environment, therefore, is how much should be laid down to guide and release action and in what form should appropriate elements of structure be provided."

Todays suburbs, therefore, need to break the domination of specific anti-urban planning and transporation policies of the past. The future demands a re-think of many accepted and rigid ideas in order to negate decline and sterility, thereby, increasing opportunity for all, in an environment able to cope with and absorb growth.

The static zoning laws have ignored the intrinsic dynamic of city building and as the car becomes less dominant, strategies of mixed uses and denser development will result in people again living closer to work and recreation places. There is thus a challenge that suburban areas need to face up to in order to ensure a successful future.

4.2 SUBURBAN CONCEPTS

In order to fully understand suburbia, clarity has to be gained on concepts and ideas that describe it. These include the following: urban vs suburban, the neighbourhood idea and various issues relating to housing such as type and availability. This section on the contemporary suburb will briefly introduce these ideas in order to establish a firmer perspective of what suburbia actually is.

The first concept is the difference(s) between the terms 'urban' and 'suburban'. Both have already been extensively used thus far and therefore warrant closer attention - much debate also exists on exactly when an area can be classified as 'urban' or 'suburban' and hopefully this will become clearer. These terms, furthermore, relate to individual lifestyles and almost every aspect of the urban fabric (density, layout) and so the distinctions become unclear in certain areas.

As previously stated, urban generally refers to a concentrated lifestyle with a mix of uses occuring in close proximity to each other. For the Greek civilization it represented the "good life" and there was a continual exchange of ideas and goods. The downtown of any major city could once be regarded as truly urban. People were resident there and activity continued into the night. This situation has however changed somewhat today. Furthermore in an urban setting, qualities of 'urbanity' are displayed. These include clear and well-defined structures, places and open spaces. Medieval cities are characteristic of this having simple forms and a great deal of 'civic beauty'. The terms 'urban' and 'urbanity' can therefore be read together in most cases.

The term can also be expanded to include a way of life. Truly urbanized people according to Gans (1968, p38) are: "... people who live together and have social ties based on criteria other than mere common occupancy, and they set up social barriers regardless of the physical closeness or the heterogeneity of their neighbours".

He furthermore states that:

"their social relationships thus display anonymity, impersonality and superficiality".

This is not always the case as living in a truly urban setting (Hillbrow, Sunnyside) thus makes it possible for any person to determine his own level of privacy. The choice between total privacy (being one of the crowd) and exposure (out in the open) thus exists. This choice attracts many people to urban settings and is hard to achieve in the suburban environment. Urban life thus provides for an increase of opportunity for dialogue and interaction and an expansion of choices, in access and mobility. (Boden,1990, p1)

These qualities can all be contrasted with suburban ones, which speak of a rural lifestyle occuring in an urban context. Suburban values may be interpreted as anti-urban because they are an escape from the city and all its perceived evils. The typical suburban setting is of a family living in their own individual house and having to travel to work due to their decentralized location. The choice to move into a suburban location is based on an idealistic vision of sweeping lawns, few curbstones, clean air and open space. Furthermore, its popularity as the acceptable family option is heavily influenced by the following : cultural backgrounds; technical advances; planning and architectural trends and various market related forces. Cultural background refers to a persons upbringing and social standing. For many South Africans therefore, living in the suburb is a traditional way of life, an ideal to be striven for. European people however, do not hold this view and if given a choice would probably prefer to live closer to the urban core. Technical advances are those factors which make it possible to live in a peripheral location and include the automobile and various technological advanced systems (personal computers, local banking facilities). Planning and architectural trends linked with marketing policies can have the effect of brainwashing people into believing that suburbia is the only acceptable place to live.

Suburban, like urban, implies and is characterized by a particular lifestyle. As Gans (1967, p40) states:

"Thus, it would appear that interactions in organizations, or between neighbours generally, do not fit the secondary - relationship model of urban life. As anyone who has lived in these neighbourhoods knows, there is little anonymity, impersonality or privacy".

Gans argues that variations in lifestyle between urban and suburban locations have little to do with the various physical and demographic differences which occur. Rather, factors such as economic condition, cultural characteristics, life-cycle stage, and residential instability should be investigated when explaining ways of life in these areas. However, a distinction has to be made between newer and older suburbs in that well established areas often have a great deal of community spirit and people are able to freely interact. The character of the suburb and mix of uses which usually occur encourage people to communicate and streets take on a variety of new

functions. These conditions are not able to develop in newer areas as a mix of cultural backgrounds usually exist and the monotony of single family detached houses leads to diminished interaction as people retreat into their homes for privacy.

Furthermore, since 1968 society has undergone many changes and adaptions (technology, lifestyle, freedom of speech) and Gans' ideas as well as his attack on planning and design disciplines should be re-evaluated in today's terms. Value systems should therefore, never be imposed upon people with quite different ones and this applies to suburban form, housing and layout.It is therefore clear that the terms 'urban' and 'suburban' have many social, physical and cultural values embodied in them. The social characteristic of suburban areas is that power and privilege enable people to get what they want. It is very individualistic and is established by customs or in the way the market provides choice and access (Boden,1990, p1)

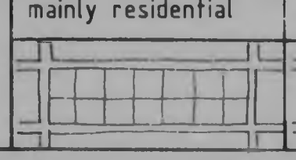
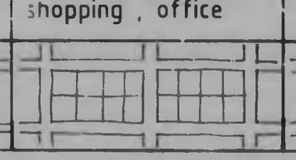
Suburban areas also exhibit certain physical characteristics not readily found in urban areas. These include the following:

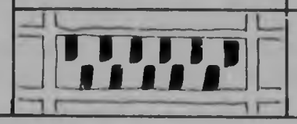
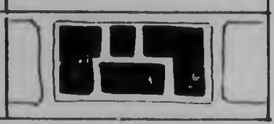
a. One house per lot in a garden setting
b. A particular set of density and zoning controls
c. Expensive houses with high quality finishes
d. Organic layouts, landscaped parks, shopping centres and office complexes
e. A hierarchy of roads with facilities being dependent on access by car
f. Low densities, no over-crowding and adequate facilities (sewerage, electricity) amongst first world communities.

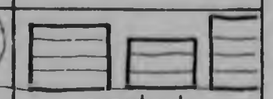
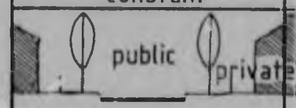
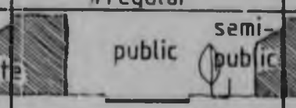
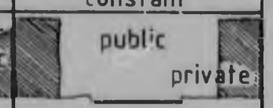
The discussion up to now has illustrated many of the differences which occur. However, in certain cases today, the distinction between 'urban' and 'suburban' is hard to recognise. This occurs in areas located away from the urban core, which begin to display many qualities normally associated with an urban area. Based on this issue a study was undertaken by the urban design class of 1991, to establish a set of characteristics typically found in each setting. In order to achieve this the following aspects (symbolic and real) were investigated.

a. Planning: To establish to what extent various policies and controls influence the resulting form.
b. Architecture. To investigate the various architectural qualities found in each context.
c. Place: To find out how various place making qualities (streetscape, grain, vegetation, amenities) differ when situated in both areas.
d. People: The objective here was basically to determine in what aspects 'suburban' people differed from 'urban'.

The results are shown in Table 1 and are a summary of the study. The conclusion is that there are many differences between a truly urban and suburban location and

	SUBURBAN	SUBURBAN URBAN	URBAN
PLANNING			
density			
f.a.r.	0,10-0,25	0,25-0,40	0,40-4,0
building lines	used to maintain suburban character and openness	less rigid but still applied	smaller than in the previous two cases
zoning	separation of land uses mainly residential	separation of land uses residential shopping , office	integration of land uses and activities
block size			

	SUBURBAN	SUBURBAN URBAN	URBAN
PLACE			
facade	dominated by the individual houses & vegetation	a balance between open space and buildings	totally built and lacking in open space & vegetation
streetscape	winding tree lined streets designed in a irregular pattern	regular road layout with a definate hierarchy	grid system of roads, curbstones relitively wide
amenities	housing shopping SPORT FACILITIES SCHOOLS public park	cinemas SHOPPING houses townhouses OFFICE PARK flats	urban park CITY HALL offices market high rise apartments
nodes	school HOME friend	church SHOP home	market PARK office
grain			

	SUBURBAN	SUBURBAN URBAN	URBAN
ARCH.			
typology	detached single storey housing and attached townhouses	attached two storey group housing (back to back)	attached horizontal and vertical slab blocks
rhythm	 constant	 irregular	 constant
hierarchy	 public private	 public semi-public	 public private
scale	human scale, low rise buildings, open spaces, vegetation	intermediate scale less open space higher density	high building and activity density little open space

	SUBURBAN	SUBURBAN URBAN	URBAN
PEOPLE			
culture	suburban culture desire to attain an ideal lifestyle	a relative mix of people and culture	a mix of culture race, norms and values
movement	HOME ↔ WORK	HOME ↓ SHOPS WORK	HOME ↑ WORK FRIEND ↓ SHOP
activities	centered around the home- gardening, raising a family	shopping , entertainment related activities	social and public related activities e.g. working
shared / non shared	PRIVATE ACTIVITIES	PRIVATE/ PUBLIC	PUBLIC 32 ACTIVITIES

Table 1 The concepts of Urban and Suburban

the structure and form of each is influenced by a variety of factors. The middleground between the two is, however, fairly unclear but these areas present a great deal of opportunity for the creation of timeless, urban enironments.

This analysis of suburban qualities applies to the first world only. In South Africa, however, solutions need to be found to third world situations, where suburbia displays a whole range of 'new' characteristics. Typically these include:

a. High densities and overcrowding
b. Few facilities, including makeshift homes which are upgraded over time.
c. Random sprawl occurring over bare terrain with few trees and no gardens.
d. Informal paths and tracks for access and a total dependence on public transport and walking.

These 'township' suburbs are absolutely essential for housing and accommodating the ever increasing urban population. However, more attention needs to be given to the creation of decent, livable environments, which are able to quickly upgrade themselves over time. The economics of creating these pre-conditions are restrictive but adequate infrastructure should still be provided.

The neighbourhood concept is another term widely used when speaking of suburbia today. According to Blumenfeld (1967, p179) a neighbourhood unit is:

"that portion of a larger community or city which is specifically developed for the safety, health, comfort, convenience and welfare of the residents of that area ..."

Today, however, this ideal has been lost and planners divide the city up in a random, simple manner. A neighbourhood typically contains five to ten thousand people, a shopping centre, school facilities and a park(s) . At this size social relations break down and people have little in common with their "neighbours" making the pursuit of community goals futile.

Another problem faced today, is the increasing economic pressure placed on many neighbourhoods or areas. Informal settlements in this country, contain high concentrations of low-income households which means they are economically not viable. A viable neighbourhood according to Downs (1973, p88) is one which is recognized as being:

"... reasonably decent, safe and healthy for families with children if judged by the standards currently held by a majority of Americans".

These standards are comparable to South Africa and it implies keeping crime rates down, ensuring adequate housing and infrastructure and providing other facilities such as schools, churches and shopping centres. A problem though, is that this usually means the establishment of middle class suburbs where the poor are excluded. Economic viability is, therefore, most difficult to attain in low-income areas.

Blumenfeld (1987, p171) therefore suggests that less emphasis should be placed on achieving neighbourhoods of "optimum size" and instead planners need to:

"... view the city and suburbs as closely interdependent parts of the same metropolitan unit".

Furthermore, their primary concern should be:

"the correct prediction of residential densities on which all planning of facilities depends".

Care therefore needs to be taken that functional planning i.e. static application of densities and land uses in a neighbourhood unit based usually on dwellings and populations per hectare, does not affect community and social interaction. Community needs should always influence the provision of facilities. An ideal residential density does not really exist but the goal of ensuring acceptable living environments within a wide range of densities does and should be striven for. Up to now, low densities in middle-class suburbs have been ensured through zoning regulations, minimum erf sizes, setbacks and coverage requirements. These standards effectively exclude low-income people and lead to further growth and sprawl at the suburban edge. The future, especially in South Africa requires that densities be increased and this issue will be addressed in the following chapter. However, people can be encouraged to build and develop land at higher densities than before and Blumenfeld suggests two ways to achieve this: (1987, p175)

1. Encourage people to build apartments, new houses and other types of group housing in suitable locations closer to the urban core.
2. Remove the zoning and subdivision restrictions that prevent the above from happening.

The density at which a suburb is developed is therefore an important factor, as density is linked to many physical, economic, social and political factors (Senior, 1985, p4). It needs to be carefully applied and understood but unfortunately this is not the case. As Senior states: (p1)

"Instead of using density in a generative and dynamic way as a concept that informs the design process and assists in the formulation of housing policies, we tend to regard it as little more than an inflexible and static control mechanism prescribing some ideal residential environment."

One of density's more influential areas occurs at the physical level. As previously stated an unmistakable suburban characteristic is the predominance of the single family detached dwelling house - a suburban concept capable of influencing 'quality of life' in many ways. It is at this level that density impacts on housing layout and form in that it affects house type, privacy, parking provision, height, scale and building configuration. It is here where density has to be carefully applied as a variety of housing types are possible in a given density range.

The proper application of density requires an understanding of its three main components : (Senior, 1985, p19)

1. Building density (the intensity at which residential buildings are developed relative to their site area.)
2. Occupancy density (the rate at which the floor space within these buildings is occupied).

3. Population density (the resulting number of people per unit area).

These three densities always operate together and cannot exist without each other. However, for this study, building density needs to be understood and can thus be summarized as follows: (Senior, 1985, pp25-50)

a. Floor area ratio is the key measure of building density: This is the ratio of floor area to land area calculated as follows:

$$\text{Floor area ratio} = \frac{\text{Floor area of buildings}}{\text{Total site area}}$$

b. Building density is always linked with the resulting physical form: This is apparent in any design where a required density has to be met. Trade-offs, such as distances between buildings, amount of parking, privacy, and garden size, affect the ultimate quality of any scheme.

c. An increase in density has many consequences for the resulting built form: These include the following tendencies:
   - open space tends to diminish as density increases
   - construction cost tends to increase as density increases.

Furthermore, house types usually fit into certain density ranges (Fig 9) again emphasizing the need to apply standards carefully. Density can therefore limit the success of any project in that the quality of the environment is affected, which then impacts on the residents. From the above discussion it is clear that the low-density character of many suburbs is determined by a whole range of interrelated factors, of which density is just one.

Finally, in this section a few comments on the 'suburban home' concept will be made. According to Fishman (1987, p192) the postwar housing boom, particularly in America, was the purest example of the suburban dream in action. During the 1970's an average of 1 million houses, mostly in suburban locations, were constructed every year. South Africa too, experienced this boom but the consequences of the lob-sided apartheid policies is evident by the lack of housing stock in many township areas. Low income housing was not provided as the market demand was for middle and upper income homes, and consequently developers have neglected this need.

Today's suburban model home is plagued by many problems and buyers are often mislead in their expectations about their 'dream' house. According to Marcus et.al. (1987, p24). The suburban homes of today are viewed not as architecture but as "artifacts of contemporary culture", in that they teach us about the values society hold today. These values are expressed in the design and layout and are developed

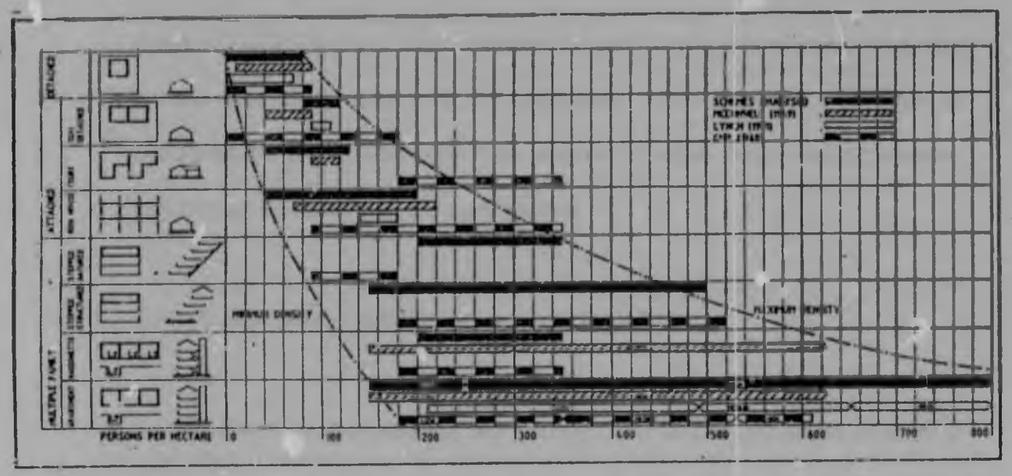


Fig. 9 Housing types usually conform to a regular density pattern
Source: Senior (1984), from P.M. Poplak and G. Vermeulen (1979)

through past experience and various media messages on nature, image, individuality, privacy, sex role cues and leisure.

For example, a new house is often marketed as "ideal country living in a village community". Nature therefore becomes a selling point but is virtually never experienced by the new owners who move on to a property recently bulldozed and now completely fenced off from its natural surroundings. Apart from this the plot size is often too small and is therefore dominated by the house and vehicles, which leaves only a small area left to be maintained as a garden. Privacy is another area in which the suburban home fails to live up to expectations. As Marcus, et.al. (1987, p31) state:

"It is ironic that many people move to the suburbs to escape congested urban life only to find themselves in closer visual proximity to neighbors than is the case with many high density apartments ..."

This lack of privacy is a direct result of poor design and layout. Homes are built in such a way that areas inbetween become visible to anyone passing and neighbours are sometimes able to see into the bath and bedrooms of the adjacent homes. Speculative houses and developments are, furthermore, in demand but lead to a dull, mundane environment where all the homes display identical proportions and characteristics.

The issues mentioned are usually compounded in low-income township areas as figure 10 illustrates. Imaginative, open-ended planning and design, as opposed to blue-print planning, therefore needs to be developed, taking the economic constraints into

account. The problem is, however, that the ever-increasing demand means homes are built quickly and detail aspects are overlooked. Any new housing should therefore always ensure an improvement in the public environment, as only then does the true benefit get passed on to the community. Many other examples could be mentioned, but the point remains, that successful suburban design requires attention to both the large and small scale components.

4.3 SUBURBAN COMMUNITY AND LIFESTYLE

There is little doubt that suburban living today, has produced communities that differ from those in urban areas. This section aims to briefly highlight a few of the relevant issues in order to understand the social and cultural variations which occur.

According to Fishman (1987, pp200-202) "decentralization has been a cultural disaster" in that it has created environments which are ugly, inefficient and too superficial to foster true culture. Suburban areas, therefore, are unable to ensure cultural diversity - a quality inevitably found in any downtown area. Suburban sprawl is the main agent of this, and leads to a loss of texture and individualism which has always been at the centre of any society.

These perceptions are always linked to suburban areas today and they are often viewed as:



Photograph taken from the Star newspaper



Fig 10 Examples of the poor living & environmental conditions existing in many low-income areas
Source: Dewar and Uytenbogaardt (1991)

"cultural wastelands, mixed in standardization and conformity, unable to generate individuality" (Fishman, 1987, p 202).

Latest trends show that decentralisation is occuring in housing, industry, commerce and office activities, and the urban periphery can now function separately from the urban core. This has many lifestyle implications for the residents who need to be constantly mobile and in many cases do not visit the urban core at all. The traditional movement patterns (periphery to centre and back) are therefore fading away and it becomes increasingly difficult to identify and develop a 'sense of belonging' to any one place.

This feeling, according to Dewar and Uytenbogaardt (1991, p21) is central to the concept of community, which implies "a sense of absorption into urban life". Community therefore infers the following :

a. A range of social interactions which are essential for human and urban development (communication)
b. Social ties that enhance and enrich urban life
c. The city should express the many social and cultural ties which occur within it. These aspects can all be contrasted with suburban areas which often don't allow for this to occur and people cannot identify with their home towns.

Urban and suburban areas alike, therefore, exhibit ways of life which are unique to each. These were briefly discussed in the previous section which showed the complex nature of today's society. Many times, though, the suburban way of life is heavily attacked and criticized. Gans (1968, p137) refers to these criticisms as "myths" and "amateur sociology" and sums them up as follows:

"That the suburbs are dominated by homogeneity, conformity, hyperorganization, and hypersociability, creating ennui and malaise which result in excessive drinking, adultery, divorce and mental illness."

According to him suburbs display a strong sense of community through the relationships between family, the street block and the network of friends. This, however, does not occur today as people have become isolated due to increasing distances and high crime rates. Friends therefore become widely dispersed. He also argues against the existence of a suburban way of life stating that it is mainly:

" ... a visible expression of behavior patterns and attitudes that are found in all settlement types".

Any differences in behaviour are thus caused by class and age gaps, and to a lesser extent by religion and ethnicity. Finally, he argues that factors such as changes in the national economy, society and culture have a greater influence on lifestyle and attitude than the physical location and appearance of the suburb.

Gans, furthermore, undertook a study of a new community, Levittown in New Jersey. His ideas were published in 1967 and although the findings are dated in today's terms they still provide valuable insight into why people opt for the suburban lifestyle and in what way the new lifestyle changes their circumstances and social values. Gans, throughout the book, questions popular suburban critique and the following are a few aspects he quoted which do not necessarily occur in suburbia

today.

a. The superficiality of friendships and social hyperactivity.
b. Hyperactive visiting and social contact to counteract boredom and loneliness. (Alternative recreation and entertainment is available e.g. videos).
c. Homogeneity of population violating the dream of a 'balance' community.
d. Conforming and competing amongst neighbours.
e. Suburban life being harmful to family life, happiness and mental health of the individual.

These examples illustrate the need to evaluate each situation individually and to avoid sweeping generalisations.

His findings indicated that a suburban lifestyle was not stressfull, with many of the residents extremely happy in their new surroundings, and this can still apply today. Attitude changes were not evident and in many cases the suburban influence proved to be very positive (family life, neighbour visiting, religious activity, outlook on life i.e. mental improvement). As he states: (p274)

" the most frequently reported changes are not caused by the suburbs, but were reasons for going there in the first place .... suburbia allowed people to live more comfortably and feel better, which is what they wanted".

Todays people moved to the suburbs for a variety of reasons. They include the following:

a. A desire to own a piece of land.
b. An escape from congested urban conditions.
c. The desire to raise a family in a healthy, clean, safe environment.
d. Economic affordability of the available housing.
e. A need for privacy, independance and freedom.

Suburbia clearly cannot and does not satisfy all these reasons but it remains popular and is well marketed.

Gans' work, therefore, illustrates and proves the point that suburbia is not the cause of all the city's problems today. Social questions (diversity and freedom) also need to be investigated and these are particularly relevant for South Africa today.

In another study of Cincinnati homebuyers by Varady (1990) it was found that family life cycles and lifestyles were fundamental in determining the choice between city and suburb i.e. young married couples who intended raising a family would opt for suburbia, whereas single or older couples might prefer a home closer to places of employment.

Other factors such as race, income, and the desire to preserve neighborhood social relations were also important. All these issues together, and the manner in which they are solved or treated will eventually determine suburbia's success or failure. Mere attention to physical planning aspects is no longer sufficient.

4.4 CONCLUSION

Suburbia, as it stands today, is the result of a combination of many factors. As our society changes so the physical environment has to undergo many adaptions and adjustments. In suburbia's case these have been particularly noticeable. This chapter has illustrated the point that automobile domination is now almost at its highest level. Access and mobility are fundamental determinants of the quality of life, as without them many people would be largely cut off from opportunities to participate in community and social activities. The road network dominates each suburb's structure and form and is proof of the amount of priority given to transportation aspects - in many cases to the detriment of social and community concerns. These issues are, however, likely to change as South Africa follows the pathway to full democracy. The economic pressures are increasing and could bring about a drop in vehicle ownership and a much needed shift in priorities.

Furthermore, the understanding of the various planning policies and standards, with their resulting density and form implications is essential to ensure environments which are robust and compact enough to survive the next 20 years. This is due to the increasing rates of population growth, urbanisation and resulting sprawl. Demand for adequate housing and infrastructure will impact heavily on the country's land and water resources and implies the application of specific growth management techniques developed in response to the local conditions that prevail.

