A STUDY OF ZONING AND DEVELOPMENT CONTROLS :

WITH APPLICATION TO FLAT DEVELOPMENT IN BEREA NORTH, DURBAN.

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' Planning is not simply a matter of allocating land for various kinds of development. It is also concerned with the form of development and redevelopment, and with the quality of the physical environment that is produced. In the end what matters is not simply where development takes place: its form is equally important and the planning will be judged by the quality of the results it produces.'

- Report of the Planning Advisory Group
H.M.S.O. 1965.

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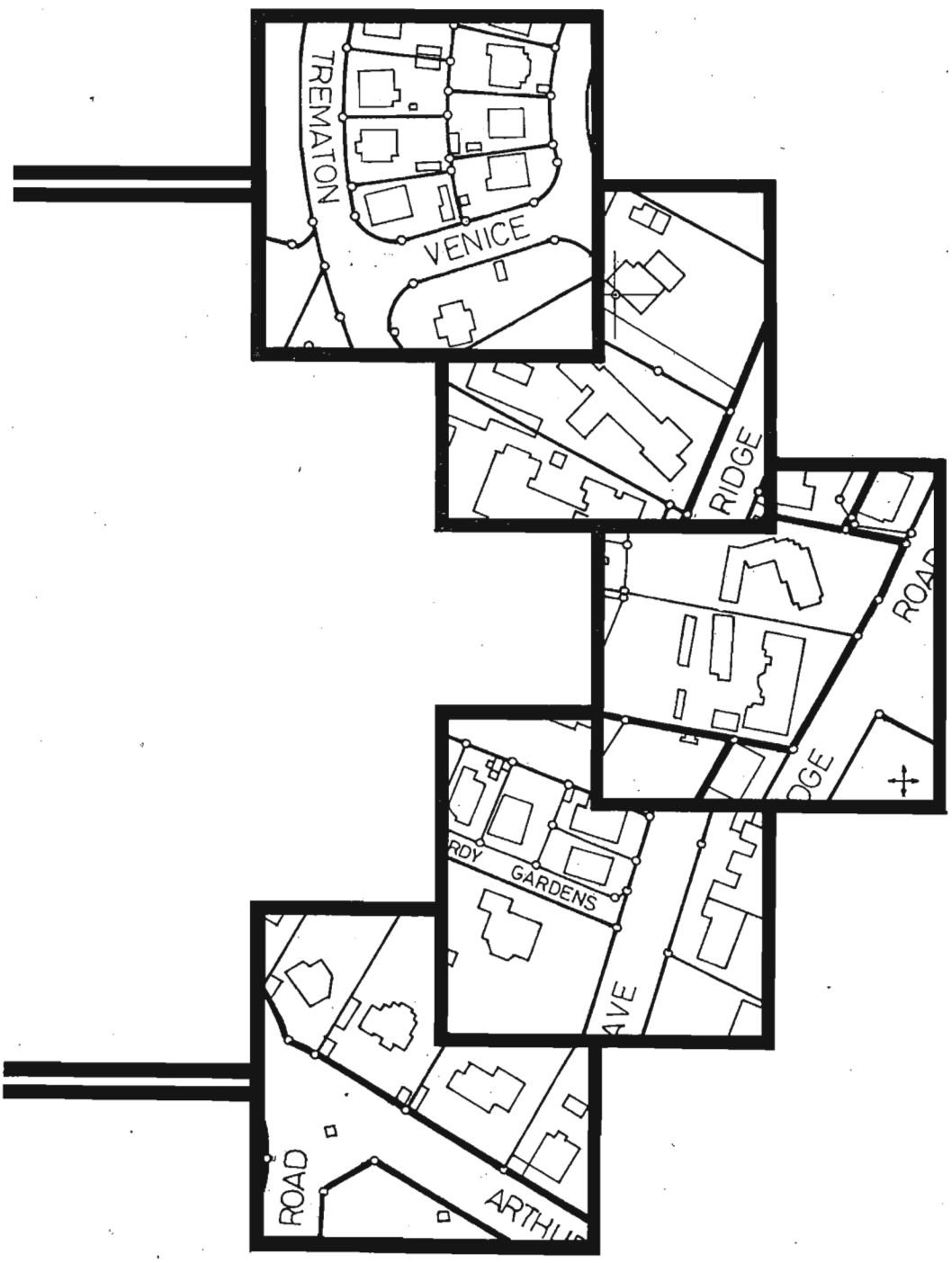

J. L. HARRIS

ABSTRACT :

This dissertation deals, firstly, with the nature of zoning and development controls, and their relationship to the planning process. From this broad overview the emphasis changes to deal more specifically with how these regulations affect flat development; and to look at the Durban Town Planning Scheme area of Berea North in particular.

The zoning and dimensional regulations are examined in detail, along with the flat development that has taken place in Berea North as a result of the implementation of these regulations.

An evaluation of the Berea North regulations follows, which covers four aspects, namely, evaluation of the planning process, the goals, the regulations, and the resultant development. This leads into an examination of some alternative systems of Development Control, with the suggestion that these be considered for implementation in Durban.

The conclusions arrived at in this study are that zoning and development controls are essential elements of planning; that they are both part of the Development Control system; that there is strong justification for controlling flat development; that the methods for controlling flat development in Berea North are neither efficient nor sufficient; and that there are alternative and more successful ways of controlling flat development.

PREFACE :

A great deal has been written about zoning and development controls in the United States and in Britain. Individuals, groups, and departments are continually searching for better and more effective ways to guide and shape the built environment.

Very little research appears to have been done concerning Development Control systems in South Africa, and in Durban in particular. This study therefore sets out to investigate the nature of zoning and development controls, and to examine these in relation to flat development in the Town Planning Scheme area of Berea North, Durban, South Africa. The regulations are evaluated with respect to the goals and objectives behind them, and in terms of the flat development resulting from them.

The study emphasizes the need for a rational and systematic planning process from which to derive goals and objectives, and through which they can be achieved, and suggests several alternative Development Control systems to be considered for implementation in Durban, and in other parts of the country.

I would like to express my sincere appreciation to all those who have assisted in the production of this dissertation, but especially to Mr. Mike Kahn of the Natal University Town Planning Department, for his guidance; Mr. Ron Stewart, and others, of the City Engineer's Department, Durban,

for their help in getting all the information together; and Mrs. Phyllis Gould, who did all the typing.

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CHAPTER 1. INTRODUCTION.

1.1. Introduction :

With urbanization increasing on a world scale more and more people are becoming concentrated in cities, and these in turn are thrusting higher and higher into the sky and farther and farther out into the surrounding countryside. Society has long believed such development cannot take place uncontrolled; it must be shaped, moulded, guided .... PLANNED. This required an organization with the necessary authority and the legal backing to make and enforce regulations which would control development. Planning departments were thus created : their task being to plan and control the built environment and to actively promote and encourage a higher quality of development. This is no easy task, and there is a constant searching for better and more effective ways to achieve these ends. There is no one approach to Development Control - it varies from place to place and is continually evolving and changing .

Zoning and development controls are used together to shape and regulate the urban built environment and they are, therefore, part of that broader activity known as Development Control. Local planning authorities use zoning to achieve the implementation of their plans . The zoning regulations designate the uses to which land may be put and a number of zones are distinguished, each representing

a category or class of land use, or a combination of two or more such uses. The accompanying map gives the geographical location of each particular zone.

The part played by development controls is to regulate the form and placement of developments on the individual sites within each of the demarcated zones. The aspects dealt with by these dimensional regulations include height, coverage, spaces about buildings etc.

In order to understand the interplay between zoning and development controls, it is necessary to examine the way they have been used in different countries. In the United States of America, where the societal philosophy is one of minimum interference, zoning is the primary form of environmental regulation. The zoning regulations include those aspects which would normally be covered by the development controls. The system operating in the United Kingdom is oriented more around the dimensional regulations, which are aimed at a more direct control of individual building developments. This control is not, however, as rigid or as strict as that which is characteristic of Socialist countries. In Canada and South Africa the Development Control system utilizes both zoning and dimensional regulations; these have equal importance in moulding urban development.

Zoning and development controls may be regarded as complementary parts of the same system ; they work together to guide all development taking place within the urban structure.

1.2 . Scope and Content of the Study.

The purpose of this study is to examine, in detail, the nature of zoning and dimensional regulations, and then to take a look at the way such regulations have influenced flat development in a chosen locality. This cannot be undertaken without reference to the local planning system, which determines the process by which these regulations are developed, evaluated, changed, and implemented, and is, therefore, responsible for their ultimate success or failure.