Our suburbs today, furthermore need to be planned and designed in such a way that new facilites (housing, roads, public buildings) in some way, are able to benefit the community as a whole. This may be in the form of upgrading a public open space or in the provision of a new clinic, library etc. The future in South Africa will almost certainly require that designs take into account the mix of culture and norms which will occur together. 'White' suburbs and 'black' townships may still exist but should not be planned to accommodate only one section of the society. The following chapter will therefore concentrate on issues and trends which will impact on suburban structure and form. Suburbia, too, needs to adjust and change with the times.

CHAPTER 5

ISSUES AND FUTURE TRENDS

The world today is characterised by change and uncertainty. This is aptly illustrated by the rapid decline of communism in the former Soviet Union. South Africa too, is experiencing change at such a rate that nobody can accurately predict the future. This situation adds to the tension in the country and makes it a fairly risky land to invest in and plan for the next decade.

Problems and trends can, however, be recognised and where possible these need to be confronted in ways that lead to practical, goal oriented results. The rates of urbanization and rural depopulation are good examples. Currently these two issues, are amongst the most serious which have to be faced by the country. The prolonged drought and poor economic performance along with political uncertainty are factors which further exacerbate the situation and these trends have to be faced head on. People are therefore flocking to the urban centres and this has lead to a dramatic increase in squatter settlements, as well as renewed pressure and demand for adequate infrastructure and housing.

This chapter will briefly expand on various issues and trends which may impact on suburbia's future. The term suburbia, in this chapter, refers, to all types of suburban settlements i.e. 'white' first world communities, township areas and squatter settlements found at the periphery. Issues such as growth and sprawl will be handled as well as a discussion on the economic importance of the suburbs. Finally new techniques and directions for the future will be looked at, providing a glimpse into the suburban structure of the 21st century.

5.1 THE NEED FOR NEW IDEAS

Chapter 4 described the suburbs as many people know it today. What came out, though, were the many problems (some percieved and some real) that are connected to the present structure and layout.
These can be summarised as follows:

a. An overemphasis on transportation concerns and a resulting lack of ability to cope with conjestion, connection and integration of neighbourhoods into the urban fabric.
b. The overapplication of planning standards and zoning laws producing environments which are often sterile and lacking in variety.
c An inability on the part of authorities to control and regulate growth resulting in sprawl which is costly to land resources, new services and transportation facilities.
d. A continued negligence of lower income areas (including townships and

squatter settlements) in terms of their infrastructure, public facilities and environments and detail planning (economic constraint).

e. A growing dissatisfaction amongst the residents of their neighbourhoods, due to the cost of land and housing, transportation expenditure and travel times to and from various facilities (all separately located across the city)

These few points are illustrative of the need to plan differently in the future. Any suburban evaluation, however, should attempt to be totally unbiased as positive qualities and characteristics (lower pollution levels, family oriented living, many natural features) do occur. Dewar and Uytenbogaardt (1991) speaking on future directions for city management and design, elaborate on this need and break it down as follows: (pp16-17)

Need: Refers to human needs and requirements and appropriate urban actions and decisions grounded in the real needs, requirements and priorities of urban dwellers.

Areas:
1. Urban generation (opportunities and freedom to participate)
2. Access (to facilities overcoming distance)
3. Promotion of collective activities and contact.
4. Individual needs (physical, social, psychological and sensory)

The emphasis again, is placed on the creation of an environment wnich is capable of accomodating a wide range of people and activities. The need for new ideas is, furthermore, pushed forward by the waste of land and energy in many suburbs. Each house has its own yard and the automobile is hardly ever used to its full potential. In this regard, the trend toward independant satellite suburbs, bringing work and residence together again, may prove to be the solution, but this alternative usually develops only in first world countries. In these cases, according to Fishman (1987,p184) suburbia ceases to exist as people of all classes move to the periphery to live and work. This stage, however, is not attainable for South Africa in the forseable future.

According to Chermayeff and Alexander (1963) suburbia has failed as nature and as city, and they see it as "a massive compromise" between nature and the city. They state the following about suburbia: (p63)

"The suburb fails to be countryside because it is too dense. It fails to be city because it is not dense enough, or organised enough."

Furthermore, they see it as an environment not able to foster communities which exhibit true friendship between the members. The truth is however, that suburbia was never intended to function as nature or city. It was meant to achieve a harmonious balance between the two and in many senses this goal has been reached. Moreover, true friendship and community spirit is evident in many neighbourhoods where residents undertake to watch adjacent houses and form lobbying groups to oppose potentially harmfull developments from taking place in their area. These points, once again, emphasize the need to avoid sweeping generalisations when

commenting on our suburban structure and form. However, the point is taken that suburbia is often characterised by sameness and a waste of resources - two points regularly brought out by concerned writers. Variety is therefore a valuable quality which could be refound in many areas.

Gans (1968, p140) mentions the following two problems needing attention in our suburbs today:

1. A shortage of land and finance for low-density housing (low-income bias)
2. The increasing distances from the urban core to these new areas.

South African cities, with the possible exception of Durban, generally have an abundance of land suitable for development. Distances are, however, becoming a problem, something Johannesburg is attempting to plan for through the introduction of a mass transit system (light rail) to bring people quickly into the urban downtown. This type of policy is, furthermore, aimed at alleviating percieved traffic conjestion, but requires largescale capital investment and does not take the quality of the resulting environment into account.

Our suburbs, and indeed cities, are being planned and designed by traffic engineers whose only concern is the efficient flow of vehicles. This statement is backed up by the current planning in Pretoria, where construction is about to begin on a section of the new city highway system, which if fully implemented will effectively divide the city in two. Furthermore, land around intersections is lost to the city and the resulting environment is unsafe, unhealthy and unpleasant for all the residents. Yet despite this, nobody objects to the proposals, blindly accepting them as necessary and essential for the good of the city. New ideas are urgently required and the domination of transport issues over community needs has to be stopped.

The many low-income suburbs, townships and squatter settlements in South Africa, have suffered in the past through lack of genuine concern, the prevailing economic conditions and increasing population growth. Upgrading, therefore, in living conditions needs to start with job creation, a more efficient public schooling system and equal access to opportunities, so that households can begin to uplift themselves and their homes. Improvement in the residential environment, and the halt of urban decay can, therefore, only be realised once the necessary pre-conditions are in place. This requires the development of a total urban strategy, similar to the one suggested by Anthony Downs (1973) for American conditions. Without going into any detail the following are examples of the policies and tactics he suggests should be implemented: (pp160-165)

a. To encourage larger scale developments: this will generally facilitate economic integration and allow developers to incorporate low-income housing more easily.
b. Create pressure for the development of low-income housing: i.e. supply strong

incentives to developers and other agencies to build the housing while pursuading communities of the need for it.

c. Improve accessibility to suburban job opportunities: this implies improvement in the public transport system leading to greater exposure to the job markets.

d. Devclope population balancing mechanisms: this is needed to ensure a balance between jobs, schooling and available housing.

The policies mentioned, although helpful, need to be adapted to the local conditions which prevail. Established organisations such as the Development Bank already play a large role in the provision of low-income housing and the process depends on co-operation between the public and private sectors.

New ideas are always forthcoming and much debate exists on the correct path to follow. As Audirac et.al (1990, p473) state:

"the growth / no growth debate of the 1970's has been displaced by the compact - versus sprawl development debate".

Planners and politicians alike, realise that growth and economic well-being generally go hand in hand and if questions are raised they are aimed at the cost and environmental implications of the growth. The trend today is, therefore, toward attaining the most public - cost effective urban pattern and many local authorities are endorsing the concept of self-contained urban villages connected by a light rail system (Audirac et.al. 1990, p473) An urban village is, as the previous chapter illustrated, a contradiction of terms and it is debatable whether this type of policy would reduce urban sprawl

As Boles (1989) states:

".. all these schemes (mixed use developments, traditional neighbourhood developments, pedestrian pocket concepts) offer is a repackaged version of the Garden City designed for the high-end residential and resort markets, and often they are poorly integrated with the rest of suburbia".

Again, any new policy or concept has to be developed in response to local conditions and need. South African planners and authorities are still struggling with issues such as squatter relocation, the provision of adequate infrastructure and exploding urbanisation. Therefore, before 'ideal' urban forms can be pursued solutions need to be found to these current problems.

Furthermore, it is important to recognise that most people still prefer low-density living - an ideal based on the desire to own a home, raise a family and live in an environment offering a high degree of privacy. This remains a popular ideal and has to be considered when putting forward new suggestions on suburban form and layout.

5.2 GROWTH, SPRAWL AND THE ECONOMICS DEBATE.

As the previous section illustrated many questions exist the issues of growth and sprawl. This section will briefly bring out the main points in order to gain a better perspective on what trend suburban development is likely to follow in the coming

years. As can be well imagened the two terms are totally inter-linked and therefore overlap in the discussion is possible. Furthermore, much economic debate exists on the costs of sprawl and this issue will be evaluated.

At present, though, the urban areas in South Africa are experiencing growth at alarming rates. The rural population is becoming urban and according to the Urban Foundation (1990) this is causing a whole new set of urban management problems. Trends such as uncontrolled land invasion, high crime rates, exploitation of the poor and wastage of scarce resources is widespread and on the increase. The past has shown a perception amongst city planners that growth should be controlled at all costs. The idea to propagate a balanced regional development has long been held and is evident by the strong decentralization policies pursued during the 1980's (Urban foundation, 1990, p3) Most of the political and planning policies employed to control growth have failed dismally as they were aimed at 80% of the country's population. This has resulted in the city and, indeed the suburb, being developed for 20% of the people - mainly white and the consequences of these policies are now posing serious problems.

What now also becomes evident is the fact that planners and politicians have no generally accepted strategy in guiding the growth of urban areas . This in turn impacts on suburban areas, as development takes place in an ad hoc fashion, often uncontrolled and co-ordinated and which naturally leads to more sprawl. Design goals for the physical environment and resident community are neglected and under these conditions it is impossible to create an economically viable community. Utility services (water, transportation, sewerage) are not efficiently provided and the process gets blocked by the multitude of political and emotional viewpoints which exist around this "development debate".

Growth has to be properly managed. As Audirac et.al (1990. p477) state:

"density without liability could return us to the slums of the pre-war era"

This implies that handling growth should not be simplified to just increasing densities. Furthermore, the economic advantages of compact development are still to be proved (Audirac et.al p470) and therefore a greater understanding has to be gained on the combined effect that density standards and socioeconomics have on development. According to Barnett: (1985, p192) urban areas today are so vast and encompass so many activities, densities and communities that any attempt to halt their growth will fail. Instead he suggests that what is now needed is:

"new ways of integrating city design with the processes of economic and social change" (p192)

in this way it may be possible to establish neighbourhoods exhibiting integration and economic viability.

Recently a branch of the Urban Foundation undertook a study into the size and growth of Cape Town. What become clear from their research was the uncertainty amongst planners as to whether growth should be encouraged or not. They,

furthermore, developed three conclusions pertaining to the growth debate, and these can be summarised as follows:

a. Constraint of growth is almost impossible and results in severe development problems: Many attempts, across the world have been made to limit city size but they usually only succeed for short periods of time. The failure, in South Africa, of influx control and pass laws is evidence of this . This in turn increased problems such as: insecurity; housing and land shortages and unbalanced growth due to the policy of deconcentration.

b. Some of the concerns underlying a policy of constrained urbanisation are valid, but the causes of major problems have been incorrectly identified: Many advocates of limiting city size base their proposals on the following three perceived problems of uncontrolled growth:

- excessive pressure on urban infrastructure and facilities (transport, housing, land)
- loss of natural amenity and agricultural value (land wastage due to sprawl, rigid space standards, reservation of buffer zones for the future).
- a concern with balanced regional development.

These concerns are in most cases valid for the South African situation but correct evaluation is essential. The Cape Town example is evidence of this where, according to the Urban Foundation, many problems are a result of the physical structure and form of the city, rather than a result of city size.

c. Large cities, correctly managed, offer a number of advantages: Any urban area is a concentration of people economic and social activities. Their proximity to each other leads to many advantages (a rise in per capita income, increased opportunities and greater social care to name a few). These advantages are linked to city size and could not be provided in smaller urban centres.

The growth/containment debate has many implications for suburban and urban areas alike. Foremostly, there is a need for correct management as without this growth becomes a real problem as it is manifested in increased sprawl, unhealthy living conditions and urban decay. Good management will impact on all aspects of suburban/urban life (provision of infrastructure to layout and design) and can result in environments being able to withstand change thereby developing into places that enrich urban life.

Growth management implies on understanding of sprawl and, therefore, this will be briefly discussed in order to understnd its implications for suburban areas. Almost all South African cities suffer from a degree of suburban/urban sprawl. This is due, in part, to the structure of our cities which are characterised by separation between the elements (Urban foundation 1990, p4) which can lead to land wastage at the

edges. Because of this people are forced to move daily between places of employment and their homes and in this way the suburban lifestyle becomes part of most families. Sprawl, therefore, can lead to traffic congestion, increased energy consumption and other automobile related problems. In Cape Town, however, a major problem was the loss of agricultural land and this as a direct result of uncontrolled and rapid urbanisation. In this particular case sprawl manifested itself in the following ways: (Urban Foundation 1990, pp15-16)

a. Leap Frog Sprawl: "the continual improvement of land for urban use in pockets some distance beyond the existing urban edge:" As a result of this many land-owners do not farm their ground and its potential is lost forever.
b. Large Lot Sprawl: "the unquestioned promotion of individual, free standing units on large lots of land:" This practice is commonplace in the Cape Town area and leads to non-contiguous development and again, a loss of valuable agricultural land.

According to the Urban Foundation this continued sprawl is as a result of the following factors. Firstly, a lack of foresight and vision on the city's future form and structure and secondly, an entrenched anti-city ethic amongst the authorities and planners leading to further propagation of ideal suburban forms. Pretoria too, is showing rapid sprawl to the East (at the edges of upper and middle class areas) and south (a result of proximity to Verwoerdburg, Midrand and ultimately Johannesburg) and little is being done to fill in or densify existing areas. This has led to an almost total collapse of the public transport system and a visible traffic increase on certain incoming routes, during the peak hours. Apart from this many natural areas, with agricultural and scenic potential, have been developed seemingly in contradiction to the structure plan and town-planning scheme. The form too, of these new residential areas, represents a further compromise of the 'suburban ideal' in that erf sizes are smaller, distances to the urban core are greater and people are isolated from facilities, friends and the urban community as a whole. The quality of the urban environment is, therefore, broken down and high crime rates are causing people and families to further isolate themselves from their immediate neighbours. These problems, and many others, are exacerbated in low income and 'township' areas such as the Winterveld and Atteridgeville. Here even the most basic services are hard to come by and transportation costs become inhibitive to the maintenance of a decent living standard.

These situations are evident in most areas where urbanisation has been poorly managed leading to the sprawling pattern. According to Dewar and Uytenbogaardt (1991)

"the central planning decision is not where urban development should go but where is should not go".

If this is decided upon then it becomes possible to maintain the link and relationship between rural (natural and agricultural) land and urban land. This in turn becomes an important management principal and has many structuring benefits for the city and

suburban areas as a whole.

The growth pattern of today's city edge is precicely opposite to this thinking. As Dewar and Uytenbogaardt (1991, p40) state:

"... when the dominant form of growth is sprawl, urban dwellers who previously had easy access to the opportunities of the city as well as the countryside, find increasingly that contact with nature is becoming further and further removed, as the city grows."

Contact with nature is, therefore, totally cut off and in areas such as Hillbrow and local parks are essential.

These issues, and the fact that sprawl usually follows the major transportation routes, can have real form impact on the suburbs. More and more the trend is toward compacting and increasing densities and existing suburbs have the potential for this to happen. Another trend according to Dewar and Uytenbogaardt (1991, p42) is the pursuit of urban environments in which the fabric is fine-scaled and complex. This has many implications for suburban areas which are usually coarse and do not offer a mix of activities and uses essential for complexity.Convenience, accessibility and opportunity are concepts which need to be encouraged in the suburbs.

The next few years in South African history will undoubtably show an opening up of opportunities as people are able to participate in democracy, and this opportunity must filter down to the suburbs and township areas as well. An important consideration regarding city size, is that compactness need not always be in dimension but should also refer to urbanity and place. A method to achieve this would be the promotion of activity channels whereby continuity and integration of various districts or neighbourhoods is promoted. According to Dewar and Uytenbogaardt (1991) the creation of activity channels and systems depends on the following: (pp48-53)

a. Continuity in the urban fabric.
b. The ways in which connector routes (routes integrating continuous urban fabric) are used as city structuring elements.
c. The areal pattern of accessibility.

Each of the above are hard to resolve and meet under the present sprawling conditions and the implications for new and existing suburbs are far reaching. Ideally the ultimate goal is the integration of a variety of uses thus increasing access and opportunities for people living close by. South Africa is blessed with a relative abundance of land and so the opportunity exists to succeed in the above goals.

It is basically clear that the current suburban form is based on the assumption that every family will have access to an automobile and because of this over-emphasis is given to transportation related problems. Sprawling growth characterises many areas and this pattern, according to Dewar and Uytenbogaardt (1991), is primarily driven by the following processes. (p77)

1. Speculative sprawl (mainly high income groups choosing their 'ideal' living environments).
2. The crisis-driven search for land to accomodate low-income housing.
3. Illegal squatting.

Alternative forms of housing, apart from free-standing units, need to be encouraged in an environment offering a wide range of activities, high degrees of accessibility, integration and opportunity. Only then can planning concepts be changed and sprawl effectively contained.

Finally in this section on growth and sprawl, a few points will be mentioned on the economics of urbanisation. More specifically, the costs of sprawl will be investigated as much debate exists on the severity of this issue. The importance, in todays economic climate, to create viable well managed communities cannot be over emphasised, and will need greater attention in the future.

The important economic role played by the suburbs is aptly illustrated by the American example where the majority of new jobs created have been located in the suburbs. (Downs, 1973) As a result of this, construction of new homes, roads, public buildings and factories (amongst others) has been taking place in these areas, thus persuading more and more peiople to move into a suburban location. In South Africa too, many suburbs have been attracting public and private investment resulting in the construction of new shopping centres, office complexes and certain light industries. This trend is set to continue as urban areas struggle to cope with increasing pollution, conjestion and crime rates. The question therefore arises as to whether economic growth should be encouraged or supressed in suburban areas, and what effect(s) would either policy have on the urban core. Care therefore needs to be taken that policy shifts toward a return to the traditional urban core does not cause unemployment and economic decline in suburban and other fringe areas. Similarly the basic economic functions and importance of central areas should be preserved.

A study by the Real Estate Research Corporation in the United States lead to the publication of a book entitled: The costs of sprawl, in 1974. Their central conclusion was that low density development is extremely costly on energy, environmental, and fiscal grounds. The study method compared a hypothetical high density planned community (40% high rise apartments, 30% walk ups; 30% townhouses) with a similar low density community exhibiting sprawl and growth. Their results, all in favour of the high density option, where as follows:

a. The high density communities performed better in energy costs, environmental impact, captial costs and operating costs
b. The high density option required 44% less energy and generated 45% less air pollution.
c. The largest savings were made on road and residential construction costs.

However, according to Altshuler (1977, p209):

" the case that low density living is a highly expensive luxury, remains to be made".

This is due to the fact that:

a. Their results were never tested against real situations.

b. The key extimating assumptions were highly debatable due to omissions made (e.g. on mass transit expenditure and staff maintaining open space in the high density development).

c. Actual studies showed that high density living generates greater community expenditure than low density options.

Similar findings were made by Audirac et.al (1990) based on a study of sprawl in Florida. They question the assumptions that sprawl is ugly, fiscally inefficient, and environmentally harmfull due to the lack of empirical evidence existing to [illegible] that compact forms are more efficient and livable. The causes and effects of sprawl are still debatable and the advantages of compactness (larger open spaces; reduction of municipal infrastructure and service costs; support of mass transport systems; sense of place) largely unproved, and questioned by:

a. Economists: contending that given the nature of urban land markets, sprawl may be efficient and that better pricing policies for public services should be preferred over additional regulation.(i.e. regulation encouraging compactness such as higher densities).

b. Transportation planners: who argue that decentralisation reduces conjection, commuting times, and distances.

c. Urban sociologists: questioning the socioeconomic claims of compactness.

d. Planners: stating that containment policies have adverse long-term effects on housing affordability and sprawl.

e. Environmentalists: who contend that denser development causes environmental problems such as pollution of air and stormwater systems.

Another study by Pieser (1984) compared the economic results of a planned community development with those of an unplanned development on a 7,500 acre site in Houston, Texas. Three cost areas were investigated in each case:

a. Land development cost.

b. Transportation cost.

c. Social cost.

His findings showed that the planned development proved to be more successful on all three counts i.e. it costs less to produce the same level of benefits in a planned community than in an unplanned community. However, as he states:

"the results suggest that cost savings in planned communities result from higher land use densities, not from compactness or better land use configeration". (p430)

Furthermore, differences in total costs were only about 1-3 percent and this clearly raises questions about how high the costs of sprawl actually are.

These, and other studies, show the need for proper analitical evaluation of sprawl. Generalisation based on theory and wishfull thinking must be avoided in order to fully understand and grasp the important issues. As shown, growth and sprawl are contentious subjects, but should be approached with a positive attitude to ensure better living environments for us all.

5.3 AN ALTERNATIVE FOR SOUTH AFRICA

The chapter thus far nas once again illustrated the tremendous debate existing on the city, suburbs and urbanisation in general. South African cities have tended to develope in response to the American example and therefore display many similar qualities. People and planners alike, however, seem to think that this local form is not ideal and attempts are continually being made (urban renewal, urban upgrading) to intervene in ways not readily associated with South Africa

Many times authors compare our urban and suburban forms to those existing in European cities, and invariably the European model is seen to be far superior in all aspects. They suggest our cities are lacking in urbanism, clarity of structure, well-defined places and opportunity for meaningful community and social participation, to name but a few. What happens, therefore, is that the criticism tends to overshadow any positive intervention and our urban areas are made out to be poor substitutes for the real thing. Certainly, lessons from successful places across the world can be applied, but to expect a total transformation is wishfull thinking.

Many reasons exist for this and to further emphasize the point the city of Zagreb in former Yugoslavia (now Croatia) will be looked at. It provides valuable insight into historical beginnings and lessons into what to avoid in terms of alternative suburban layout. Figure 11 shows the plan of Zagreb today and indicates the main structuring elements. Its existence dates back to the 11th century when the old medieval town was divided into two parts, one owned by the church and the other by tradesmen. 1242 was an important date as it was in this year the town gained its status as a "Free Royal Town" meaning it belonged directly to the King and was free from the church and other controlling bodies. In 1557 it became capital of Croatia and this signalled the start of development and expansion. The main problem, however, was the Sava River which periodically flooded all available land, something only solved by the construction of the railway line on a 4m high berm. This effectively cut off the water and all land to the north of the line could be developed.