Flat development was chosen for special consideration as this form of housing is becoming an increasingly dominant feature of cities all over the world. This type of development, especially if it is in the form of high-rise blocks of flats, has a large visual impact on any community and, therefore, requires sensitive handling. Multi-family dwellings are, naturally, more complex to plan and to design, and it is difficult to achieve a well thought out and well integrated scheme, particularly within economic limitations . This is made more difficult, if not impossible, by the imposition of inadequate and ill-conceived regulations .

A number of hypotheses have been made at the outset, and these have given rise to several objectives, which form the framework for this study . These are set out below :-

Hypotheses.	Objectives.
1. That zoning and development controls are essential elements of planning.	a) to investigate the role of zoning in planning. b) to examine the part development controls play in planning.
2. That zoning and development controls are inextricably linked together as part of the same system.	a) to set out the goals and objectives behind zoning. b) to set out the goals and objectives behind development controls. c) to compare a) and b)
3. That there is strong justification for controlling flat development.	a) To examine the reasons for controlling flat development.
4. That there are efficient and sufficient methods for controlling flat development in Berea North, Durban.	a) to spell out the existing use regulations for the area. b) to spell out the existing development controls, and to look at their evolution historically in Berea North. c) to evaluate whether the use regulations and development controls are adequate in controlling flat development in Berea North, with regard to their objectives.
5. That there are more successful ways of controlling flat development.	a) to examine a number of different Development Control systems.

The opening chapters of this dissertation deal generally with the nature of zoning and development controls, and their relationship to the planning process. From this broad overview the emphasis changes to deal more specifically with how these regulations effect flat development. Chapter 4 goes on to examine why flat development is the prime concern of this study, and why, in particular, the Berea North Town Planning Scheme Area of Durban, South Africa, was chosen for

special investigation.

Looking at Berea North more closely, the following chapter deals with the legal background and context of the Berea North regulations; how the zoning regulations are applied to Berea North; the dimensional regulations, and how they have changed and developed over time; and a consideration of the environment produced by the interaction of the zoning and dimensional regulations. Photographs are used to illustrate various aspects of flat development on the Berea.

The evaluation of the Berea North regulations covers four aspects, namely, evaluation of the planning process, the goals, the regulations themselves, and the resultant development. This leads into an examination of some alternative systems of Development Control, with the suggestion that these be considered for implementation in Durban. The study concludes with a discussion of some general issues about the Development Control system.

The final section of this dissertation is a summary statement, bringing together all the important points and conclusions about zoning and development controls, and their application to flat development in Berea North, Durban.

1.3. Development Control and the Planning Process.

It is recognized today that planning is a systematic and cyclical process, and one which is problem-oriented. (McLoughlin 1969). McLoughlin summarizes the planning

process as a series of steps or phases in a cycle, and these are set out below :

1. *The decision to adopt planning* and as to what methods of planning to adopt. (This step is right outside the main cycle of the control mechanism of planning.)
2. *Goal formulation and the identification of objectives* for physical planning by appropriate agencies of all kinds.
3. *Possible courses of action* are studied with the aid of models of the environment.
4. *Evaluation* of these courses of action in order to select an operational course.
5. *Action* to implement the plan, including both direct works and the continuous control of public and private proposals for change.
6. It is necessary to *review* the plan and its control mechanisms from time to time, in minor ways at shorter intervals and in major ways at larger intervals.

This may lead to a reformulation of goals and objectives and, therefore, a return to stage 2 in the cycle. There is also a return to stage 1 periodically .

In stage 2 of the process, the public planning body must identify the goals which it seeks. McLoughlin stresses the importance of formulating goals since much of the planning process depends directly upon them.

'Once goals and objectives have been determined,

> thousands of decisions and sub-decisions will follow from them until such time as they are reviewed and amended. Without a clear idea of goals and objectives, the choice of courses of action to be followed is indeterminate ... it is neither possible to discuss courses of action nor to evaluate them except in relation to goals and objectives.' (McLoughlin 1969)

The planner is trying to control the outcomes of a large number of actions which result in a continuous flow of change through time. It follows then that the control mechanism must be continuous . In other words, the "action" or "implementation" stage of the cycle is a permanent feature of planning. McLoughlin adds - ' The heart of the mechanism will therefore be development control .'