Industrial expansion took place and before the 2nd world war much of its current form had taken shape (black areas on figure 11) As industrial pollution and conjestion increased the wealthy people moved away to the hills north of the city centre. The industrial zone was originally located to the west but has since been displaced east. A closer look at the city centre (fig 12) shows that much of the population were resident in flats and densly packed housing. The old medieval parts began to fall into

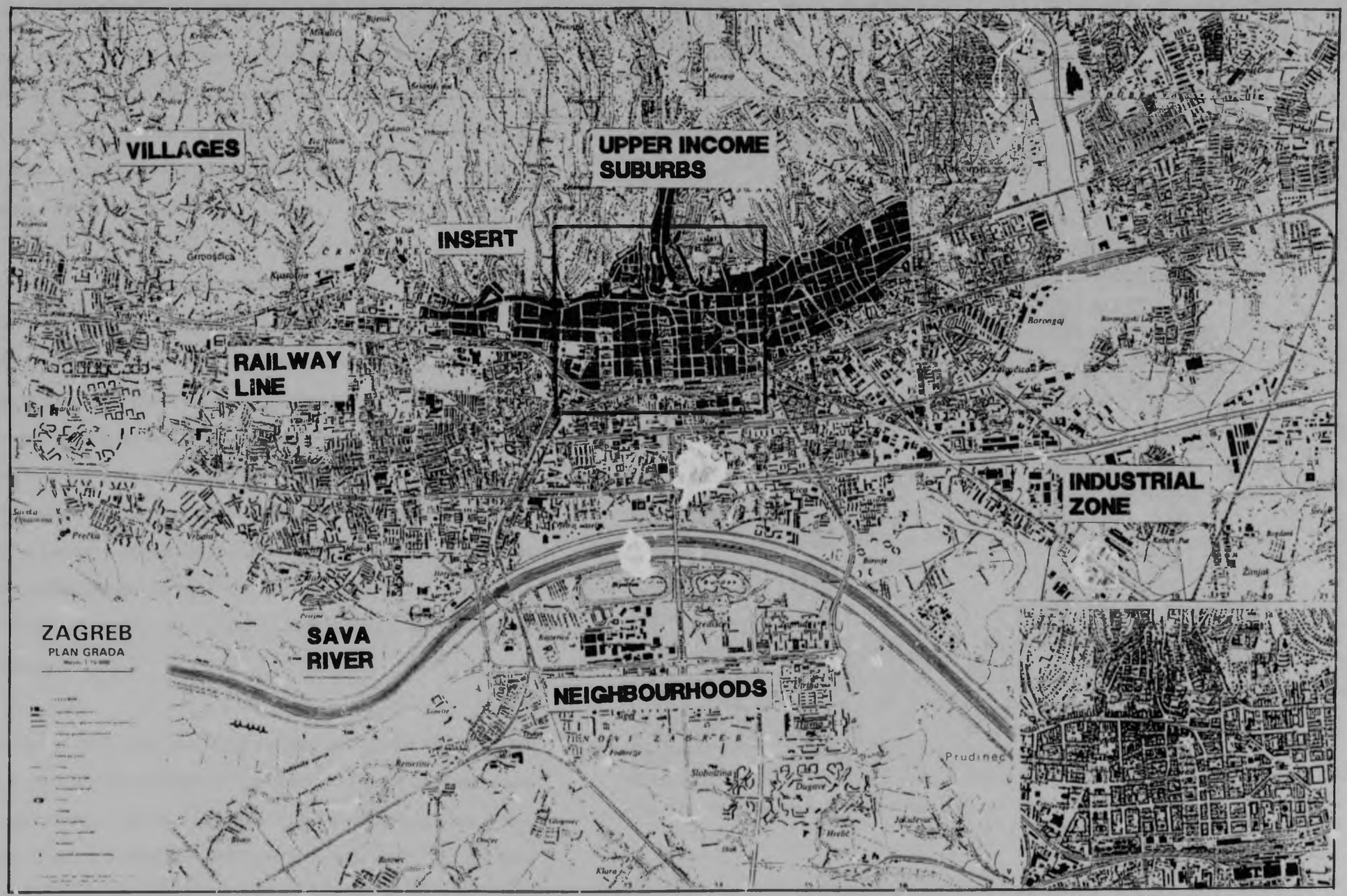


Fig. 11 The plan of Zagreb

disrepair and this promted a southward relocation of the city centre to beyond the railway line. Already at this time the urban downtown displayed a great deal of civic beauty with the main square and green 'horse shoe' belt already in place. Today m ch of the downtown has been pedestrianised and this contributes further to the appeal these areas have. (fig 12)

From the early 1950's however, increasing conjestion meant the city had to expand southwards across the Sava River. To do this it had to be properly regulated and therefore the river was slightly redirected to its present position. Natural berms were constructed and growth began to take place. Unfortunately a Le Corbusier andAthens Charter type planning and design method was followed. The neihbourhood concept was employed with up to 10,000 people being accomodated in each superblock (fig 13) Flats, some up to 20 storeys high were built each standing in an open parklike setting. A grid system of roads was also used and the new Zagreb took shape. Over 20 such neighbourhoods have since been built, each with its own shopping and recreation facilities in the centre. This type of suburban planning may yet take shape in this country.

Fortunately the last 20 years have shown a popular return to the traditional urban lifestyle. Now flats are usually not higher than four storeys, and inner city housing is in great demand. The Zagreb example is thus a classic comparison of two suburban forms, totally different, which occur in the same setting. It furthermore



Fig. 12 The downtown areas of the city of Zagreb, Croatia

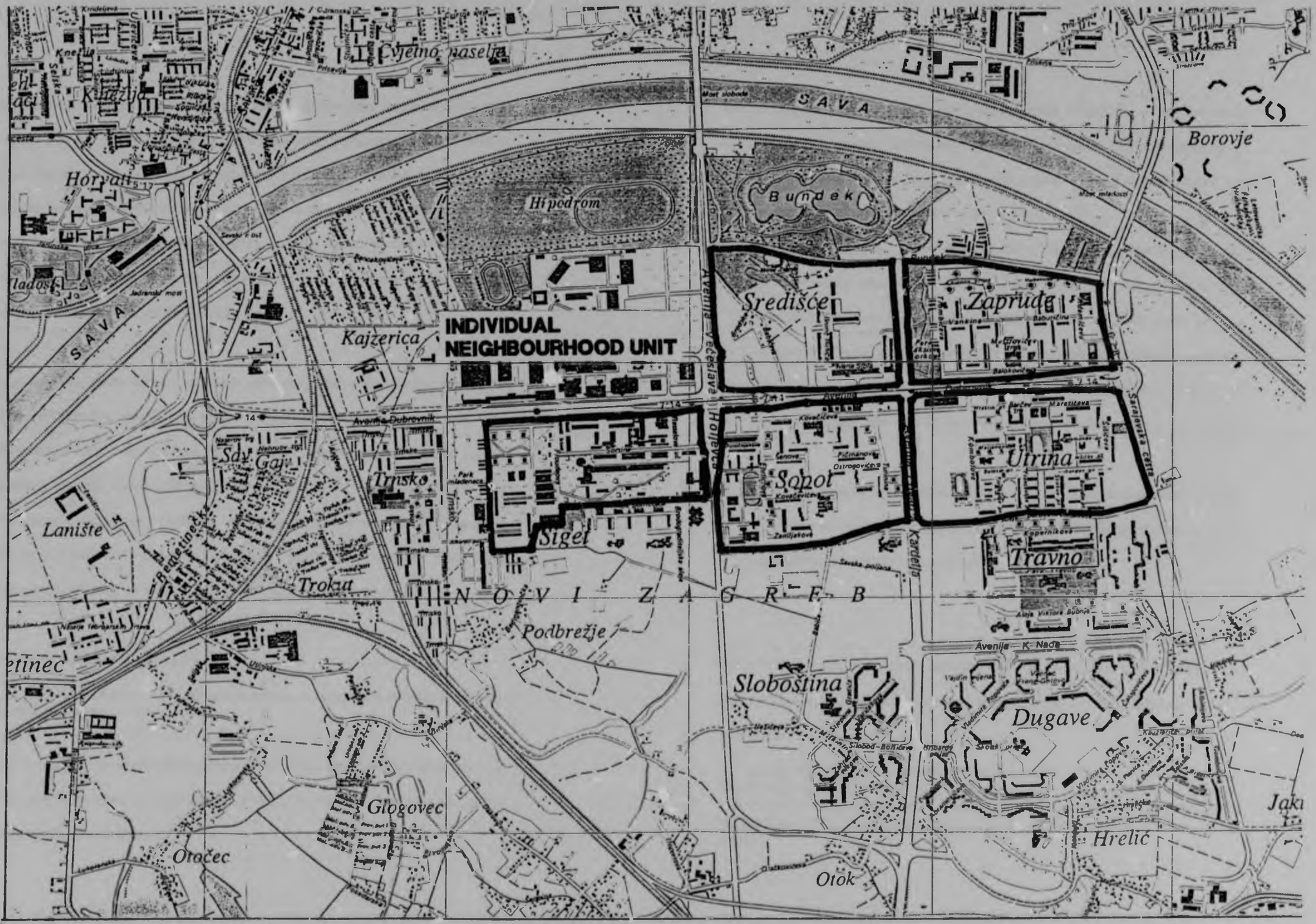


Fig. 13 Examples of typical neighbourhood units

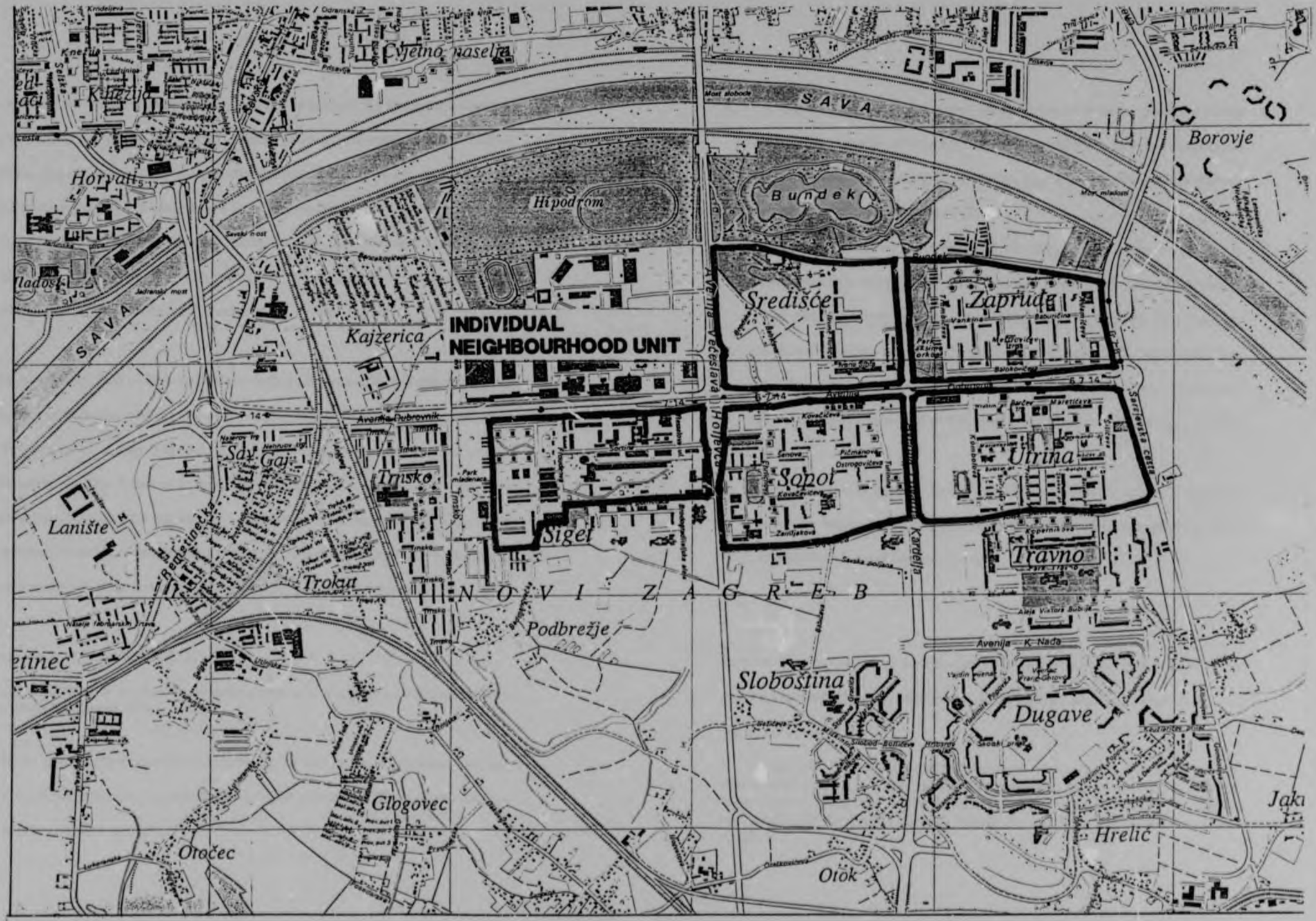


Fig. 13 Examples of typical neighbourhood units

illustrates the many traditional (from gereration to generation), historical, cultural (a way of life) and design differences existing between European and South African cities. Zagreb, however, is not typical of the rest of Europe as for many years the Socialist system has controlled the country. This made it easy to implement ideas due to the fact that land was owned by the state. Clearly, our urban and suburban areas will never resemble the European model, and it is therefore essential to develope solutions in response to the local conditions.

As pointed out, South Africa is currently undergoing many changes and this applies to the urbanization process as well. Increasing population growth and rural depopulation is placing pressure on the rural - urban land conversion process (formerly racially based and controlled through subdivision) and increasingly conversion is being done outside this ' township establishment' process. The urban periphery is therefore undergoing a change in character as demand for small, cheap sites grows and other processes (land invasion, infiltration) takes root.

According to Mabin (1992, p111)

"..... the ability of the existing regulation system to control the conversion of rural to urban land seems to be in doubt".

Similar problems were experienced by the city of Sao Paulo, Brazil where land had to be quickly supplied to accomodate the growing population. The city now displays the following characteristics:

a. A large number of lower-income people living in favelas: These are areas similar to squatter settlements, illegally established, but now undergoing improvements due to a degree of security gained from the authorities who are reluctant to enforce subdivision rules.

b. A growth of irregular subdivision and sale of land at the urban fringes due to the demand for cheap, small sites. Through this process the right to occupy land is sold by landowners thereby ensuring a degree of security for the people.

c. A growth in high rise, well-serviced middle income accomodation similar to that found in Zagreb, but located closer to the urban downtown. Convience and cost factors have lead to this type of accomodation becoming a popular option.

d. A densification of most middle-income suburbs in order to cope with demand.

e. A relative decline in property prices encouraging lower-income people to move into previously middle-income areas.

Both the Zagreb and Sao Paulo examples have relevance to the current situation in South African suburban and urban areas. Many changes are likely to take place. As Mabin (1992, p114) states:

"... we can look forward to increasing pressures of supply and demand of smaller sites through informal processes at the urban periphery. We can expect this situation to be extremely difficult to regulate, and we can anticipate that it will have profound implications for the development of housing for middle-income as well as poorer people".

The future form and structure of many suburban areas is, therefore, in question and the issues and problems which are arising need to be anticipated and confronted as soon as possible.

5.4 CONCLUSION

This chapter has shown that there is a great deal of uncertainty surrounding the future form and structure of suburbia. The increasing problems of population growth, demand for adequate housing and the resulting urbanisation are placing great pressure on the established suburban layouts and planning methods. There is thus a need for new ideas which respond and cater to the local conditions which prevail.

Furthermore, it is important to understand the implications and debate surrounding the issues of growth and sprawl. Both are totally interlinked and if unmannaged can result in communities becoming economically unviable and wasteful. The current political and social uncertainties are leading to instability, increased crime rates and dissatisfaction in township areas. No longer are the majority of people accepting minority domination, something which is sure to filter down to local suburbs in the form of unbalanced growth, poor land management and an increase in sprawl. The politics of growth i.e. forced removals and relocations have to be reconsidered and a shift in emphasis from 'white' suburbs to 'black townships' is essential in order to stabilize the community and plan for the future.

The South African conditions are not easily emulated anywhere else in the world which mean that European and American alternatives do not, in many cases, apply. Lessons however, can be taken from cities such as Zagreb and Sao paulo who have been confronted with similar problems of regulating growth, providing housing and accomodating people in ways previously unthought of. This applies to South Africa, which can no longer afford a multiplication of middle class suburbs through the 'township establishment process'. Densification and compaction are, therefore, trends which look likely to dominate and characterise future suburban form. This 'urbanisation of suburbia' is evident in many other countries and may well provide an option for this country's growing problems.

CHAPTER 6

URBAN DESIGN AND SUBURBIA

Urban and suburban structure is made up of a specific set of physical forms (physical structure), functions and related life processes. Each depend on each other and impart meaning to our built environment. The physical structure of the city consists mainly of building and open spaces. These may be shaped or coincidental and is the result of human actions, decisions and creativeness. (Barbir, 1985).

Each element in the physical structure has been created for a specific purpose and function. Over time these may change resulting in functional complexity whereby new meanings are attached to the elements. In most cases the suburbs lack functional complexity and are unable to respond to residents needs and choices. Each function or use is accommodated separately in the structure and although the level of adaptability is fairly high, neighbourhoods become mundane, aesthetically unpleasing and sterile.

The previous chapters have shown the need to apply principles which encourage a greater level of urbanity and urbanism in the suburban structure. This chapter will attempt to show how these urban design principles can produce more meaningful suburbs for all sections of the society. The chapter is therefore divided into the following sections:

a. An understanding of the urban design field and its application to suburbia
b. A discussion on the relevant principles and ideas
c. The application of these ideas to the particular morphological structure of South African cities.

6.1 THE RELEVANCE OF URBAN DESIGN

The present rate of urbanisation demands the implementation of a positive strategy ensuring control and ordiliness in the future urban system. Furthermore, it is important to develop aesthetically acceptable solutions and in both regards urban design concepts and policies have a definite place.

According to Kirby (1990, p2) design is the mediator between the values people hold, environmental form and the resulting quality of any settlement. The process is, however, fairly complex as it takes place in an environment which is in a constant state of flux, and it becomes difficult, if not impossible, to accurately predict the future. There remains, however, the need to pursue a type of humane urbanity, and

to achieve this urban design has to be the catalyst and facilitator. Urban design is therefore the key enabling tool for the modification and improvement of settlements (Kirby, 1990, p2). In order for this to happen design disciplines have to understand the relationship which exists between man and his environment. According to Dewar and Uytenbogaardt (1977, p7) an holistic relationship exists where man both influences his environment and total man (physical, economic, cultural, social and psychological) is influenced by that environment. The relationship is therefore potentially enabling or restrictive in terms of satisfying human needs and expectations. The goal is therefore the creation of an environment which:

"... enables and frees man to conduct those activities which are important in his life, how well it fosters meaningful choice and how well it elicits a creative response from man himself." (Dewar and Uytenbogaardt, 1977, p7)

Seldom does the suburban environment live up to this goal and invariably conditions are heavily dependent on economic status. In areas such as the Cape Flats and Kayalitsha high pollution levels, dampness (during winter) and the shoddy accommodation result in an environment unable to foster choice or live up to the peoples needs and expectations. This is the case in many other areas (Winterveld) where consolidation is not taking place and as a result any upgrading in conditions is dependant on outside help. Established township areas (Soweto, Atteridgeville) provide a beter quality of life for their residents but still the environment, through its vast bleakness, fails to encourage and uplift the inhabitants. The current economic and political uncertainties lead to an increase in tension which places further burdens on authorities seeking to control and manage the areas.

The economic realities, and cost of meaningful intervention is a hinderence, but political and standardised planning constraints need to be broken in order to improve the poor conditions in many township and squatter areas. Urban design therefore, is aimed at improving the livability of the city and suburbs. According to Senior and Wood (1987, p34) the goal of urban design is:

" to strive for a quality of physical urban environment which nutures human dignity and culture through design, based on an understanding of the social, economic, physical, temporal, political and legal processes that influence the structure and form of cities"

Suburbia is a physical environment and urban design therefore has the ability to effect change for the better. In suburban terms this could be in the form of renewal, alternative layout and so on where, in most cases, a framework for development is provided which is form and space oriented. The framework usually leads to visible changes in the environmental quality and is therefore a public and private activity. Urban design, for the purposes of this study, is concerned with the following :(Senior and Wood, 1987, pp 34-35)

a. Concern for the quality of the public environment: i.e. the buildings and the spaces between buildings particularly public space. This aspect has largely been neglected in suburban areas, where excessive public open space becomes unutilized, unmaintained and often dangerous. As Dewar and Uytenbogaardt (1991, p35) state:

"when the public spatial environment is poor, the entire environment will be negative, regardless of how well individual buildings are made" (fig. 14)

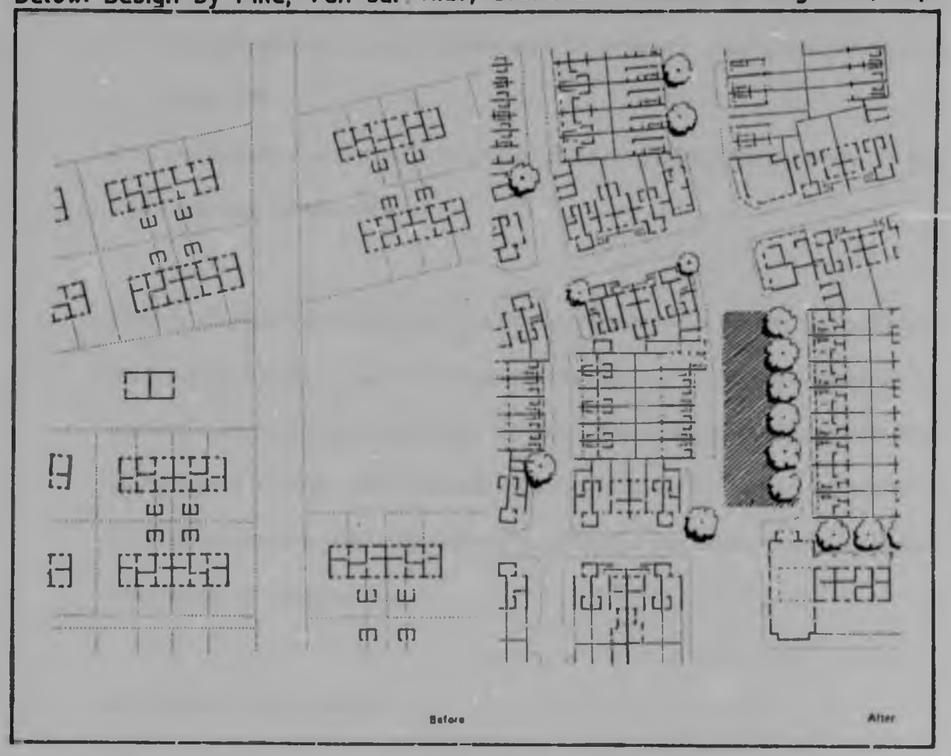
b. Concern for the three-dimensional design of the environment: Plans in the past, especially from the non-physical "planning" disciplines, have been insensitive to the form, mass, volume and proportions of buildings. The environment (public) therefore needs to be designed and envisaged at an earlier stage in any project.

c. Concern for city dynamics: Urban growth and change are ongoing processes and as such urban design deals with a whole range of dynamic relationships over long time spans. The ongoing sprawl, fragmentation and environmental damage is testimony to this. Urban design therefore, seeks a balance between control (regulation) and freedom (flexibility).

Urban design is therefore urban, suburban and exurban in scope. A great need for innovative design exists in low-income and informal settlements where the smallest intervention can lead to an improvement in the quality of life for the residents. The complexity and difficulty of problems in these areas is greater than in most middle-upper income areas, but urban design is a learning process which through a proper understanding of the problem can lead to effective solutions.

A change in emphasis has also taken place. Virtually sixty years has passed since the International Congress of Modern Architecture (CIAM) and Le Corbusier produced the Charter of Athens. It spelt out the physical requirements necessary to establish

Below: Design by Pike, Van der Riet, Cooke and Andrew in Guguletu, Cape Town



Source for figures 14 & 15: Dewar and Uytenbogaardt (1991)



Figures 14 & 15 The need to design high quality public spatial environments

healthy, humane and beautiful environments (Appleyard and Jacobs, 1980, p1). The charter, along with the Garden City movements, emphasized neighbourhood concepts; separation of people and cars and the notion of buildings in a park. This type of visionary, idealistic thinking has since been replaced by design concerned with recapturing urbane qualities that have been eroded away through the unprecidented rates of urbanisation and expansion.

Today, more attention is given to combatting the poor living conditions in low-income squatter settlements. Adequate housing in a livable surrounding (i.e. free from over-crowding, pollution, dirt and danger) is a long term goal for South Africa. According to Appleyard and Jacobs (1980, pp 9-13) a good urban environment (including suburban) should display the following characteristics:

a. Livability: i.e. a place to live in relative comfort (privacy, relaxation, restoration)
b. Identity and control: the environment should encourage people to express themselves to reduce alienation and anonymity, and increase a sense of identity and community
c. Access to opportunity, imagination and joy: i.e. experiences characterised by learning, enlightening, humor excitement and choice.
d. Authenticity and Meaning: to understand the city and be aware of its opportunities.
e. Community and Public Life: instead of individual neighbourhood groups a commitment to a larger whole should be fostered through participation and public life.
f. An Environment for All: livability, control and opportunity needs to be accessible to everyone.

These issues, and others, depend on the structure and fabric of the city (and suburbs) and in this area urban design is the creator and facilitator. Its impact on suburbia is therefore undeniable and apart from the many form and space implications the community as a whole can derive many benefits from timely design interventions. The following section will further expand on principles and practices relevant to the future design of suburban areas.

6.2 IDEAS AND IDEALS

South Africa has reached the point where over 50 % of the population are urbanized. Urbanity and the need to make our cities livable therefore has to be considered with renewed determination. Many areas are lacking in personality; are dominated by movement and do not provide access to facilities. Other problems such as an ignorance (by planners) of human behaviour; under-utilized land; the zoning out of mixed uses are also prevelant.

According to Lloyd (1990, p1) the conditions needed to develop an ideal environment include the following:

a. Free access to the unbuilt natural environment.
b. Access to the benefits of urbanity (i.e. the advantages including work , social and educational).
c. The development of social and cultural awareness, apart from the functional side.

Therefore, one can conclude that in order to generate and maintain 'pleasant' living environments a combination of the following elements is needed: space to accommodate a wide range of activities (slum conditions are characterised by a lack of space); access to nature (a clear distinction between urban and rural); sense of community (urban and suburban areas tend to separate and not integrate people); a special place or street (so that the place takes pre-eminence over the the street); recreational areas (a whole range of types and sizes from formal to informal); physical complexity and diversity (multi-functional buildings and activities reflecting the cultural mix which occurs); a range of public elements and facilities (these also need to be clearly defined by buildings where appropriate e.g. square).

The process of suburbanisation has created an environment in which the unity, diversity and liveliness of urban living has been lost, and the alternative seems to lie in an approach which develops urbane qualities which ensuring a high degree of livability. To expand on such an approach the ideas of a few urban design theorists can be looked at. The bias will be toward those ideas most relevant for this dissertation i.e. those which would be capable of effecting real change in the suburban environment.

6.2.1 Kevin Lynch:

His approach is procedural (how) and substantive (what) with much of his theories well known and acknowledged. To him imageability, legibility and perception are qualities that can greatly enhance an area or city, and through their application the structural quality of urban areas is simplified and become easy to comprehend. Legibility is really the ability of an environment to communicate (to the observer) a clear image which would differ from person to person. A highly legible environment would therefore, be one displaying continuity, with the parts clearly interconnected. The environmental image has three components:

1. identity (being distinctive from other things)
2. structure (spatial relation of the object to the observer and other objects)
3. meaning (i.e. practical or emotional)

Imageability and legibility therefore lead to a heightened perception of the environment where the observer would be well oriented and highly aware of changes

occuring in the particular area. The role and use of paths, edges, districts, nodes and landmarks in this regard is well understood. Lynch, furthermore, lists seven 'performance dimensions' for good city form and five of these have particular application for suburbia. They are:

a. Vitality: the ability of a settlement to support life i.e. vital functions and protection. This is often a problem of third world settlements which suffer from famine and a lack of basic health care.
b. Sense: the degree to which a settlement can be clearly perceived i.e. a sense of structure and imageability.
c. Fit: the degree of congruence between peoples basic requirements and what is actually provided i.e. the scale form and capacity of spaces and channels.
d. Access: the physical ability to reach other persons, activies, resources, information and places (access needs to be public and private).
e. Control: the use and access of spaces and activities need to rest in the hands of the users.

The lack of structure and identity normally associated with suburbia can therefore be changed through the applicaiton of Lynchs' ideas. This can be achieved in many ways (distinct edges; special street leading to a public building; clarity through landscaping; use of landmarks) leading to an improved environment in both lower and upper income areas. Once the quality of public spaces is high, peoples' image of the environment is positively affected.

6.2.2 David Crane:

His approach is one which is almost a conservation model in that much of his concern is for public interest and ways to enhance it. Fundamental to urban life is the rapid acceleration of change currently occuring. To him the environment and human activity are at odds with each other and therefore over long periods of time a certain amount of uncertainty about planning and design processes is evident.

Crane emphasizes the need for town building and not town planning. One way to ensure this is through the notion of capital web (capital design) which is basically the creation of infrastructure (roads, pedestrian routes, key installation and public facilities) in order to guide development in a certain way. Any part of the urban area therefore has a web of capital investment running through it and it is a concept which can be applied to a whole range of developments. Urban design is therefore about process and product and not just a physical manifestation of development decisions. Local authorities therefore need to commit themselves to building the capital web (in whatever particular form is needed) in order to attract private capital and business into an area.

Another central concept is the idea of a thousand designers who respond to the framework laid down by the local authority. This framework therefore guides,

inspires and enables others to do the job adequately. Through this process development is "seeded" and people are able to respond in various ways according to the needs of the community. Too often developers latch on to the idea of "Design and Project Management of totally Planned Communities" and this type of blue-print planning is directly opposed to the notions of capital web and the thousand designers. Instead development frameworks need to be rigorous and flexible with only certain inbuilt controls (mandatory and desirable) that guide development. The application of such an approach to new suburban and squatter communities injects character, variety and livability. Economic benefits can also be forthcoming (investment web) whereby an initial investment (seeding) produces a large return which can be used to solve problems and upgrade the community as a whole.

Other ideas held by Crane include the need for choice and flexibility in any structure. As he states (1960, p 284):

" ... design achieves its highest social purpose when its results leave some things to chance and choice".

Furthermore, the following concepts also need consideration and application in any suburban layout:

a. A greater consideration of urban and public asthetics and its role in public action.

b. The development of symbolic place i.e. elements as statements adding to identity of an area (e.g. gateways, landmarks) and showing people how the city may reflect their and other's values.

c. The notion of malleability i.e. the adaptability of forms and structures to allow for addition and modifications (e.g. design to accommodate potential future uses).

d. Ellectability which is really a mixture of fixed elements and flexbile ones i.e. choice.

6.2.3 Symbolism and Community:

These two qualities are essential in any suburban environment as they reflect the needs and values people hold. The use of symbols needs to be encouraged. According to Rapoport (1977):

"the symbolism of dwellings (type, lawns, maintenance and the separation of activities) and residential areas is central to habitat selection and the meaning attached to planning".

Symbols therefore, communicate meaning to residents about their environment, and once an area has taken on a particular symbolic meaning (social, ethnic) group identity is easier to develop. A major aim therefore is the design of cities for different groups and their needs in terms of symbols, activity systems and images. Design and planning should not plan down to the last detail allowing for human expression in a framework of common neutral areas and smaller open ended places. Rapid growth and sprawl have destroyed this ideal.

Along with these 'ideas' it is desirable to create a 'sense of community' amongst any group of people in an area, so that they can relate and develop obligations for their area (e.g. maintenance and cleanliness) The realm for this to happen is divided into the following six domains: (Chermayeff and Alexander, 1965)

a. Urban-Public : places and facilities in public ownership such as highways, parks.
b. Urban-semi-public: special areas of public use under government and institutional control: halls, schools, post office.
c. Group Public: the meeting ground between public services and utilities and private property.
d. Group-private: areas managed for the benefit of public or private interest.
e. Family-private: spaces controlled by a single family.
f. Individual-private: room of one's own.

For suburbia the management and form of realms a-c are important to guard against possible community destruction as in Pageview - Johannesburg. Here viable housing was bulldozed into rubble under the pretext of slum clearance and forced evictions were commonplace. This action effectively disrupted the colourful, balanced community (mainly Hindu and Muslim) and results in burning resentment toward authorities that is likely to be felt for many years to come.

In middle and upper income suburbs, However, a major task facing designers today is the environmental improvement of lower income and informal housing areas. (Fig 15)

6.2.4 Low-Income Criteria

In general terms there is a need to provide housing at the lowest income levels and to achieve this the site layout, infrastructure, building and type all need to be seen as one single entity. The demand and backlog has arisen out of high population growth and rural de-population, and the poor conditions worsened by the current economic recession.

The need therefore exists to accommodate people in a new 'livable urban fabric' that accommodates a variety of needs, counteracting current sterile layout and where choice; integration of activities; multi-functional spaces and continuity of fabric and public areas exists. A broad goal would therefore be to make places which are meaningful and satisfying for people to live in. Inherent in the approach is the need to encourage urbanity i.e. application of the positive qualities which exist in urban areas (Dewar and Uytenbogaardt (1977, p7).

Third world communities have a variety of needs which include: basic survival needs (shelter, food, water); employment and productivity; security (physical and social);

(shelter, food, water); employment and productivity; security (physical and social); identity; equality; choice and participation; affordability. These needs can then be matched with the qualities inherent in a successful environment and through such a process can be satisfied. For instance:

vitality - survival, employment, security

sense - survival, identity

control - security, identity, equality

efficiency - employment, choice, adaptability

Efficiency in design and implementation is essential in these areas as funds for low-income housing become increasingly scarce.

Valuable design principles, for the achievement of urbanity in low-income areas, can be gleaned from the well-known study by Dewar and Uytenbogaardt (1977) of Cape Town. Areas were evaluated in terms of how well they satisfied the 'performance dimensions' for the achievement of 'urbanity' (i.e. the degree to which an environment is successful in fostering human development and environmental quality) Figure 16 shows these dimensions as well as the various scales, elements and activities which were covered. Briefly, some of their findings can be mentioned (pp 9-14).

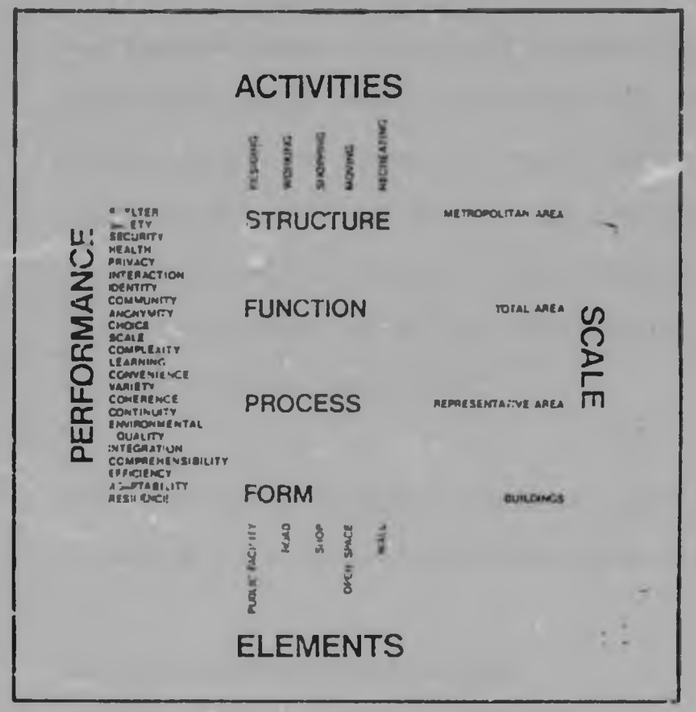


Fig. 16 The scope of the study on urbanism in Cape Town
Source: Dewar and Uytenbogaardt, et al (1977)

a. Metropolitan and Total area scales: At these scales the integration of the local areas into the metropolitan region is important and as far as possible growth should occur naturally, controlled and guided by the major movement routes. The area should therefore seek to display continuity and comprehensibility. Imageability is enhanced through a diversity of activity and functions along these major routes which should be flanked by residential areas. Urbanity is further ensured by:

1. the integration of land uses with each other and the residential environment in reponse to a clear structural framework.
2. this produces unique places allowing choice and complimenting further activity.
3. route integration further enhances convenience, clarity of structure and protection.

Any bisecting road should therefore not separate but integrate a community, which is not the case were functions are separated from each other. Furthermore, activities should not be compartmentalised but should reinforce each other. In all aspects therefore, areas that develop in an evolutionary way outperform the so-called construct fully-planned areas where a range and choice of environmental conditions does not readily exist, and people are not involved in place making processes.

b. Local area and Building scales: At this scale the recognition of and response to the uniqueness of place is important, as variety, choice and richness can be created through responsive design (not standardised). Furthermore there is a strong inter-dependence between public and private spaces meaning that the house and street need to be designed as a totality. The design of this interface is important as it affects the quality of public space in a number of ways (sense of scale, enclosure, continuity and protection) implying that it needs to be positively defined. The integration of different uses and activities is important to ensure multi-functionality of space and through this the quality of social space is affected. Variety in use and function adds diversity and complexity. At this scale, therefore, social and community needs should be enabled through design. (fig.17)

The above principles are representative of an approach capable of installing 'urbanity' in a suburban area, and as shown, are applicable to high and low income areas.

6.3 SOUTH AFRICAN MORPHOLOGY:

Briefly, it is necessary in any design to respond to local conditions and needs and nowhere is this more evident than in South Africa. The morphology of our urban areas has developed around a conflict model with many players taking part. The city should never be considered a finished product and design therefore should seek to shape urban areas within a framework that can be modified as times and needs change.

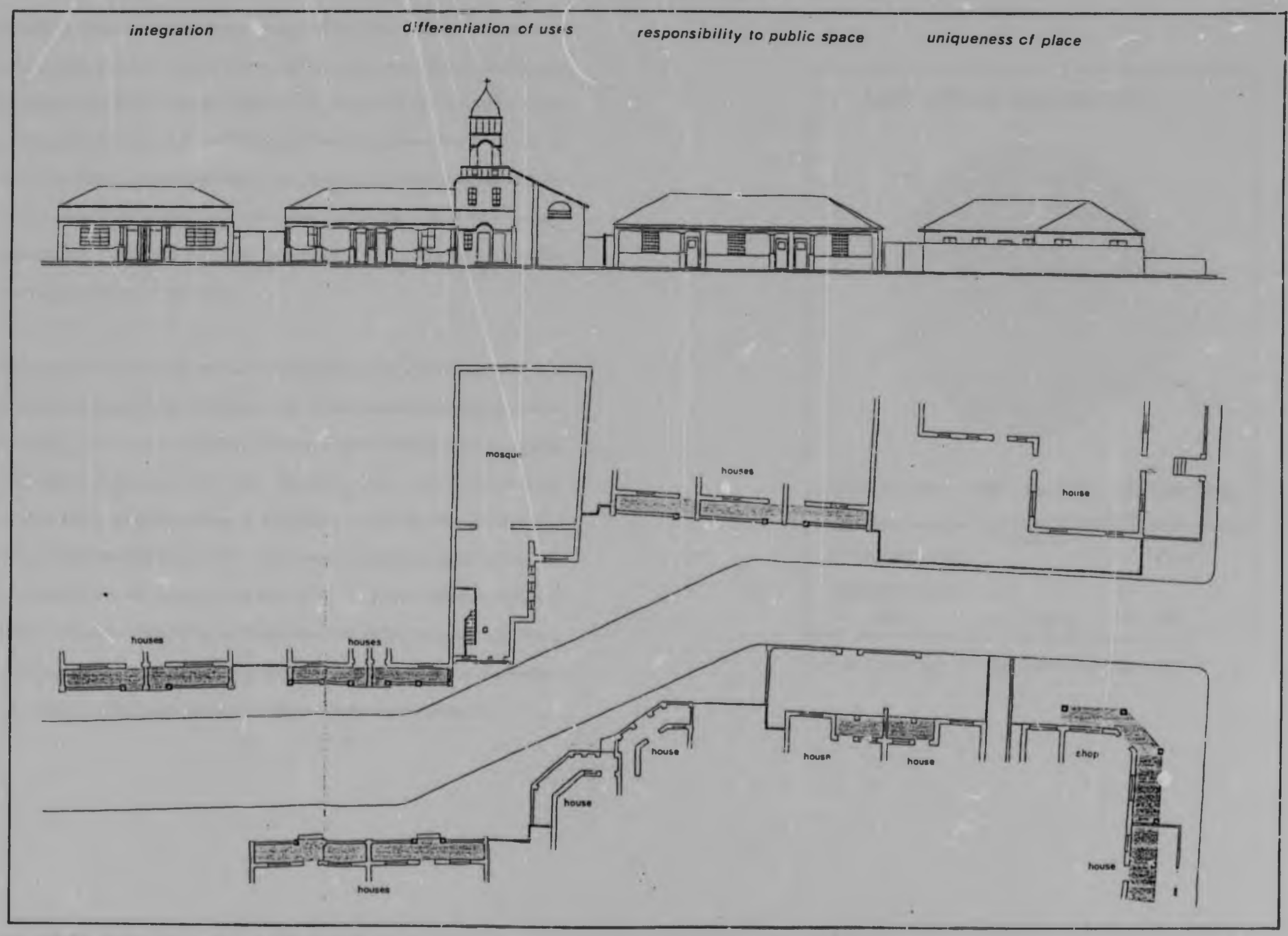


Fig. 17 The integration of uses & activities
Source; Dewar, Uytenbogaardt, et al, (1977)

Initially the South African form was simple and functional with the development of mining leading to the formation of industrial structures with black hostels an early indiction of apartheid tendencies. During this time rural labour was hard to obtain and people were imported in which in turn persuaded politicians to enforce a series of laws inhibiting the movement of non-white people. In particular, the Land Act of 1913 deprived black people of the right to lease or own land outside the homelands and this factor, along with rapid rural de-population, saw an explosion in workers' housing, particularly on the mines.

The Central Business District was surrounded mainly by workers' housing with black groups being forced, by the Group Areas Act to live in separate locations away from the centre. From 1948 to 1990 these laws were in place resulting in the manipulated city from so evident today (fig.18). The morphology of our urban areas has therefore been based on a policy of segregation and the structure is very much unique. The legacy of 'Apartheid' is well known and the challenge must be to take this unique form and positively influence it for the future. Racially segregated suburbs cannot be wished away and design therefore needs to respond to the needs, problems, culture and values of the people residing in these areas. In this way, the application of urban design principles will prove to be highly successful.

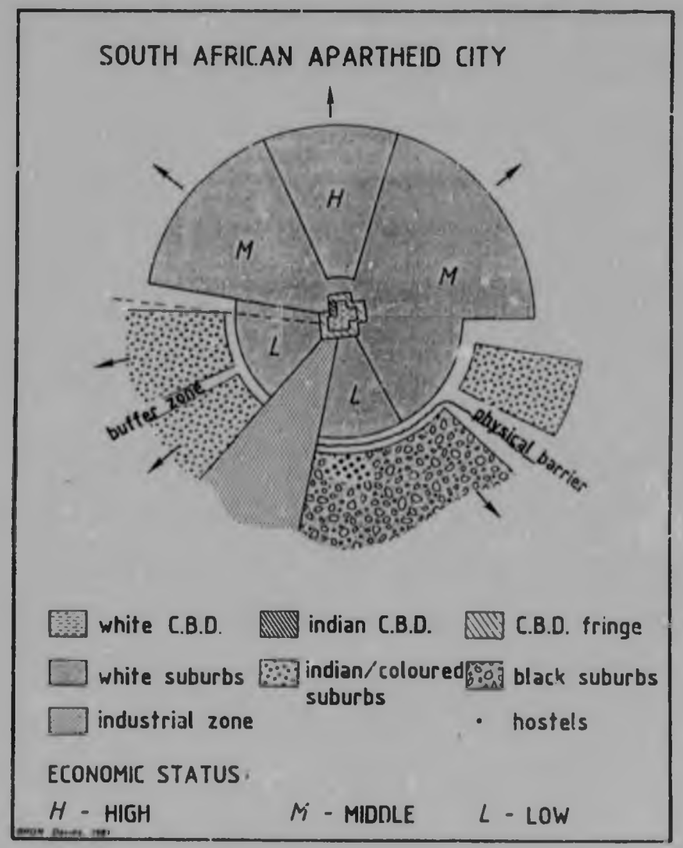


Fig. 18 Structure of the South African city

6.4. CONCLUSION

The suburbs, in general, are lacking in a sense of urbanity and place and it is only through the application of urban design principles that this situation will be reversed. The rigid blue-print application of planing standards and the notion of 'total community design' has produced a range of environments which are environmentally poor, aesthetically unpleasing and disregard the quality of the public environment.

Urban design works within this scenario and through enabling frameworks, the character and quality of any area can be improved. Urban design, furthermore, seeks to develop a positive relationship between man and his environment as the quality of public spaces and private dwellings determines whether people will be satisfied in their surroundings or not. Urban design can improve the livability of an area and for South Africa this could prove to be the greatest challenge one considers the vast number of people living in conditions that can almost be regarded as 'slum'.

Many principles and ideas have been put forward by theorists, as briefly discussed, and the need therefore exists to sift out those that are applicable in each design situation. The contribution of these ideas, to suburban form and layout is therefore immense.

CHAPTER 7

THE CONCEPTUAL FRAMEWORK

The study of suburbia, its form, structure and underlying elements is relatively complex and much existing information on the topic can be referred to. The previous chapters have illustrated this and in this section a conceptual framework or base will be formulated.

Essentially, this is done in order to provide direction and rationale for the dissertation and involves a critical consolidation or appraisal of the theory that has been handled in the previous chapters. For the purposes of this particular study the main conclusions and theoretical viewpoints will be drawn together to guide the case study design which is to follow. As previously stated, the dissertation can be broken down into the following sequence:

a. Theory Investigation
b. Conceptual Framework
c. Application to a Case Study Design
d. Conclusions and Recommendations

There is no particular problem statement or major hypothesis of the study due to the fact that 'Redesigning Suburbia' implies an understanding of a whole range of interrelated problems and concepts. It cannot, therefore, be simplified down to one single problem and the dissertation aims to apply a number of theoretical principles and ideas, through design, in order to ensure an eventual environment that displays a whole range of 'new' suburban qualities, able to counteract much of the current poor environmental and place quality. The framework covers each preceeding chapter in order to present a clear picture of the fundamental issues.

7.1 INTRODUCTION

Basically, the study arises out of the tremendous need to adequately accommodate the growing urban population. The provision of housing and other infrastructure facilities is placing a heavy burden on existing township establishment processes which are failing to keep pace with the demand.

Together with this, and in contrast to it, there is growing dissatisfaction amongst suburban residents regarding the quality of their living environments. These 'white' areas exist largely as dormitory towns and are plagued by: increasing traffic conjestion; sprawling layouts; a lack of integration into the urban fabric; environmental mundaness and sterility from the overapplication of planning controls and standards; rapid growth and sprawl and high transportation and housing costs.

These middle and lower income areas with their organic road layouts, low densities and single-family dwelling house character, do not function as an 'ideal' living environment and this implies the need for new planning and design directions for future suburban form. Recent trends have therefore been toward designing 'village communities'; 'satellite towns' and 'totally planned suburbs', but alternatives based on this country's need have to be investigated. To do this community participation needs to be assured and this is a major problem of many blue-print planning methods.

The above is therefore, the dissteration's basic starting point and has to be borne in mind throughout the process.

7.2 HISTORIC STRUCTURE AND FORM

The quality of todays suburban form and layout has been adversely affected by the rates of growth and urbanisation. Furthermore, technological advances (automobile) and expanding economies have made it possible for people to be located further and further away from the urban core.

In order to reverse this trend cognisance must be taken of places that have had the ability to remain small and exhibit the quality of urbanity (in this case separate from urban). The form of these historic cities (Rome, Venice, Siena) is based on the following underlying principles.

a. clear structures and well defined limits: the city could be easily comprehended as a whole. (coherence)
b. a sense of place: these are places that provide evidence of origin, growth and purpose and through this impart meaning (symbolic, ethnic) to the residents.
c. access to nature: the slow process of development meant natural areas could be easily reached.
d. a regular street plan: the Roman example of the cardo and decumanus show how a grid system can lead to opportunities of creativity and accommodation over time.
e. prominent public spaces and buildings: improvement and celebration of public spaces is essential for the creation of livable environments.