McLoughlin says review is necessary because 'we are dealing with a probabilistic system, one in which changes cannot be foreseen with certainty. Reviews must take account of both specific proposals which are different from those expected, of changes in the political, social, and economic context in which the plan operates and which generate new needs, desires and aspirations in the community and its members.' (McLoughlin 1969)

The main effect of this and other similar approaches to planning, has been to make public the thinking and reasoning behind the planner's decision and actions . The planner is forced to follow a logical and rational process to arrive at the solution . Three valuable results of

this new methodology are, firstly, it has obliged planners to look outside their immediate thoughts for relevant information; secondly, it has inhibited the tendency to adopt the first solution that comes to mind; and thirdly, it has greatly increased the number of alternatives which are considered, and which can be evaluated.

The development of a strategy plan for the city of Melbourne (City of Melbourne 1974) incorporated the following 5 stages :

Stage 1. The formulation of goals.
A goal is a long-range ideal to strive for; an aim or direction to take .
Goals tend to change only with significant changes in public attitudes and values.

Stage 2. The definition of specific objectives to achieve the goals.
An objective is more specific than a goal and may be regarded as a long-range sub-goal. It assists in achieving a goal .

Stage 3. The determination of policies aimed at realizing the objectives .
A policy is a specific guideline which assists in achieving an objective. Policies have an element of time attached to them, and they are subject to modification and adjustment in response to current influences.

Stage 4. The formulation of strategies to carry out the policies.
A strategy is a structured approach for executing a policy.

Stage 5. The description of action plans or tactics, to accomplish the strategies. These are particular, specific, and detailed manoeuvres which contribute in a large or small way to defined strategies.

There may be several objectives to achieve a goal; several policies to achieve an objective; a number of strategies to implement a policy; and a number of action plans to execute a strategy. Figure 1-1 expresses this diagrammatically. At each level of this hierarchical process a very wide range of possibilities exist, from which the best and most appropriate alternative, or combination of alternatives, is selected for implementation.

Development control is primarily concerned with the plan implementation stage of the planning process. As Keeble (1969) says, the implementation of a plan depends upon development carried out by many agencies, public and private, complying with its proposals, and the way this is secured is called development control.

The major aims of planning control in its early days in Britain, about 1909, were healthier living conditions