Suburbia exists as it is, due to (amongst others) its location: particular set of land uses; applied planning standards and demand. These 'suburban' qualities need to be exchanged for urban ones, and only then can unity, diversity and complexity be refound.

7.3 SUBURBAN BEGINNINGS

Today, a large majority of people choose to live in a suburban location. From biblical times and through the industrial revolution the advantages were obvious (less conjestion and pollution) and have become increasingly pronounced.

In this country, particularly, the suburb is considered to be the only fit place to raise a family away from the noise, dirt and overcrowding of the city. It still represents an 'ideal' lifestyle and until the attitudes and perceptions about urban life are changed, growth and sprawl at the edges will not be stopped.

Early suburbia was therefore shaped by:

a. technological advances particularly in transportation
b. the industrial revolution bringing economic growth and therefore demand (along with population growth)
c. a repulsion against poor urban living conditions
d. idealistic theories and writing of people such as Ebenezer Howard, Le Corbusier and Fredrick Law Olmstead.

The past cannot be changed and until the city is able to function as a people friendly place capable of satisfying every human need, suburbia will undoubtedly be the most popular residential option for many years to come. Also, supply of housing in inner city locations should be encouraged.

7.4 THE CONTEMPORARY SUBURB

Chapter 4 showed that the form and structure of suburbia today is based on the following underlying principles and constraints:

a. Almost total domination by the private automobile and continual road and highway construction.
b. A dramatic increase in the urban population raising the demand for adequate, affordable housing.
c. The uniform application of planning standards, zoning laws and maximum densities in combination with the previous two points has ensured the low density single family dwelling house character of most suburban areas.
d. Political and ideological manipulations resulting in the lob-sided supply and demand of housing that currently plagues previously 'non-white' areas.
e. An inability to produce and provide economically viable housing in low-income areas, and the increasing inaffordability of so-called 'middle-income' housing.

Each of the above has to be counteracted in the future through the application of policies similar to the following:

a. Transportation policies that emphasize integration of modes and the street improving the economic viability of public transport systems and ensuring ease of access to facilities for everybody. The road system should possess a high degree of structural clarity through which continuity of the urban fabric can be established.

b. The dynamic application of planning standards, i.e. a balance between freedom and constraint and the promotion of a mix of uses and multi-functional spaces avoiding static zoning laws.

c. Policies aimed at accommodating everybody equally i.e. in access to opportunities, choice and integration into social life.

d. Incentives for the provision of low-income housing and policies to counteract over-crowding; poor facilities and infrastructure in most low-income areas.

e. A shift in emphasis from 'neighbourhood planning'; satellite towns; growth and sprawl to policies aimed at compacting the city (one metropolitan unit).

Once the correct direction for these broad-scale management policies is found then design of individual sites can begin to create more positive urban and suburban environments.

7.5 ISSUES AND FUTURE TRENDS

Today there is a great deal of uncertainty on future suburban / urban structure and form. Much debate exists on the issues of growth, sprawl and compactness. Planning policies toward pedestrian pockets and urban village concepts fail to address serious problems existing in low-income squatter areas, and are usually aimed at the upper income market. Furthermore, the economic implications of sprawl are becoming more pronounced and good management is essential.

Future planning and design policies therefore need to focus on the following:

a. Managing and attempting to counteract the rates of urbanisation and rural depopulation.

b. Energy conservation i.e. placing less emphasis on separation of land uses and the private automobile.

c. Consensus and co-ordination between planning and design disciplines on acceptable future policies.

d. Emphasis on proper growth management and not on constraint.

e. Increase densities and compact the city as proximity of activities and people has social and economic advantages and this will lead to a reduction of sprawl.

f. Encourage alternative forms of housing apart from free-standing units.

g. The application of principles from similar urban situations across the world.

7.6 URBAN DESIGN AND SUBURBIA.

The principles described thus far relate mainly to overall decision making and management policy. The current anti-city ethic has to be broken through their application in order to install a greater level of urbanity in the suburban structure.

Their physical application through urban design can result in high quality environments displaying livability, opportunity, variety and meaning which would represent a reversal of existing conditions. Theorists like Kevin Lynch; David Crane and others emphasize the need for a whole new range of qualities in the suburban structure. These include: legibility; imageability; sense; fit; complexity; flexibility; symbolism and efficiency.

For these qualities to develop design should respond to the site, context and community in question. Specific design ideas could include the following:

a. variety of land uses integrated together resulting in functional complexity
b. greater emphasis on alternative modes of movement (walking; cycling; public transport)
c. improvement and upgrading of the public spatial environment.
d. maintenance of a visible boundary and contact with nature through an open space network
e. a range of public spaces (hard and soft)
f. multi-functional spaces including the street
g. a main street functioning as an activity channel (interacting transport systems, accessibility and a wide range of activities)
h. the provision of a range of housing types (affordable to expensive; attached and multi-storey)
i. the use of landmarks to import meaning and identity.
j. densification and infill where the opportunity exists.
k. the provision of a range of recreational facilities.
l. the installation of key capital web structures to guide development.
m. less rigid application of zoning, standards and controls.
n. careful design of the interface between public and private space.

The focus therefore, has to be taken away from the individual house with collective spaces, integration of land uses and activities and compact environments becoming the design goals for the future.

CHAPTER 8

THE CASE STUDY.

This chapter describes a theoretical case study undertaken during the course of this dissertation. Essentially this is done in order to provide a basis upon which the theory can be evaluated to determine its worth. Only once a case study has been completed can meaningful conclusions and recommendations be made as a greater appreciation of problems and stumbling blocks is gained through such a practical exercise.

The process is illustrated by the following figure:

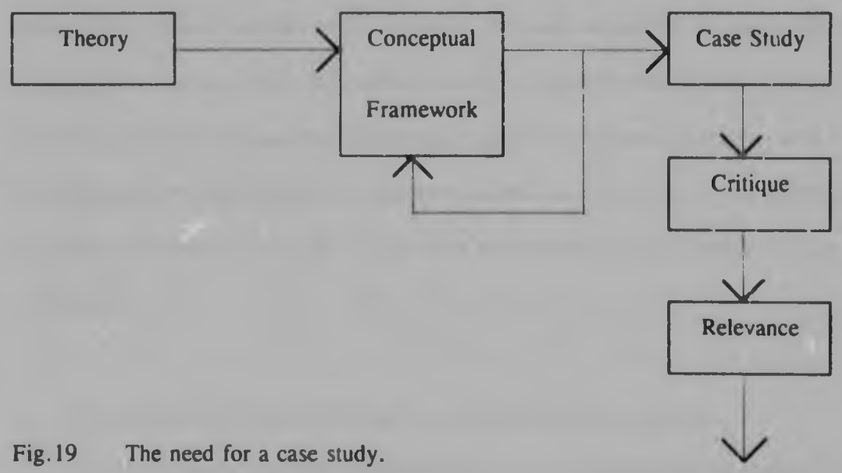


Fig.19 The need for a case study.

Apart from this introduction section the proposal is presented through a series of maps and diagrams which are largely self-explanatory. The proposal is in the form of a physical framework for the development of the site. It is, however, important to emphasize that solving the particular site is not the main intention. What is important is the result and proposed form of the development as this reflects many of the ideas gleaned from the theoretical base.

The case study is, therefore, intended as a type of model, the principles of which could be applied to many other situations and conditions. The framework is a vision for the future as it is clear that the current suburban sprawl idea has to be reconsidered. The actual site which has been chosen is located to the south of Pretoria's Central Business districts. (figures 20 and 25) at the intersection of two main highways. Much debate exists on how the site should be developed and proposals ranging from an office park to a recreational area have been submitted in the past. The site does provide many clues as to how it should be developed and these have been incorporated into the design.

The chapter is not broken down into many parts and after a brief discussion on the purpose of a framework the drawings are presented.

8.1 THE URBAN DESIGN FRAMEWORK.

For any design framework to be successful an inherent understanding of various macro issues is essential. As Barnett (1986) states :

"Cities are not designed by making pictures of the way they should look twenty years from now. They are created by a decision-making process that goes on continually, day after day. Instead of handing over city designs as an ostensibly finished product designers should seek choices that shape the city within a framework that can be modified as times, and needs, change."

Any framework should therefore, establish a direction in order to elicit important development responses yet remain flexible to change with time. The capital web idea (Crane) is fundamental for the creation of a publicly initiated infrastructure that includes pedestrian routes and spaces; parking; various catalytic projects and ongoing monitoring. This public investment therefore promotes a private response and through this value is created which is one of the main objectives of any design. Developments should, as far as possible, always be economically driven. For the case study this would mean the realisation of the full development potential of the land and economic viability for any retail and commercial concerns. The framework, therefore, provides a basis for further detailed studies and will consist of the following:

1. Conceptual framework indicating the overall concept for the area.
2. The urban context indicating access to the site and links to adjacent suburbs.
3. Activities, land uses and form directives(broad patterns of potential.)



Fig. 20 The case study site in relation to the rest of Pretoria

4. The movement network including roads, pedestrian routes, public transport (bus and taxi) and other aspects.
5. Urban space and Landscaping.
6. Capital Infrastructure indicating initial development response.
7. An Indicative Form response and details indicating the range of possibilities within the framework.

The framework is, as previously stated, not limited by the major issues affecting the development of the site. It is, however, based upon a range of principles developed in response to the theoretical base. These are illustrated in figures 22-24 where existing suburban conditions are compared against the desired alternatives or options.

Another important aspect is an implementation strategy indicating how the development will take place. Recommendations are usually made as to possible phasing of the development; identification of the area for the first phase and a strategy as to how the land is to be managed and assembled. A feasibility study for the overall development should be carried out followed by viability studies before the commencement of phase one. In this way the development is constantly informed by economic studies. Development options can therefore be evaulated and strategies formulated as to the most economically sound proposals.

Financing and investment in the current economic climate is a major problem and investors should therefore be guaranteed a return as early on in the project as possible. The phasing programme; market surveys and viability are therefore fundamental to the success of any development of this nature.

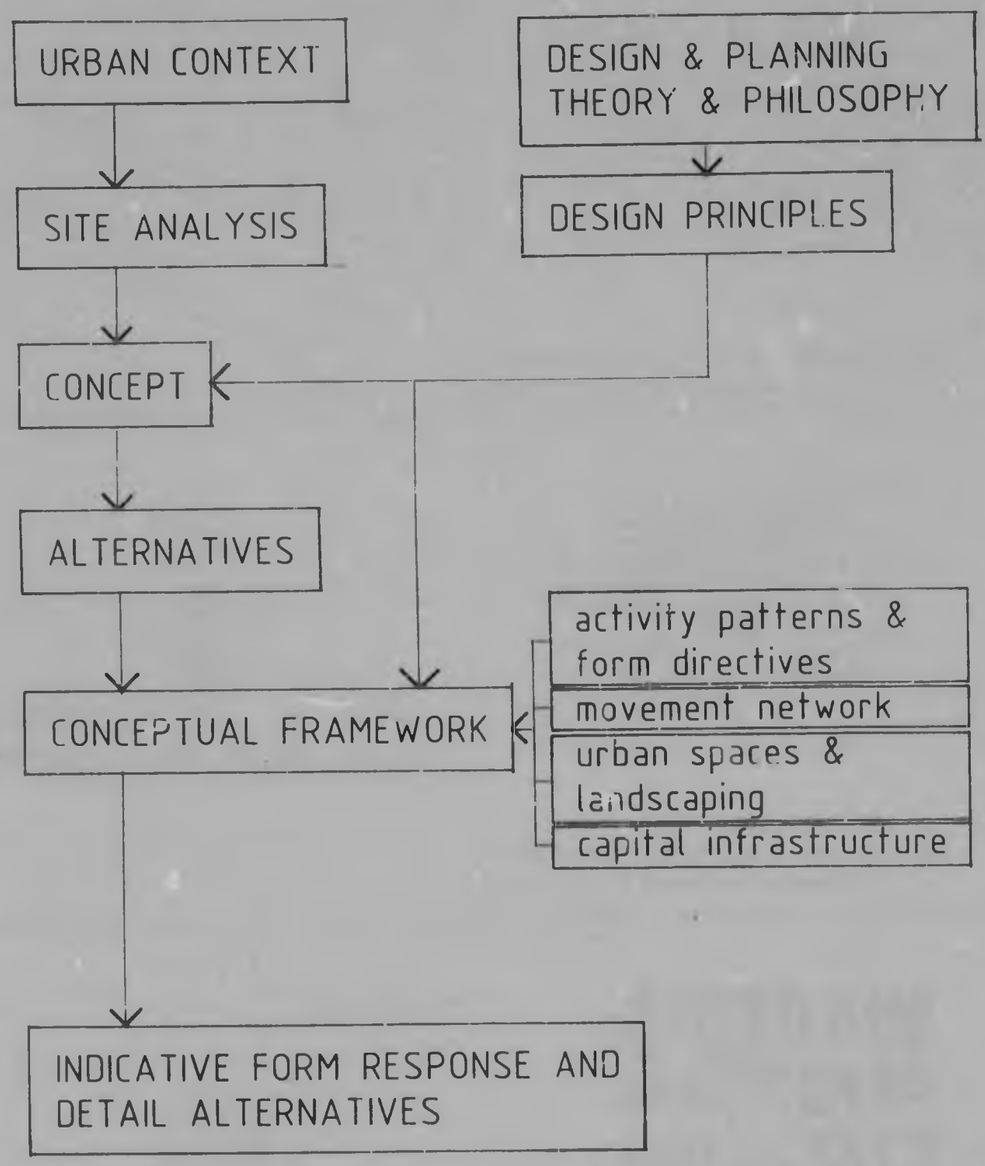
The above represents the type of issue which should be handled and considered when it comes to implementation strategies and ongoing monitoring. In this particular case the establishment of a development corporation is envisaged which, in close, co-operation with the finance companies; the city council and the proffesional team, will attempt to implement the various phases of the overall development framework. Once the success, or lack of it, of the first phase is ensured the following stages should run at a smooth pace

8.2 BACKGROUND TO PRETORIA

The greater Pretoria region includes places such as Mamelodi, Atteridgeville, Soshanguve, the Winterveld and Verwoerdburg. The population is estimated to be 2 million with unemployment figures set around 30 000. This figure may not see alarming but many people are involved in the informal sector and of course the figure is rising.

The site is heavily influenced by the underlying geological conditions with a series of ridges and valleys, a main determining factor of the city's form and structure. As

far as development patterns are concerned, low density planned suburbs are dominant. Closer to the Central Business District quality older residential environments have been broken down through home offices; road schemes and flat blocks. Squatter settlements and township areas are pushed to one side and as yet have played a limited role in the overall picture. Sprawling middle class suburbs, totally car oriented, sprinkled with neighbourhood shopping centres dominate the landscape. A lack of vision for the city exists as to the utilization of inherent qualities and potentials (Apies river system) and cultural resources. It is against this background that the case study is presented.



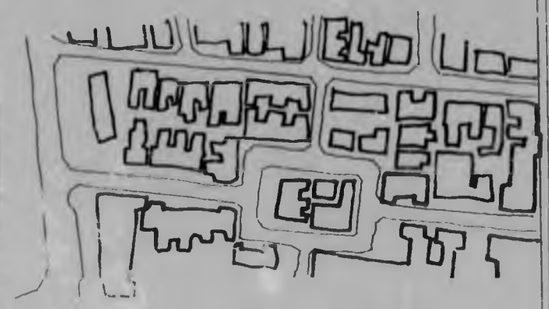
BROADLY SPEAKING THE GOAL IS THE PROVISION OF A PHYSICAL FRAMEWORK FOR THE DEVELOPMENT OF THE SITE:
THIS IMPLIES A NUMBER OF OBJECTIVES WHICH CAN BE SUMMARIZED AS FOLLOWS:

- ensure residents have access to choice and oppourtunity (housing types; public transport; facilities)
- create a feeling of identity and complexity
- the framework should be robust and flexible to adapt to changing needs while creating investor confidence
- promote integration and compactness to avoid low density sprawl
- provide and maintain high quality public environments
- encourage pedestrian movement through multi-purpose street design
- avoid standardized blue-print planning techniques (flexible zoning)

FIG. 21 DESIGN PROCESS & GOALS AND OBJECTIVES

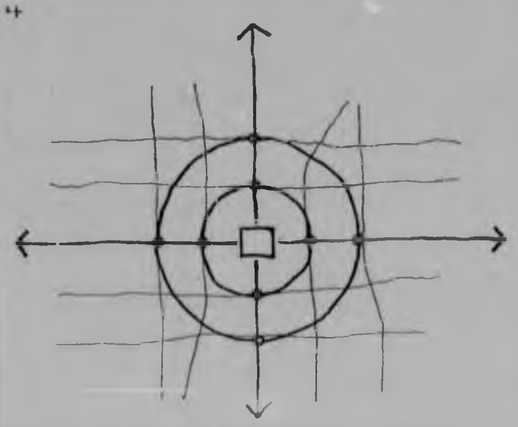
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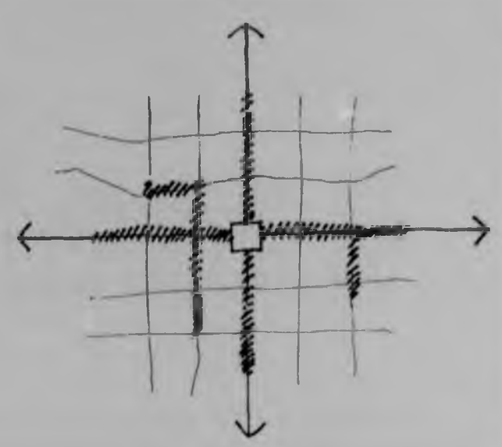




increase unit densities through infill and structural implosion

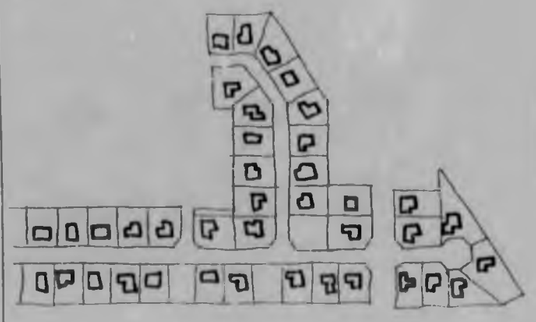
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break the dominant outward expansion of growth and sprawl

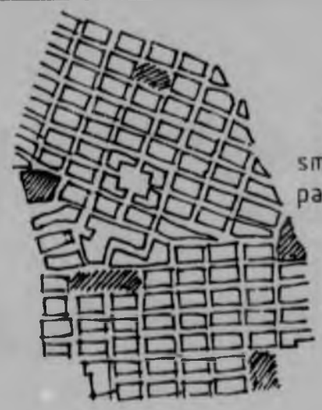
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avoid dull stereotypical layouts that produce uniform environments

5

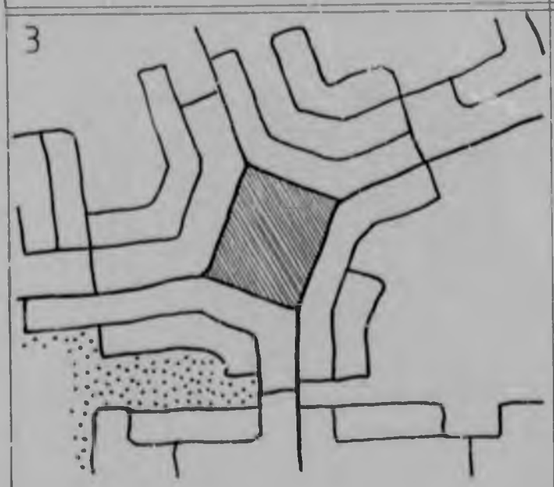


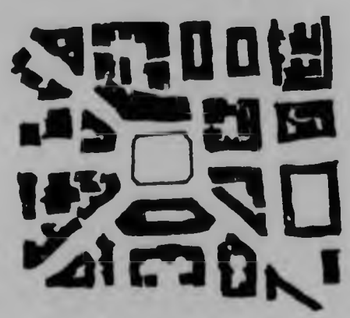
small parks



ensure contact with nature through an open space network

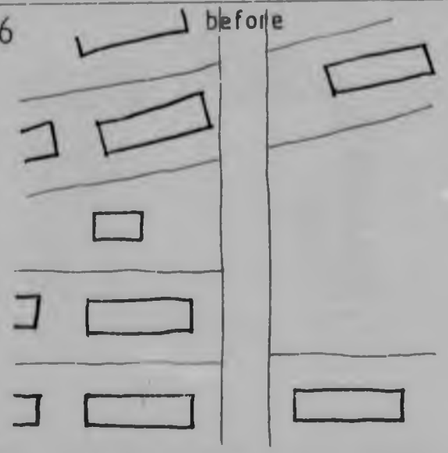
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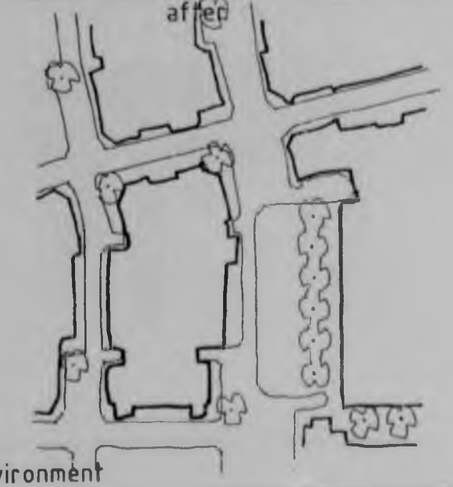




promote a higher degree of integration between land uses

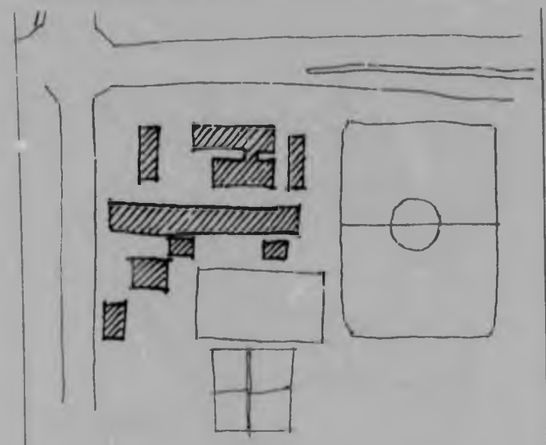
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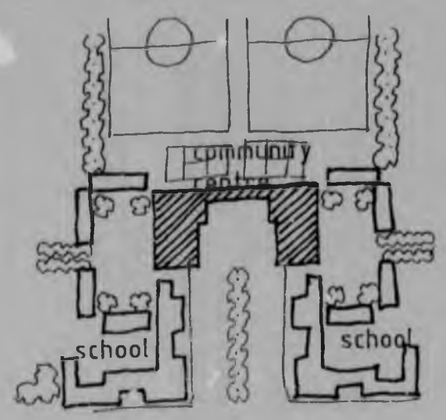


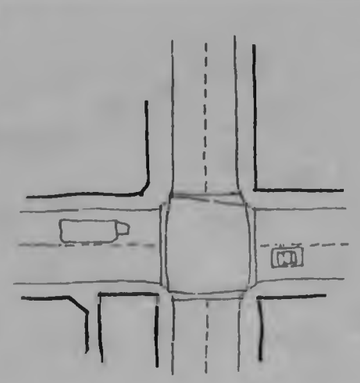
develope & maintain a high quality public environment

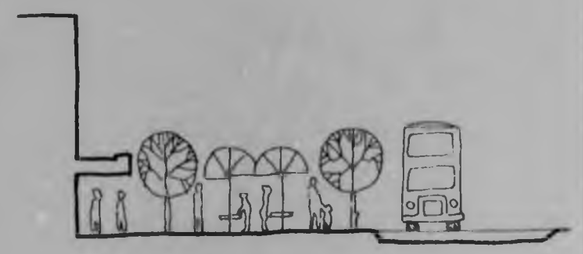
FIG. 22 DESIGN PRINCIPLES 1. EXISTING vs PROPOSED



promote multi-functional and integrated spaces

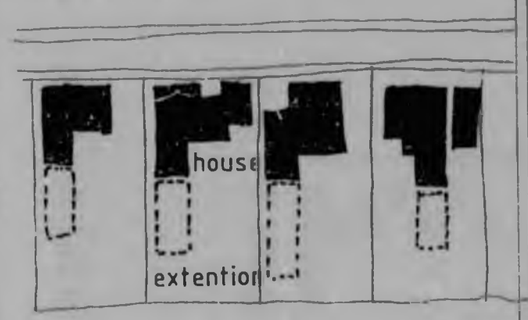




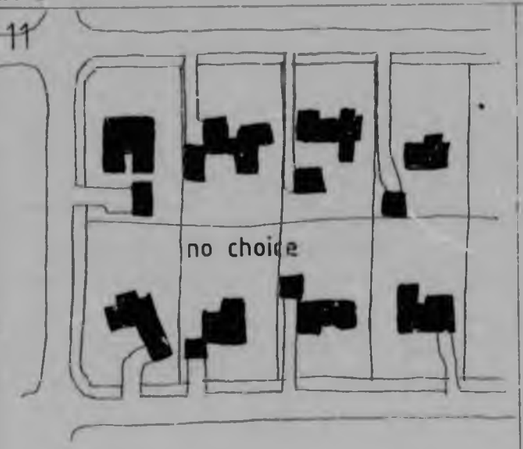


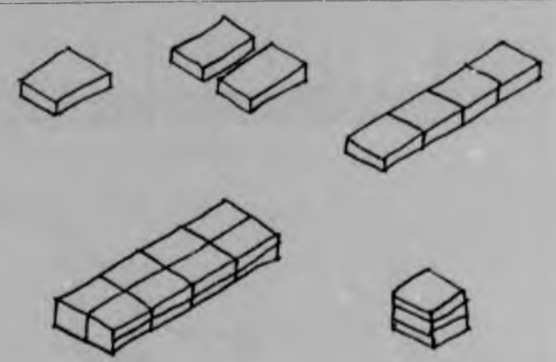
create a main street with a range of traditional activities and a unique identity



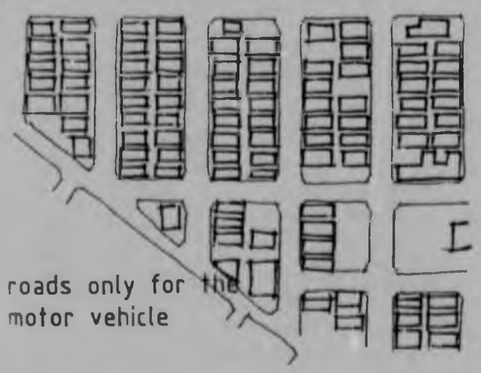


promote more efficient site utilization through perimeter layouts

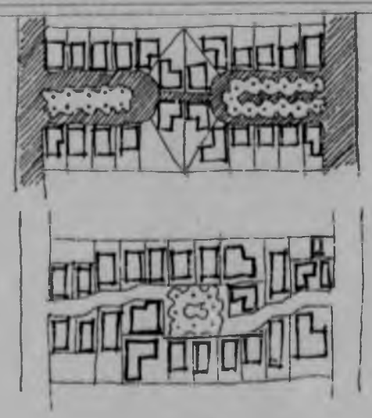




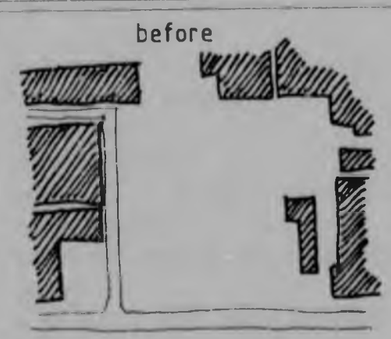
provide a range of housing types including affordable

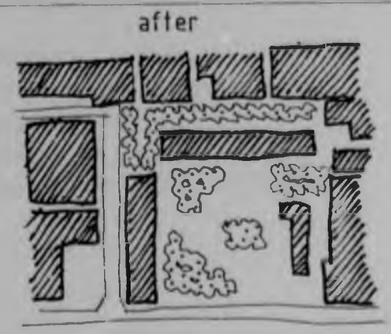


roads only for the motor vehicle



develope new forms of safe community space





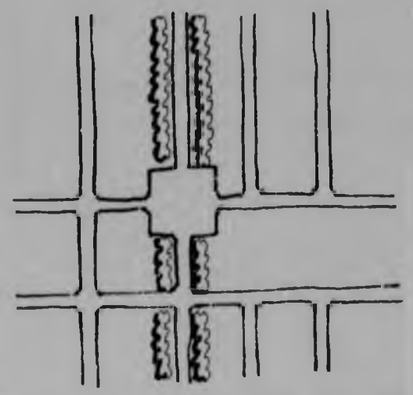
where the oppourtunity exists upgrade an area and provide additional housing

FIG. 23 DESIGN PRINCIPLES 2. EXISTING vs PROPOSED

13

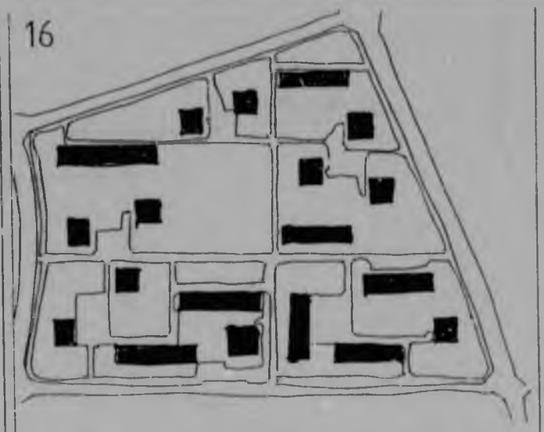


no clarity



give structure and identity to suburbs through landscaping main streets etc....

16



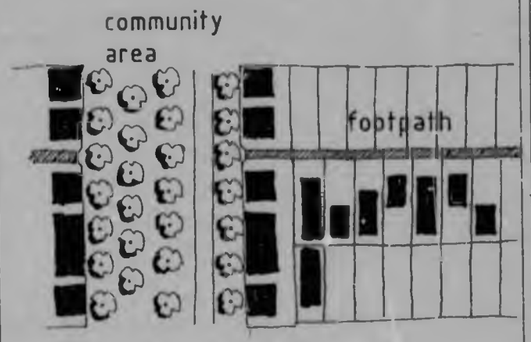
space is coincidental and unshaped



space is shaped and has scale

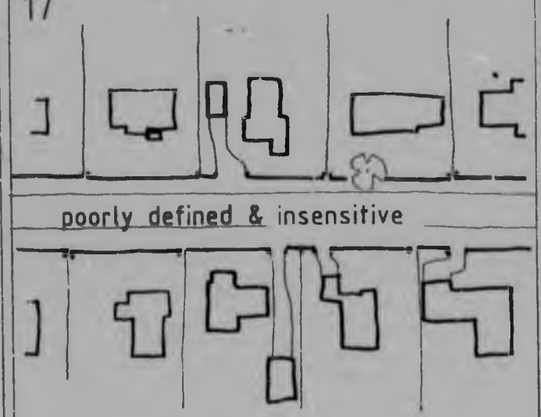
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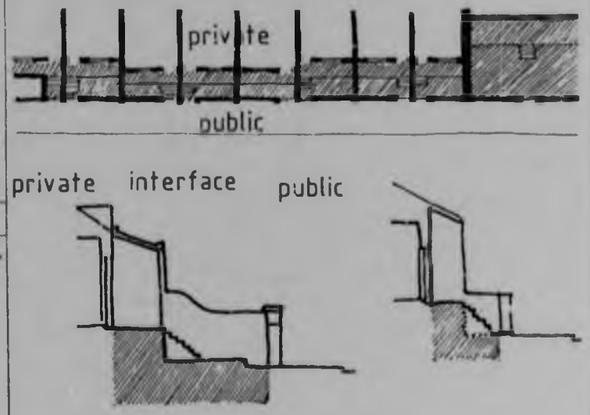


encourage alternative forms of movement e.g. walking & cycling

17



poorly defined & insensitive

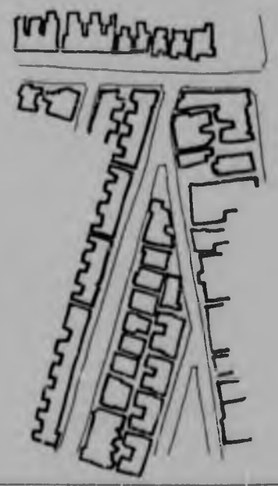


clearly define and treat the interface between public & private spaces

15



promote continuity of the urban fabric



18

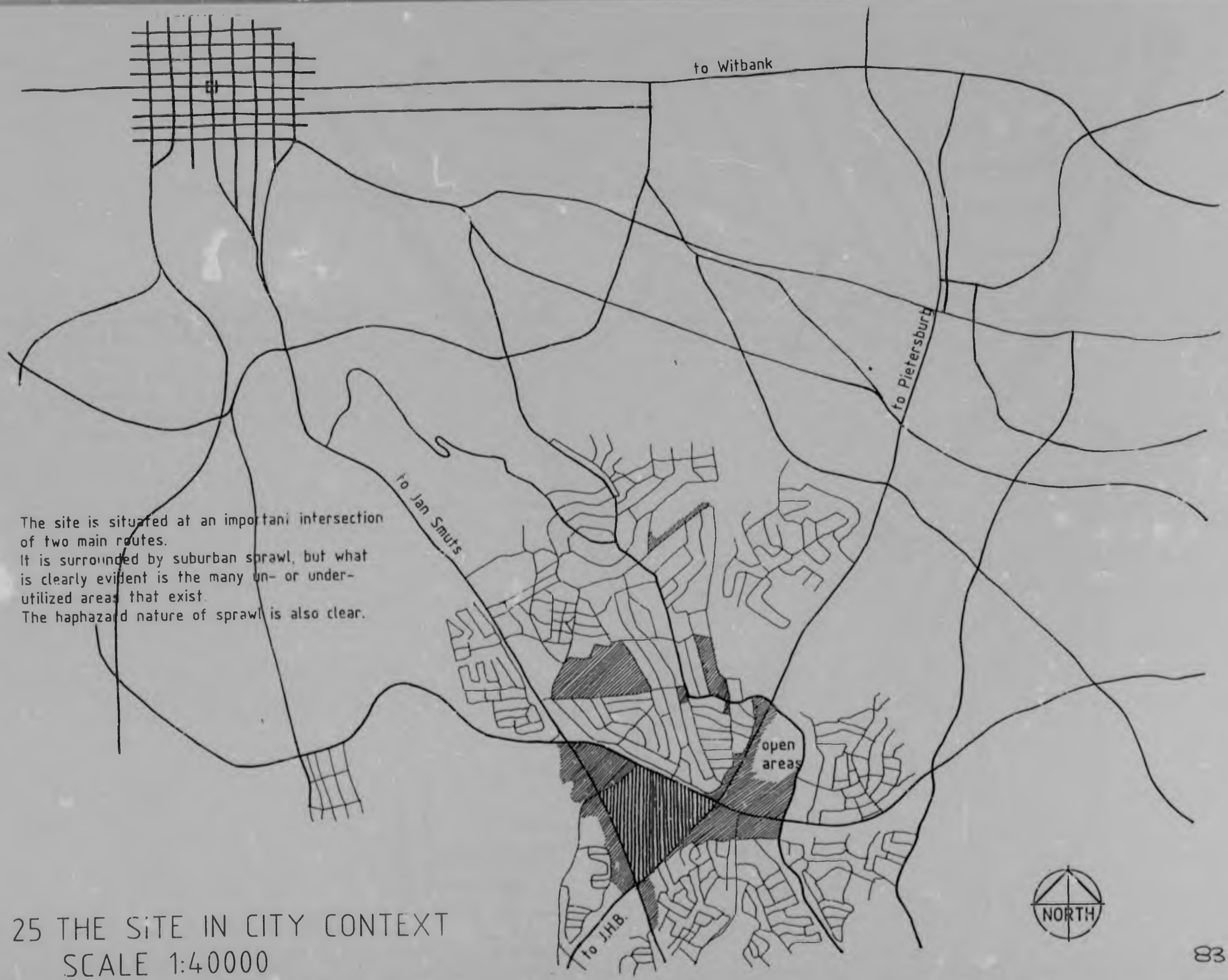
- standards- blue-print planning
- low density sprawl
- separation
- fragmentation
- scaled to & designed around the motor vehicle
- based on engineering efficiency
- costly
- poor public and social infrastructure

CHANGE FROM

- humanistic concerns
- environmental impact awareness
- compactness
- integration
- high quality public environments

PROMOTE THIS

FIG. 24 DESIGN PRINCIPLES 3. EXISTING vs PROPOSED



The site is situated at an important intersection of two main routes.
It is surrounded by suburban sprawl, but what is clearly evident is the many un- or under-utilized areas that exist.
The haphazard nature of sprawl is also clear.

FIG: 25 THE SITE IN CITY CONTEXT
SCALE 1:40000

The site is effectively cut off from the surrounding development due to the highways.
It does, however, have many inherent potentials and if properly developed will bind the area together to form a complete, more feasible unit.

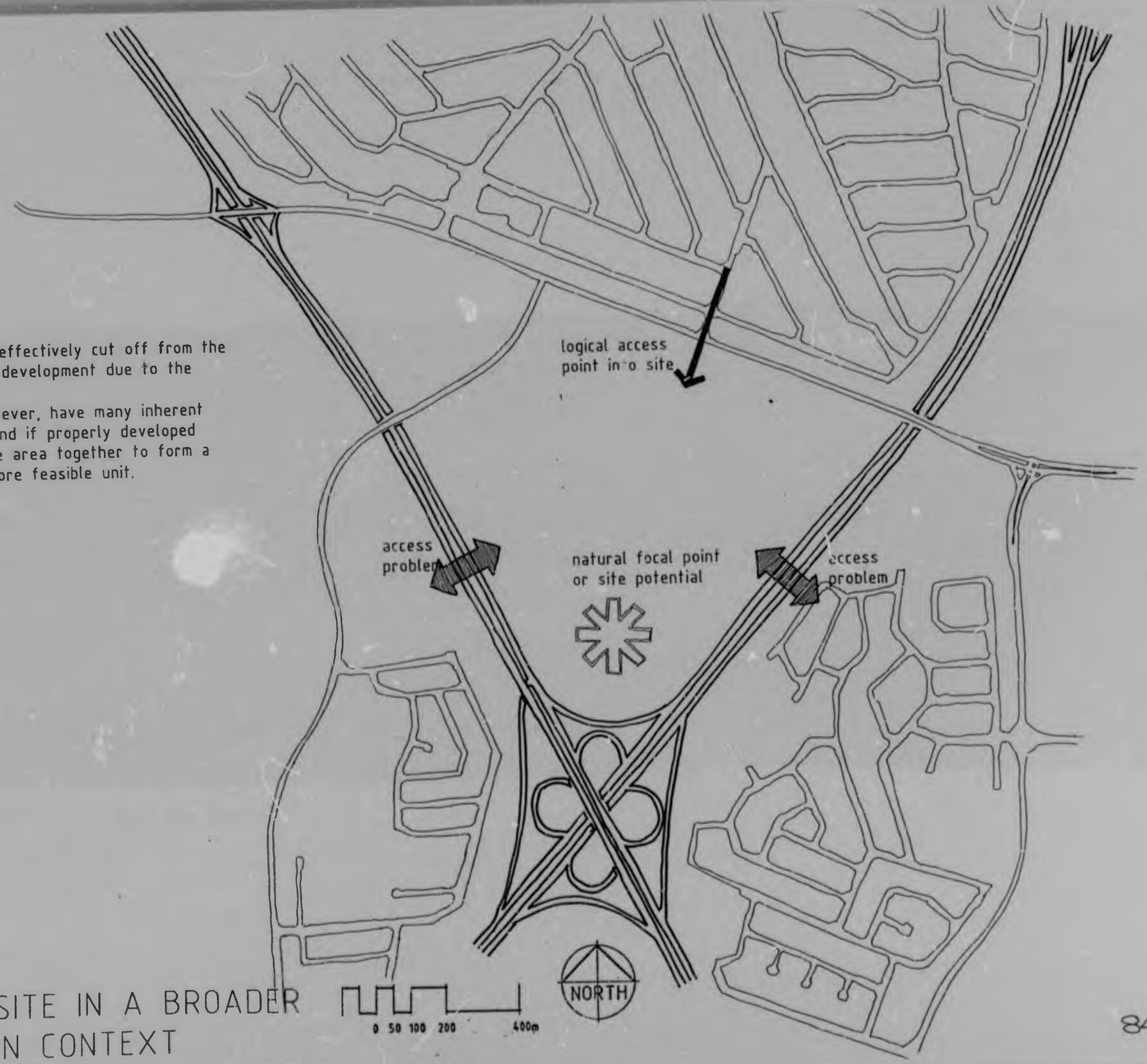


FIG. 26 THE SITE IN A BROADER URBAN CONTEXT



THE CASE STUDY SITE (looking east)



The small dam, 50 year flood line and sloping topography are positive qualities of the site.
The single biggest negative factor is the bordering highway.
This effectively isolates the site and causes a noise problem
The key to a successful design would, therefore be the manner in which the area is integrated into the surrounding suburban fabric.

FIG.27 SITE ANALYSIS

This plan illustrates the possible form of a suburb planned on the site.
The principles upon which such a design is based are; planning standards;land use zoning; a hierarchy of roads,engineering efficiency; uniform stand sizes;a neighbourhood shopping centre;and a predetermined population size and income group.

The result is basically more suburban sprawl and a dull uniform environment scaled entirely to the motor vehicle.
The site remains isolated and has no identity.

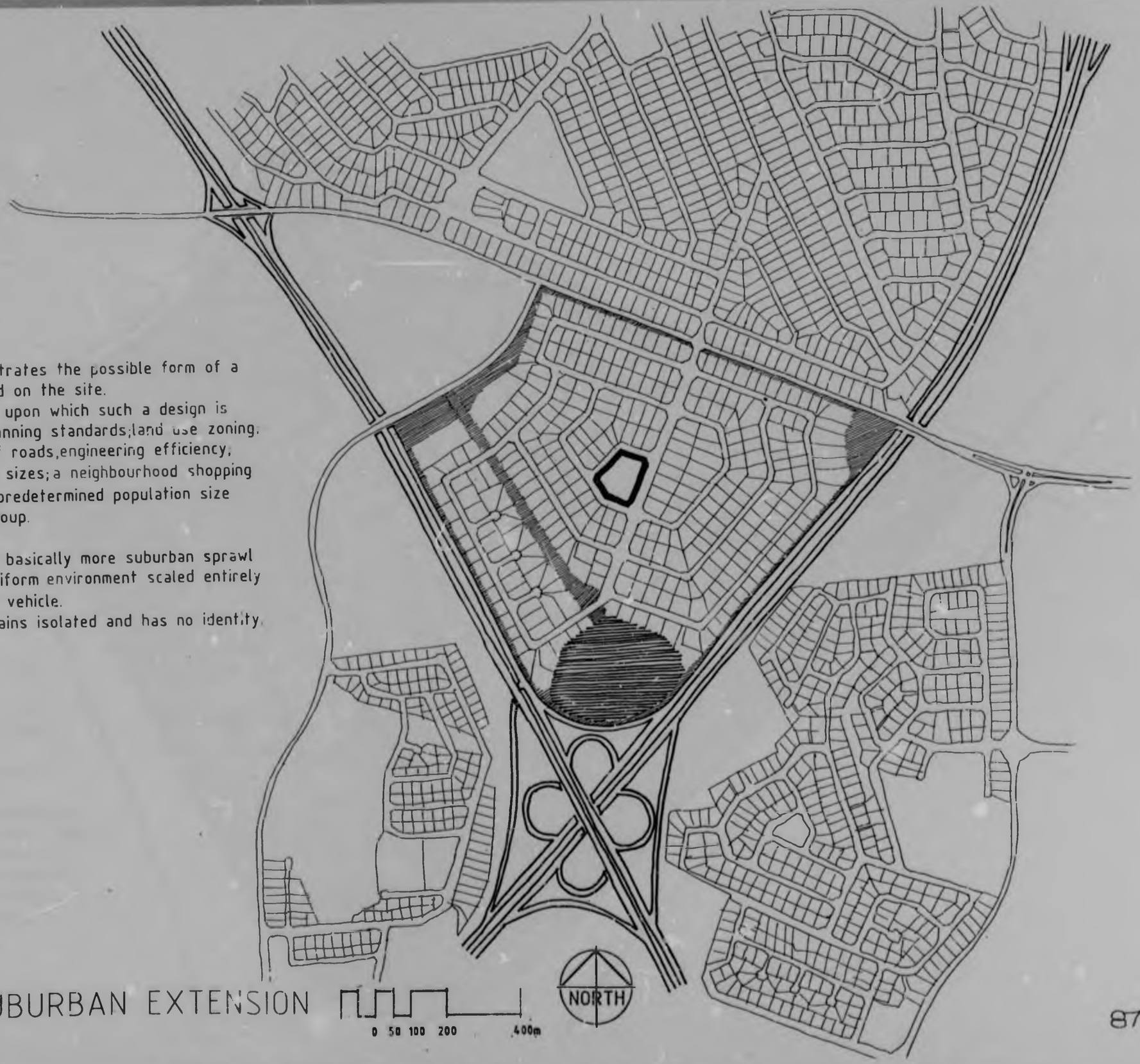


FIG. 28 A SUBURBAN EXTENSION



This sketch represents an ideal garden city suburb
It's based on a set of principles that include the following; extensive open space; A pedestrian network, safe quiet streets; a range of facilities including recreational; and a clear character and identity
It is however, extremely difficult to implement and is highly idealistic

FIG: 29 A UTOPIAN EXTENSION

The plan is organized around a system of squares that tie the main routes together. Furthermore, the primary social activities (shopping, religious buildings, community halls etc...) are organized around these spaces integrating them into the community. The main street will function as an activity channel and ends at another pedestrian space.
A grid system of roads is used.