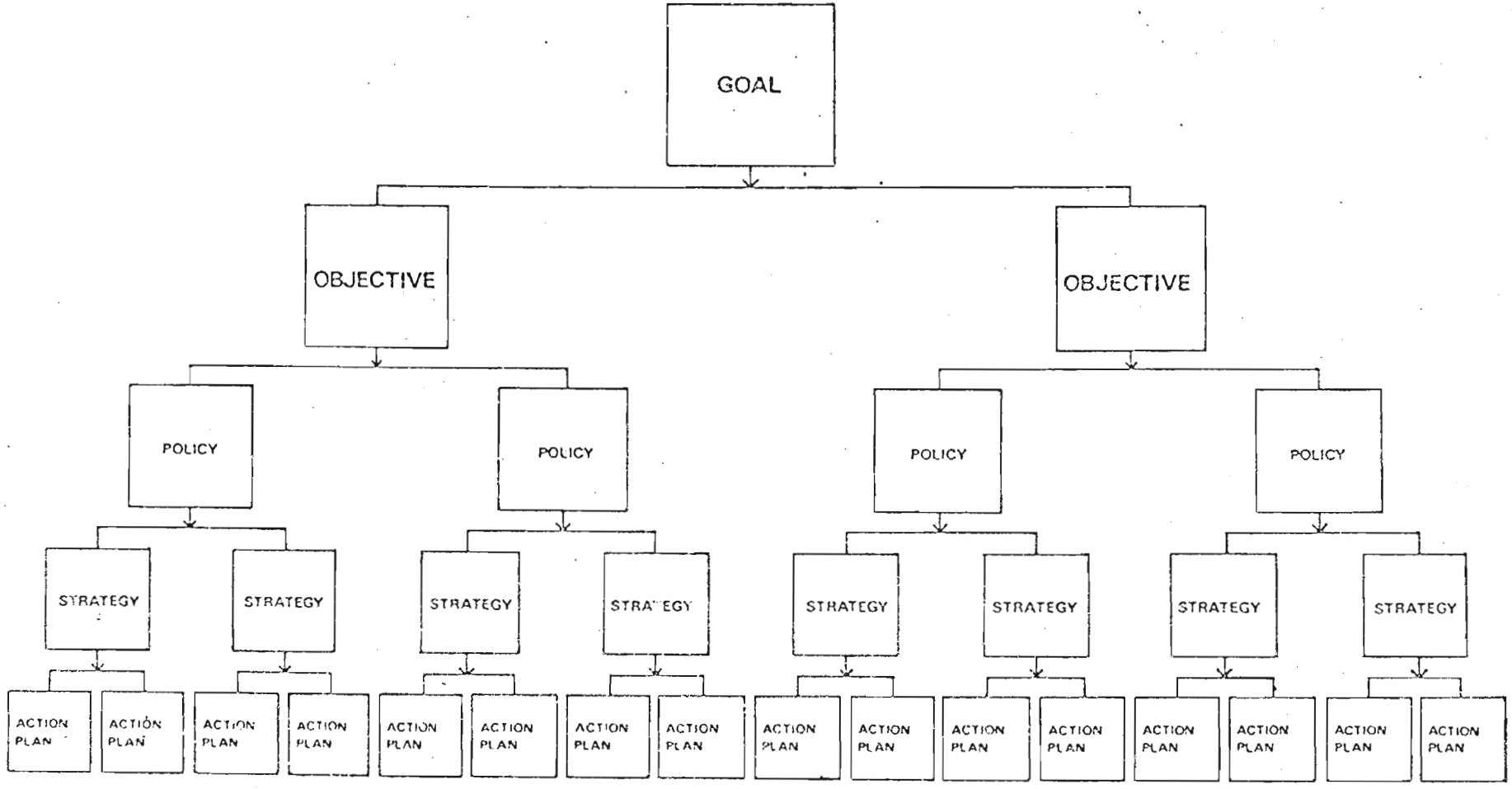


Figure 1-1. The Development of a strategy plan for the city of Melbourne.

and better urban amenities. Planning's original claim to legitimacy was intervention to 'right manifest evils and to root out the disorders of housing, health, crime, education and urban congestion.' (McLoughlin 1973) In a statement on what city planning should be and do, Bair (1970) says physical form and function are emphasized but it should not be forgotten that they are but one manifestation of social and economic processes. He also says planning should often concern itself, of necessity, with seeking improved governmental forms. Planning must control air and water pollution; conserve land resources; seek efficiency and economy in services provision; and promote the general welfare - as well as reducing traffic congestion; securing safety from fire and "other dangers;" adequate light and air; adequate transportation; water, sewerage, schools, parks; prevention of overcrowding; promotion of orderly development and the prevention of sprawl. This illustrates the range and character of objectives which are officially adopted in town planning.

The importance of development control is aptly summed up by Keeble (1969) - 'the success or non-success of nearly all Planning depends eventually mainly upon the skill with which development control is carried out.'

While the Planning departments of local authorities may differ widely in their administrative and management structures, all of them possess Development Control staff with posts permanently assigned to that function. These members of staff are responsible for controlling development

in that local authority. Their task is to consider the many hundreds and thousands of applications that come to them from individuals and organizations wanting permission to undertake some form of development. They must either approve such an application, approve it with conditions, or refuse it. This involves the Development Control staff in checking the application against the plan for the area and the zoning; against the proposals of other authorities and agencies, e.g., the Roads Department; and whether or not it conforms to the planning regulations; although it may involve far more - depending on the type of development and the local authority concerned.

CHAPTER 2 . ZONING.

'Like all valuable and finite resources, land should properly be the subject of intense public concern and its use the subject of close public scrutiny.' (Nicoson 1972)

2.1. Zoning and Planning.

Zoning is one of the most significant powers in the hands of governmental authorities; few public activities are as important, particularly in terms of their effect on the community, the metropolitan area, and the nation. (Linowes and Allensworth 1973.) Zoning is one means local governments use to regulate private land and building development within their local authority area. Williams has said that

> 'zoning is the most comprehensive and effective device available to carry out public control of land use ...' (Williams 1966)
>
> 'Zoning is essentially a means of insuring that the land uses of a community are properly situated in relation to one another, providing adequate space for each type of development. It allows the control of development density in each area so that property can be adequately serviced by such governmental

> facilities as the street, school, recreation, and utilities system, This directs new growth into appropriate areas and protects existing property ...' (Leary 1968)

Zoning is made law through the adoption of a zoning ordinance by the local government which then becomes the administering unit.

Zoning is one of many legal and administrative devices by which city plans may be implemented, and it is desirable that it be used in a co-ordinated manner with the other devices. Zoning has nothing to do with the materials and manner of construction of a building - these are covered by the building code, - and it does not normally control their appearance. Leary (1968) points out that 'there are however, some examples, particularly in relation to historic buildings and areas, where zoning has been and is being used effectively.' Aesthetic control is, however, becoming more widely accepted as a proper function of the zoning ordinance.

Zoning is also not involved in regulating the design of streets, the installation of utilities, the reservation or dedication of parks, street rights-of-way, school sites, and related matters. These are controlled by subdivision regulations and by the comprehensive plan for the area. The importance of co-ordinating zoning with these other devices is obvious.

Another point that needs to be made is that zoning is primarily prospective rather than retroactive in its effect and cannot, therefore, be used for correcting existing

conditions. Minimum housing standards, nuisance abatement, and urban renewal powers perform this function.

Zoning plays a vital part in stabilizing and preserving property values and it is this aspect which most concerns the individual citizen.

Leary (1968) emphasizes the fact that zoning cannot be separated from the planning process which culminates in a comprehensive plan of which zoning is but one of the tools of implementation. Linowes and Allensworth (1973) have this to say :

> 'In general, it is important to go beyond the traditional zoning and land-use control practices . Zoning and land-use regulations should be tools that facilitate development and at the same time protect the community interest. The conventional prohibitive and negative nature of zoning has not served the community interest, and it has inhibited originality and innovation in design and development. Planning can do much to discourage the continuation of old practices that are not serving broad community ends. Both planning and zoning should be positive, growth-minded, and progressive in character.'

As if to shatter all the idealism embodied in planning, or any beliefs people may hold about it, Linowes and Allensworth sum up the relationship between zoning and planning as follows :-

'The theory of planning holds that zoning is simply one of the possible tools that can be used to implement plans. In theory, it is not considered a particularly important tool. But zoning is just about the only realistic tool that communities have with which to carry out the objectives of planning, and this is so in spite of the fact that professional planners are taught that zoning is not all that useful, is not too effective, and is basically a holding action at best. Professional planners have little confidence in zoning and spend much time searching for alternatives. But it appears that the search is in vain, and that ultimately professional planners like others will conclude that zoning is really the most effective tool that exists for controlling development and land use; more important, they will discover that zoning <u>is</u> planning -- that is, it represents the reality of planning. Communities do not really plan at all; they just zone -- and that is the long and short of it. The plan serves the same purpose that liberalism does -- it is the outer cover; zoning represents the the reality of the situation.' (Linowes and Allensworth 1973.)

2.2 Zoning Goals.

Legally the general welfare, safety, health, and morals of the people serve as the basis for zoning decision-making.

The major goals of planning and zoning are according to Williams (1966) :-

1. Protection against physical dangers, particularly fire and explosion.

2. Protection against the common-law nuisances - noise and vibration, air pollution, etc.

3. Protection against heavy traffic. This involves restrictions on those establishments which create either substantially more traffic, or different kinds of traffic, from the characteristic establishments of an area.

4. Protection against congestion. This includes protection against the bustle and noise which results from the presence of large numbers of people and their movement.

5. Protection of light, air, and privacy.

6. Provision of open spaces.

7. Protection of morals. Although this is generally a minor element in zoning, it is sometimes invoked to justify special restrictions on bars, snooker halls, and other establishments thought to lead the young into bad habits.

8. Protection against "aesthetic nuisances." This involves structures or establishments which are offensive to the eyes.

> 'The general rule of constitutional law (in the U.S.A.) is supposed to be that, while this aesthetic factor may be taken into consideration

> in drawing zoning regulations under the police power, nevertheless "you cannot zone for aesthetics alone." This doctrine is based on a false conception of what goes on in zoning, and leads to some rather odd results. Because of this supposed rule, great difficulty is encountered in zoning against billboards and against other structures which are real eyesores. On the other hand, other regulations which are really much more drastic aesthetic controls are quite common and are often upheld regularly though ostensibly on other grounds.' (Williams 1966.)