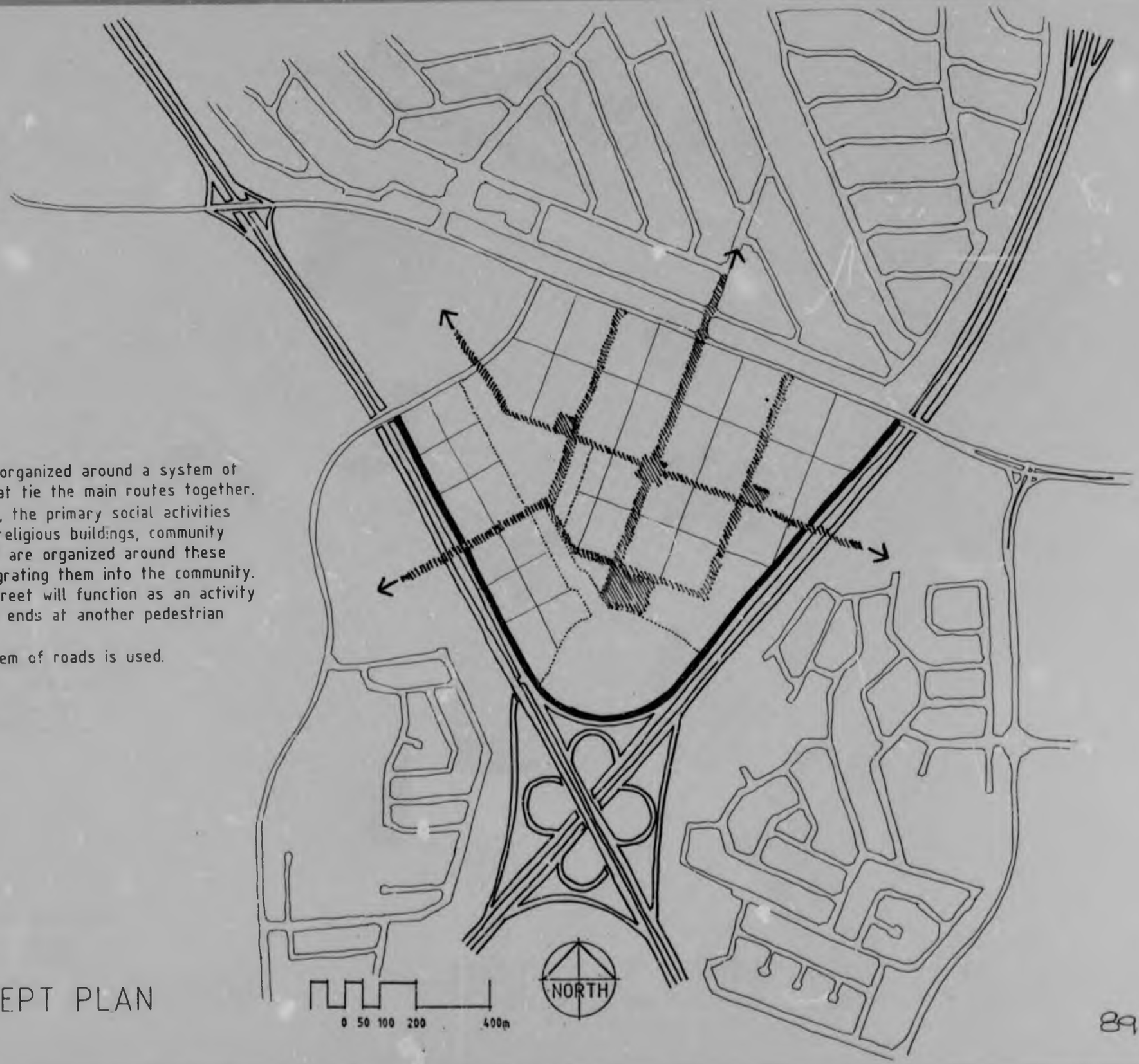


FIG: 30 CONCEPT PLAN



This plan is a further extension of the concept where activities are integrated into the community. However, there is no focus point and the character is still suburban.

public squares and open spaces

important social ,community and retail buildings/ sites

FIG. 31 TOWARDS A SOLUTION

This plan represents the main ideas or principles upon which the design was based.
Clarity of structure and integration of activities into the fabric is ensured.

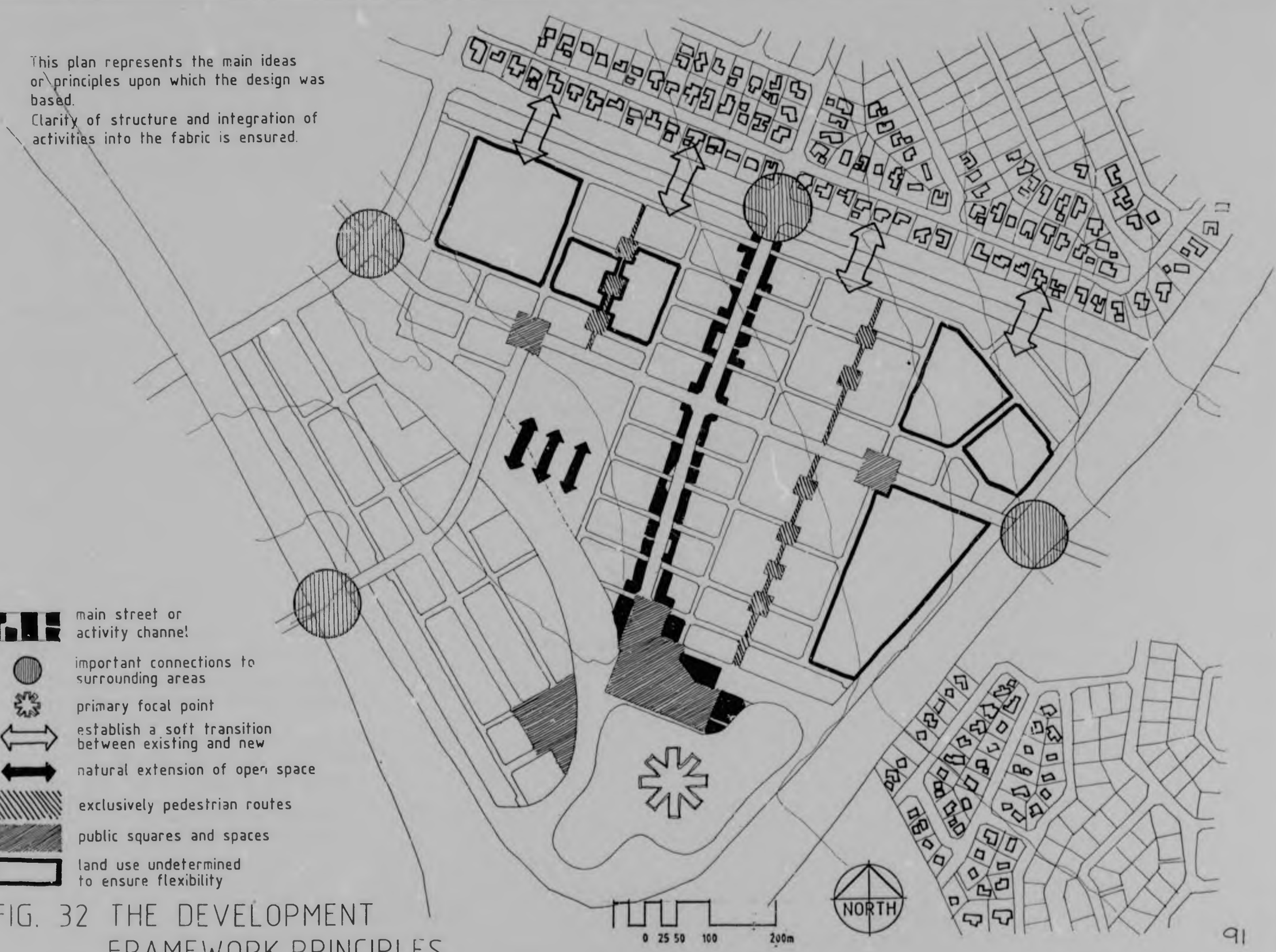
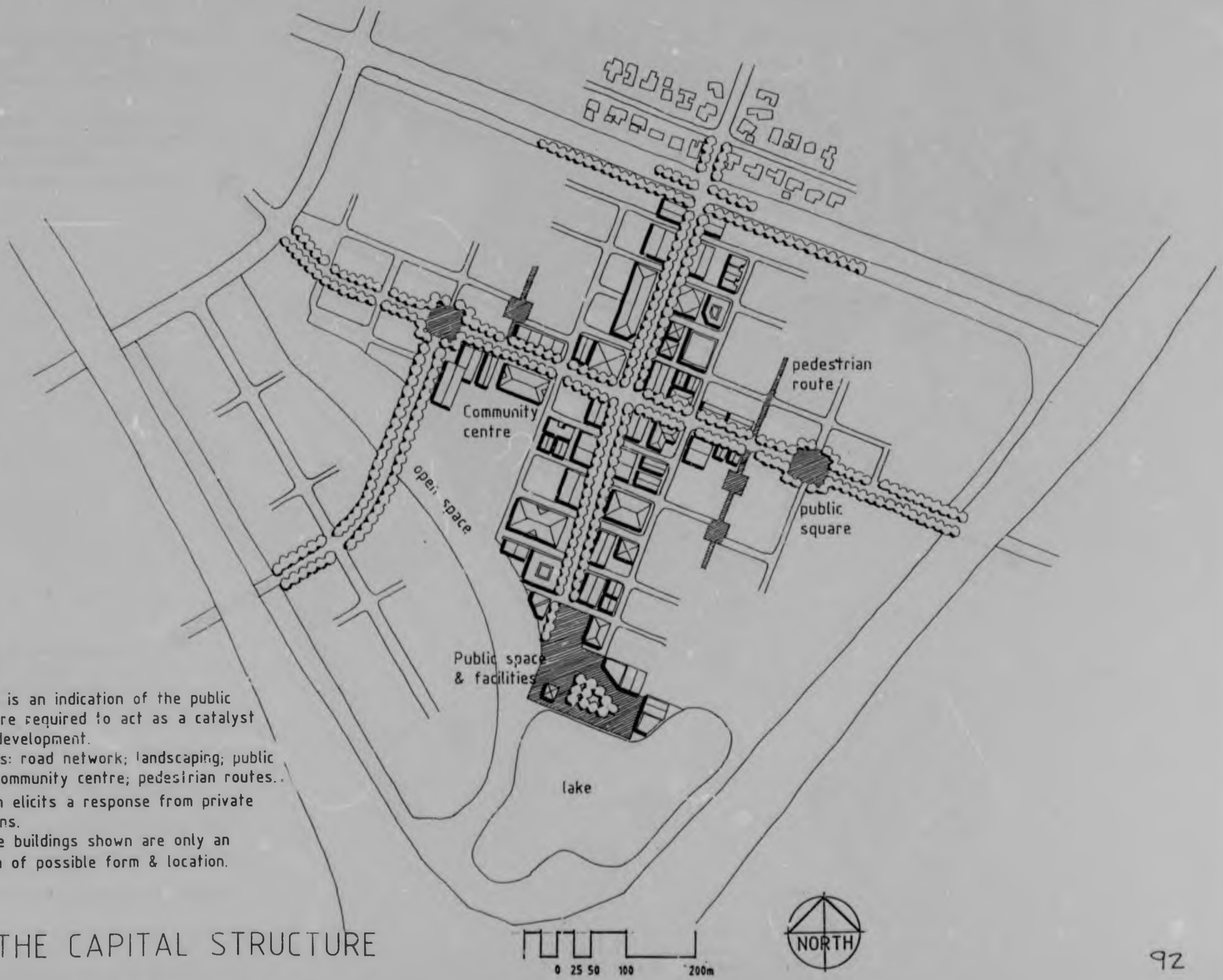


FIG. 32 THE DEVELOPMENT FRAMEWORK PRINCIPLES



This plan is an indication of the public expenditure required to act as a catalyst for the development.
It includes: road network; landscaping; public spaces; community centre; pedestrian routes..
This then elicits a response from private institutions.
Note: The buildings shown are only an indication of possible form & location.

FIG. 33 THE CAPITAL STRUCTURE

The activities give structure to the suburb with the main street functioning as an activity channel.

Focal points are emphasized and the intensity of use decreases towards the edges.

A mix of uses is encouraged.

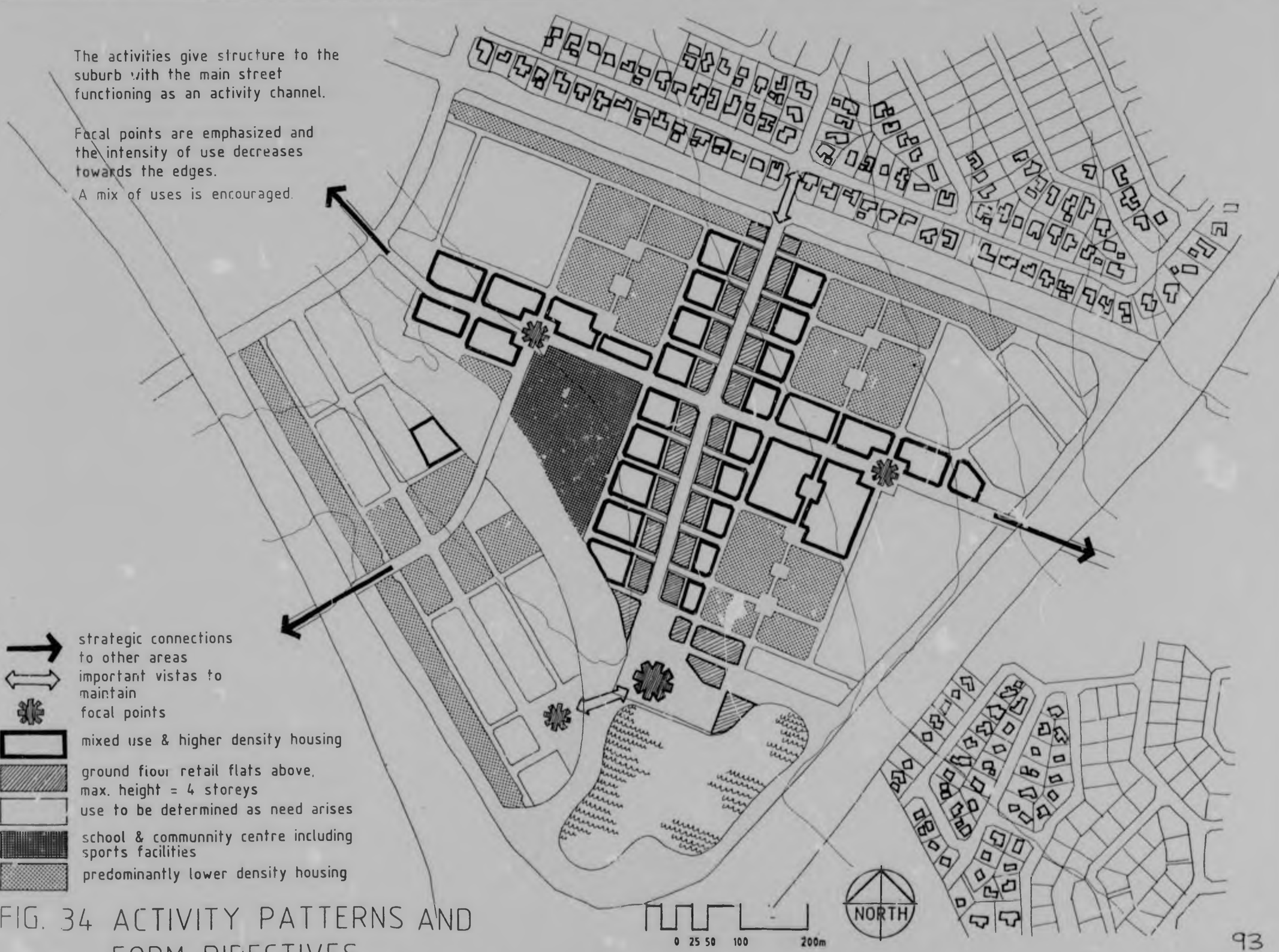
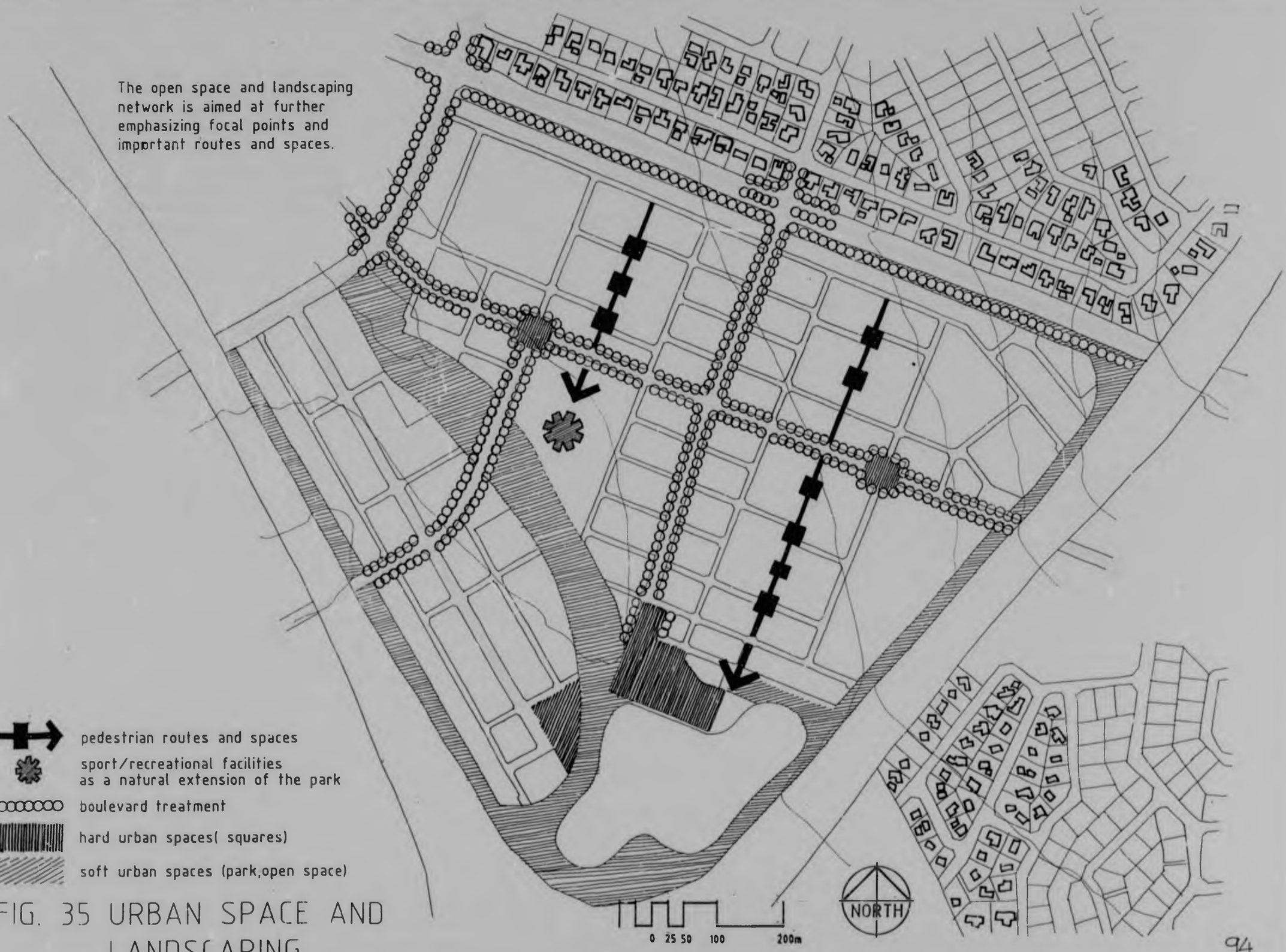


FIG. 34 ACTIVITY PATTERNS AND FORM DIRECTIVES

The open space and landscaping network is aimed at further emphasizing focal points and important routes and spaces.



pedestrian routes and spaces

sport/recreational facilities as a natural extension of the park

boulevard treatment

hard urban spaces(squares)

soft urban spaces (park,open space)

FIG. 35 URBAN SPACE AND LANDSCAPING

The primary road network adds to the structural clarity.
Strong emphasis is placed on pedestrian movement and public transport.
As far as possible roads are multi-functional i.e. designed to accomodate pedestrians and vehicles.

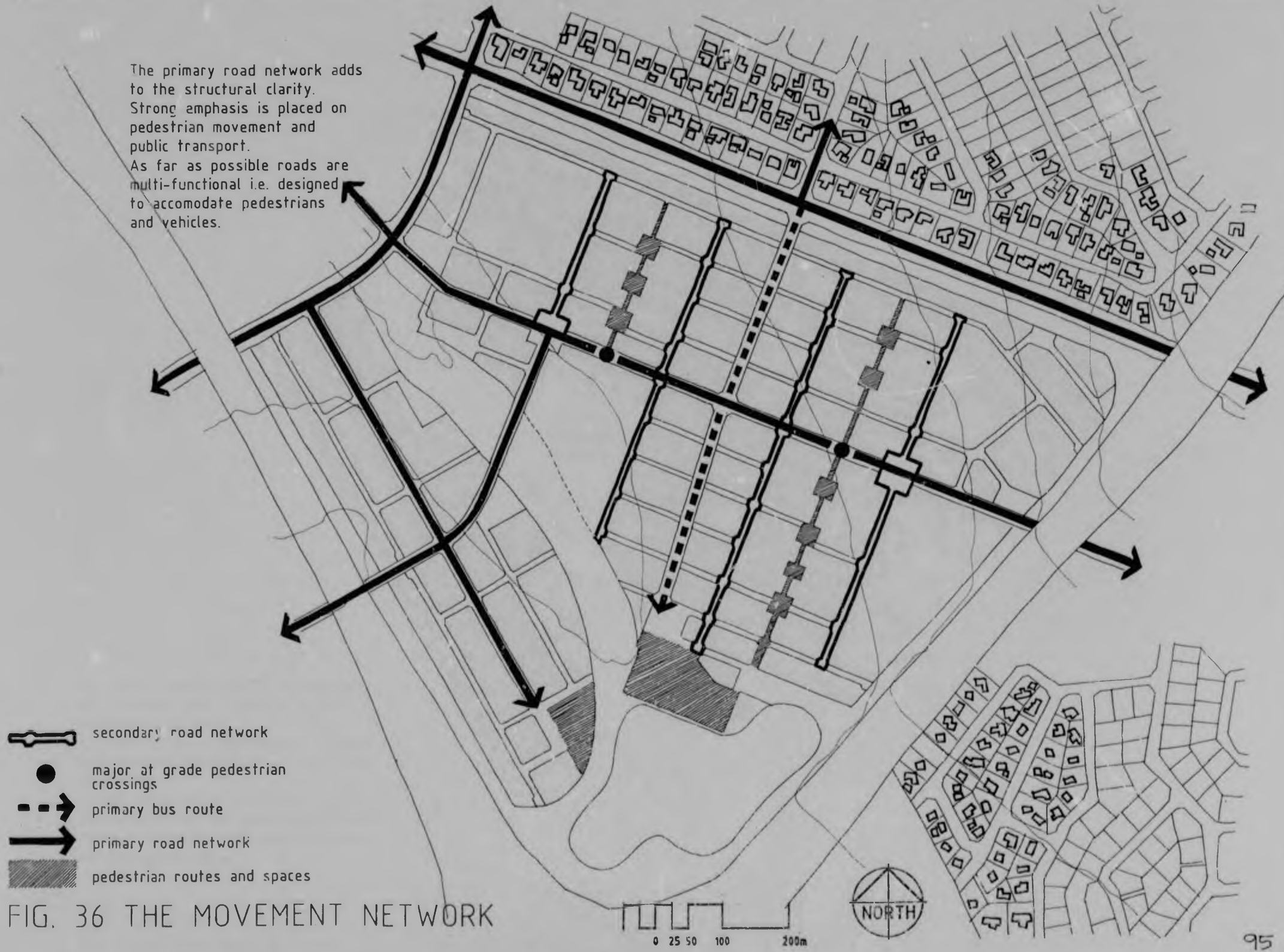
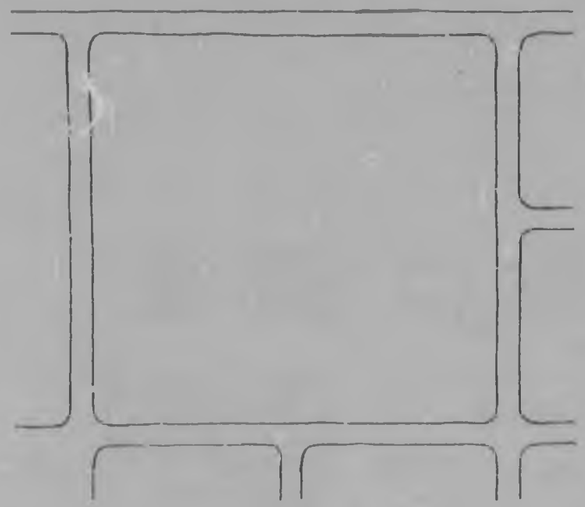


FIG. 36 THE MOVEMENT NETWORK

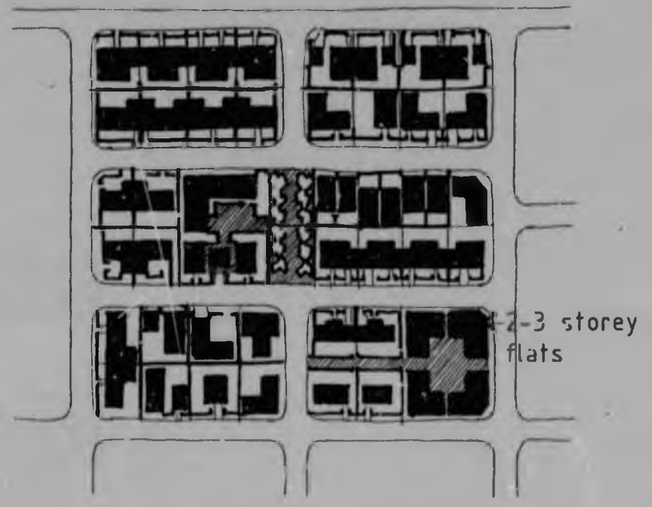


This figure ground plan is an indication of a possible form response to the framework laid down.
The wide range of development options and proposed density levels are clearly illustrated.
A wide range of housing types can be accomodated and the dense main street has ground floor retail with 2-3 levels of apartments above.

FIG. 37 INDICATIVE FORM RESPONSE



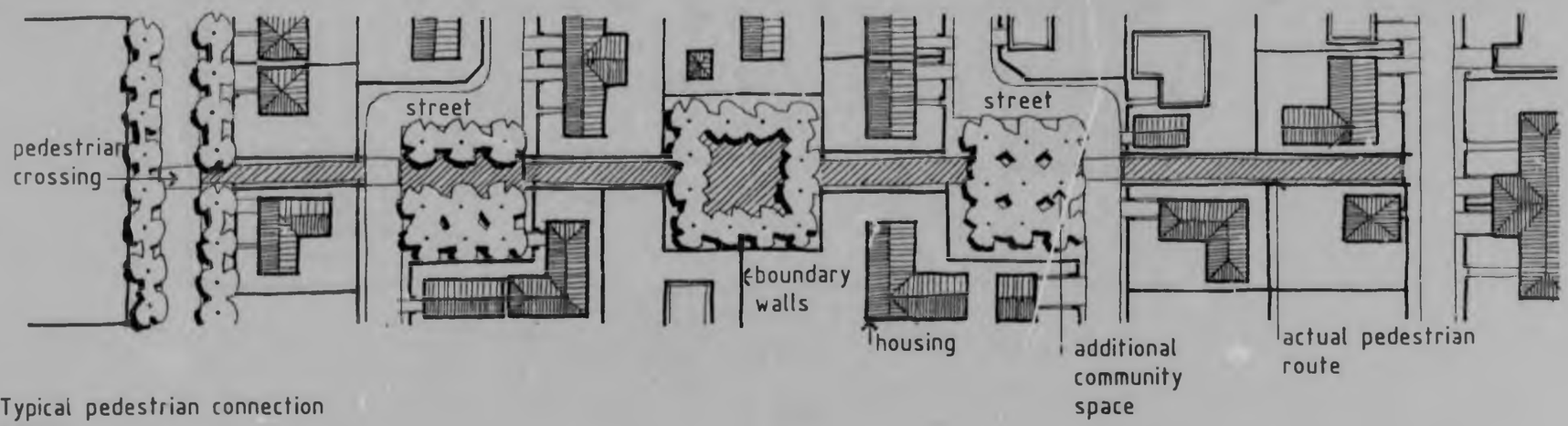
No.1 This site measuring 3,06ha could be developed as .....
Scale 1:2500



A high density residential area or .....



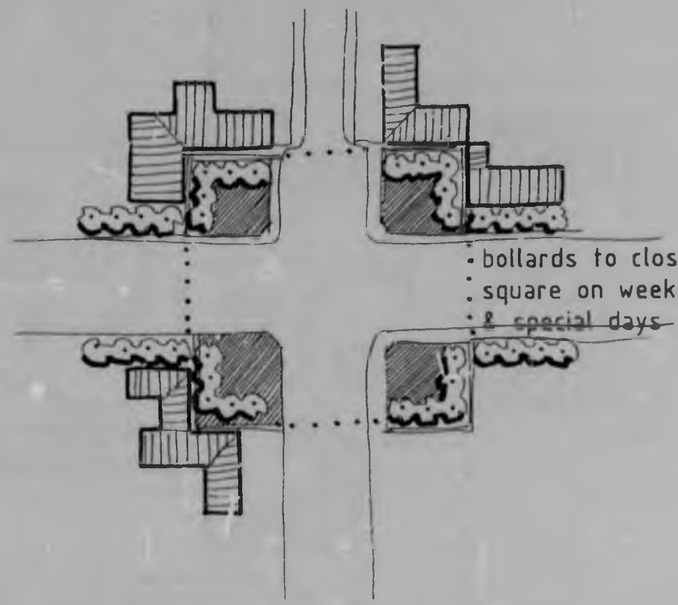
As a site for lower-income housing wi h only basic services and infra-structure.



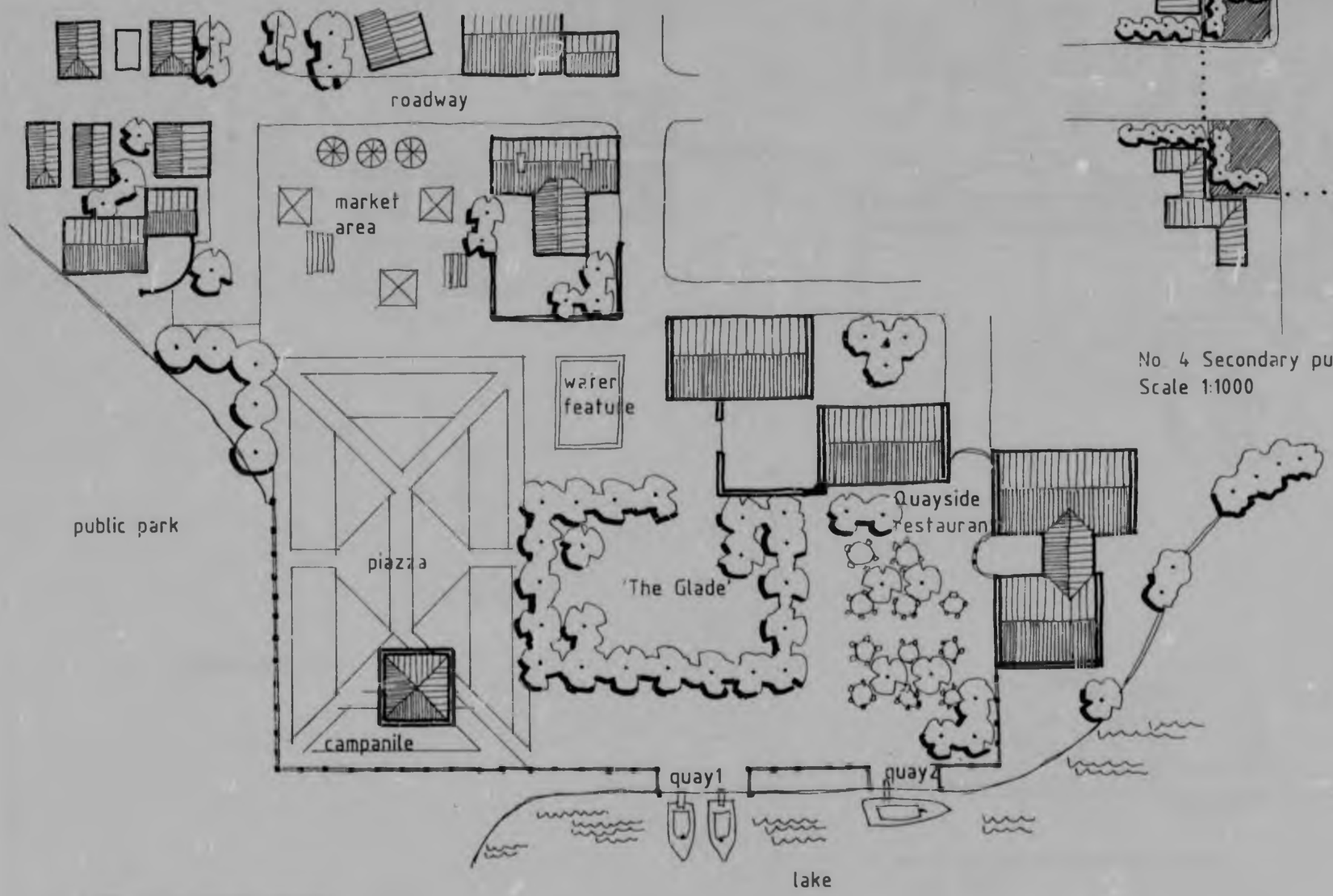
No. 2 Typical pedestrian connection
Scale 1:1000

FIG. 38 ILLUSTRATIVE DETAILS(1)

These details, including the sheets to follow, are indicat'ns of possible development form. The drawings show the 'desirable option' and illustrate how connections and spaces shown at the larger scale could actually function.

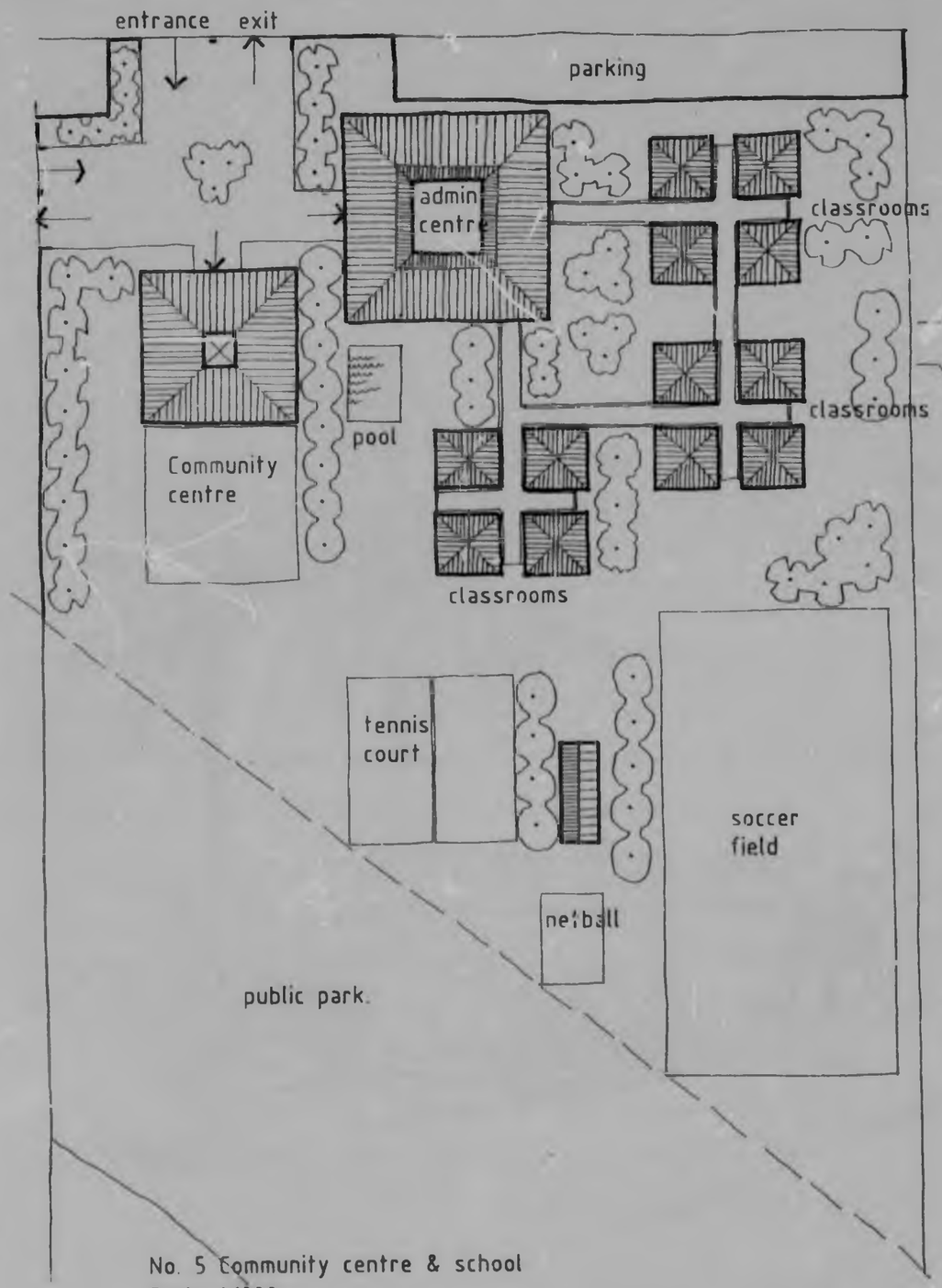


No 4 Secondary public square
Scale 1:1000

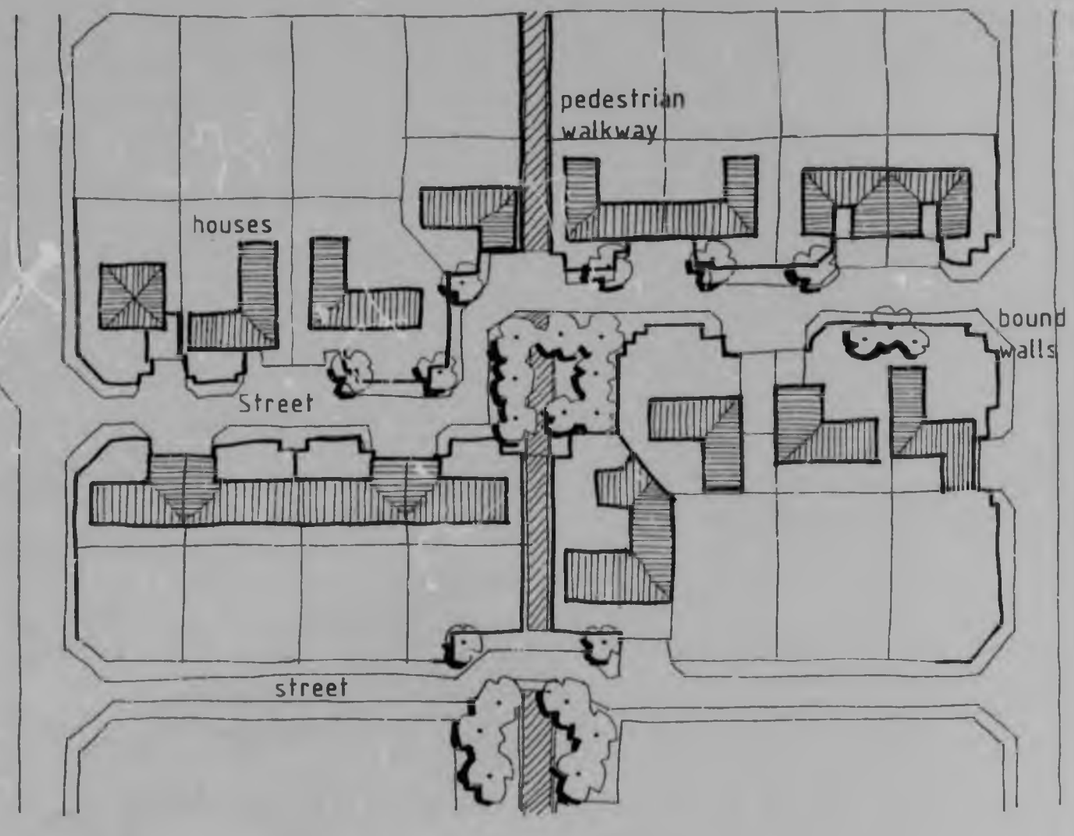


No 3 The main public square
Scale 1:1000

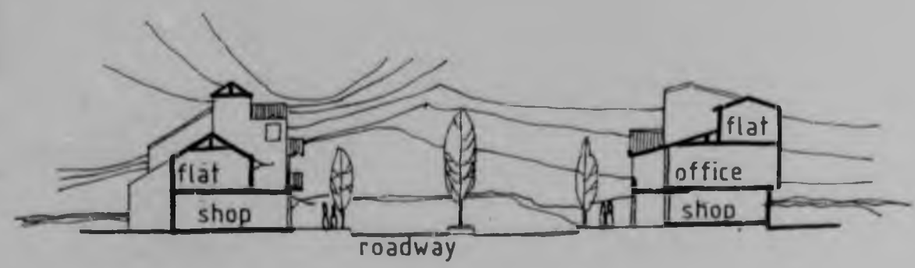
FIG. 39 ILLUSTRATIVE DETAILS(2)



No. 5 Community centre & school
Scale 1:1000



No. 6 Typical housing block
Scale 1:1000



No. 7 Section through main street
Scale 1:500

FIG. 40 ILLUSTRATIVE DETAILS(3)



FIG. 41 PERSPECTIVE LOOKING NORTH-EAST
AT MAIN SQUARE

CHAPTER 9

CONCLUSIONS AND RECOMMENDATIONS

Urbanisation in South Africa is currently occuring at unprecedented rates. Figures presented at a recent cultural resources conference in Pretoria indicate that over 300 000 people / annum are moving into the three main metropolitan regions. Clearly this type of influx cannot be left unchecked as the existing infrastructure will not be able to cope.

According to David Dewar (1992, p16) South African cities are entering an era of rebuilding. Furthermore, the country is standing at the political, social and economic crossroads and the time is therefore ripe to embark on policies and actions capable of solving the problems of downtown urban decay; the severe depletion of natural resources; increasing pollution; uncontrolled growth and sprawl and poor living conditions to name but a few. Unfortunately developments of this nature are not economically viable and as a result local and regional authorities have to be responsible for basic infrastructure and public facilities.

The foregoing chapters have illustrated the close relationship existing between ' good city form' and suburban layout. The two are totally interlinked and interdependent. This chapter will expand on this relationship by highlighting problems existing in the South African urban form. Thereafter various recommendations will be made as to how the situation may be reversed. Through this it is hoped that decision-makers, locally and internationally (Africa in particular), can learn from, and apply the principles mentioned.

9.1 FORM PROBLEMS AND PATTERNS

This section summarizes many points already made thus far. Only those aspects which have a direct bearing on suburban layout and form will be mentioned. The following characteristics are clearly evident:

a. Low-density sprawl: the outward expansion of suburbs has gone unchecked for almost 40 years.

b. Racial segregation: due to past apartheid policies suburbs are separated according to ethnic groups.

c. Land use separation: sites are zoned for a particular use and consequently areas become mono-functional.

d. Automobile domination: all areas are entirely dependent on access by car. Alternative forms of movement are not available and the public transport system is not viable or efficient due to the large distances involved and low density.

e. Inconvenience and poor economic performance: travelling to and from work is

expensive and the low densities are unable to support a growing local economy.

f. No access to nature: residents only have small local parks and sprawl is causing enviornmental destruction and widescale pollution.

g. Fragmentation: i.e. large areas of land are left open and unutilized and development takes place in a random manner.

h. Over - and two-dimensional application of planning standards, controls and layouts.

i. Poor public environment: public spaces need to be the backbone or skeleton around which the city is structured. In South Africa, however, investment in this area is neglected.

j. A lack of growth control resulting in costs to land resources, services and poor management.

k. Negligence of low-income areas: poverty and unemployment are increasing and with urbanisation, tremendous pressures are placed on current housing stocks and the provision of basic infrastructure.

These conditions are not unique to South Africa. Urbanisation is, however, the greatest urban problem, and seen in the light of possible economic collapse (in the event of a communist dominated 'democratic' take-over) cities need to function in ways whereby people respond positively to their environment i.e. higher density = economic trickle down.

9.2 SPECIFIC RECOMMENDATIONS

The solution to suburbia does not lie in the application of a set of ideas or guidelines. What is required, in conjunction with these, is a change in attitude toward urban life. Furthermore, decision makers, policy makers, urban planners and the community need to recognize the potential disasters if the present system were to continue unabated.

People need to be educated as to the advantages of the ideas presented here. The anti-city ethic therefore has to be broken. Specific actions and principles have already been mentioned in Chapter 7 : The Conceptual Framework and together with the following overriding ideas form the basis of a methodology to redesign suburbia.

According to Dewar (1992, pp 17 - 18) three objectives, in particular, should guide future urban management and design:

a. The need to compact the cities:

This is done to curb suburban sprawl and basically implies imploding growth onto un- or under-utilized land within the existing fabric. The advantages are significant: an increase in economic activity; an increase in variety and form of commercial and social services; an efficient public transport system; less environmental destruction.

b. Restructure and Integrate the city:

Increased densities would require the integration of the following: land uses with each other (control vs freedom); land uses with the public transport system; work opportunities with housing areas. Through this access from one end of the city to the other is ensured and people can begin to identify with 'their city' instead of 'their suburb'.

c. Create qualitatively fine public spatial environments.

As Dewar states:

"The public spaces are the places through which people experience the city and engage, both formally and informally in its collective life".

As the case study proved public spaces should also structure suburban areas giving them a real 'sense of space'. These spaces are, naturally, of greater importance in lower income areas where the standard of housing is often very poor. The public environment should, furthermore, be accessible to all and encourage people to meet and socialize. Public spaces, in the twentieth century, do not have a prominent place. As Dewar and Uytenbogaardt (1991, p56) state:

"... the individual house surrounded by large amounts of private space is now set as the basic building block of urban systems. Housing has become the leading form determining element. Community institutions are now imbedded in housing areas, as opposed to housing infilling between, and responding to, those institutions."

Public spaces therefore play important structural, social and community roles as in many cases activities naturally gravitate around these areas. They also have various economic functions, and their importance can never be overemphasized. Again, as Dewar and Uytenbogaardt (1991, p 56) state:

"When the public spaces are rich social spaces, the entire environment is positive, regardless of the quality of individual buildings."

Apart from the previous three objectives, and in conjunction with the principles mentioned in the Conceptual Framework the following actions are fundamental to restructure suburbia (Dewar and Uytenbogaardt, 1991).

a. Implement new processes of township establishment. Done through a more complex form of land release, where land parcels are under the control of smaller agents. Through this monotomy and dullness is negated as the people construct their houses and environment according to their own needs, and abilities.

b. Plan and promote the integration and continuity of suburban areas through:

- a network of interlocking linear activity systems (economic and social)
- a grid of continuous public transportation channels.
- a rhythmical system of urban public spaces with public facilities.
- densify un- and under-utilized land in existing suburbs.
- encourase the use of attached housing and two to three storey walk-up housing forms.

9.3 FINAL REMARKS

This study has proved that redesigning suburbia cannot be separated from intervention and redesign at the city scale as well. The two go hand in hand. In these times, however, educating the people as to the advantages of the approach described is fundamental. The terms 'densification' and 'compaction' evoke heated opposition from groups such as ratepayers' associations and civic organizations. Policy makers too, need to be persuaded.

In many circles it has become fashionable to hate cities. However, the reality of possible ecological disaster; endless sprawl and the need to accommodate thousands of new 'urbanites' in a livable environment has to be faced head on.

In a sense it is suburbanisation and not urbanisation that should be under attack. The middle and upper class dream is still a graceful retreat to the country (suburb), where an established house awaits with its manicured lawns, gleaming car and welcoming pets. The dream has been realized - vast tracts of little brick-and-tile castles in an ever widening ring around the city.

As one author has stated:

"If you have yet to reach the stage of life where gardening, the video and superstore shopping are true sources of contentment, suburbia is numbing experience."

The Case study, along with the theory base prove conclusively that South African cities need not be characterized by sprawl fragmentation and separation. The policies and projects described are aimed at the following areas (Dewar, 1992, p18).

a. Resource-conservation: Protection of valuable precincts
b. Resource-mobilization: Increase the potential of under-utilized areas
c. Threshold-boosting: Increase densities and therefore levels of service and convenience
d. Structural implosion: Increase unit densities at various strategic points
e. Social implosion: Identifying under-utilized land within communities
f. Surgical implosion: Inserting higher density units to give scale and enclosure to ill-formed public spaces.

As Dewar and Uytenbogaardt state (1991, p88):

"... this (the approach) means moving away from a housing estate mentality to one which consciously promotes qualities of city".

The proposals mentioned are capable of transforming our suburban and urban areas alike. The costs, however, must be borne by ourselves. Redesigning suburbia is, therefore, not an easy process - but it is one which promises benefit and opportunity for all sections of our changing society.

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