9. Protection against"psychological nuisances." Sometimes there are strong objections to certain aspects of the environment, based not upon concrete physical factors but upon irrational fears and dislikes. This occurs in two quite different types of situations. The first is the invasion of a residential environment by certain types of establishments around which irrational fears tend to centre e.g., funeral parlours. The second type involves the entrance into residential neighbourhoods of groups of people who are disliked for one reason or another - usually because of racial, ethnic or lower economic status. Williams says that regulations directed at the latter type of factors are much more common than is generally realized. This is described as "snob zoning" or "exclusionary zoning."

10. Regulation of the rate of development and protection

of the municipal tax base. Certain types of zoning controls are concerned with regulating the rate and amount of development, particularly in order to keep some control over the resulting demand for public services and, therefore, the burden on the municipal tax base.

Two other alleged factors which are frequently cited as major considerations in zoning are firstly, the protection of property values, and secondly, the protection of the "character of the neighbourhood." These two factors merely reflect the presence of one or more of the other factors discussed above, and thus may, or may not, refer to something which is a proper subject for public regulation.

The ability of most communities to provide services still depends upon real property taxes, which in turn depend upon property values. When the argument is made that property values will be affected this means that some factor is present which some people may dislike, which may therefore result in fewer people being interested in buying property in the area affected, thus tending to push values down. However, some factors which affect property values (or which are thought to do so) are legitimate subjects for public regulation, by zoning or otherwise, while others are not.

There is a similar problem involved in the argument about protecting the "character of a neighbourhood," because some characteristics are proper subjects for governmental action while others are not.

Leary (1968) sums it up in a nutshell:

'The underlying purpose of segregating different types of uses is two-fold :-

1. To prevent the mixing of incompatible uses which may have such deleterious effects on one another as to depreciate property values and desirable environmental features ; and
2. To insure that uses requiring expensive public service facilities, such as major utility lines and heavy paved streets, are restricted to those areas where these facilities exist or are planned to be installed.'

The basic types of zoning districts are residential, commercial, and industrial, and although some ordinances have moved in the direction of mixing uses, it is probable that there will always be the necessity for a degree of segregation of these three use classes. (Leary 1968)

Mandelker (1971) offers some further insights with regard to the role of the zoning process. He emphasizes its role as 'a response to and correction of imperfections arising out of the private operation of the land market.' Zoning plays a part in 'limiting and preventing the externalities arising from a pricing system which, left unaltered has no method of forcing a calculation of externalities on the private entrepreneur.' While an attempt is made to identify these externalities according to objective criteria, Mandelker makes the point

that 'even the regulation of land use incompatibilities carries with it a series of assumptions based on value choice,' He offers a further thought : 'Zoning, intended as a method for preallocating development opportunities, has been converted in urbanizing areas into an administrative system for managing environmental change, and which operates by responding to pressures for change as they occur in the marketplace.' (Mandelker 1971)

.3. Zoning and Zoning Policies .

Zoning ordinances were initially designed to protect the "highest class" of residential properties - single-family residences on extensive lots - and they were constructed on a cumulative principle, namely that every use permitted in a "higher use" district was also permitted in all the districts "lower" on the scale.

Single-family residences were thus permitted anywhere, while industry was at the bottom of the scale and was restricted entirely to designated industrial areas. Under such a zoning system the ordinance was incapable of providing an effective means for carrying out the land use plan, "unless it were assumed that economic forces would somehow insure that a business district would be developed only by businesses, and an industrial district only by industries even though every other use was permitted there.' (Leary 1968)

Later ordinances have become more positive in their approach in that they designate only the specific uses permitted in each district, irrespective of the uses

permitted in other districts. Residences have been barred from locating in industrial areas, and in some cases from business districts as well. Businesses themselves have been divided into functional groups, and a given business may be permitted in one business district but not in another. These changes in the zoning system have allowed the planner to design a pattern of districts that is far more likely to be followed by actual land development.

There are a number of changes and new concepts coming into zoning ordinances, and these will be discussed briefly.

One change has been to provide for many more types of districts so as to deal with as many specific situations as possible, and to eliminate the necessity for widespread administrative discretion.

In some ordinances the district concept is being discarded and is being replaced by regulations aimed at permitting different classes of uses to exist side by side, for example, certain industries may locate in residential areas if they comply with certain regulations. There are advantages in this, such as allowing workers to walk to work and giving them more leisure time at home. This approach involves identifying the features that make one type of land use incompatible with another and controlling these directly, rather than simply segregating the different uses completely.

A third approach is to consider particular proposals on a case-by-case basis. Instead of having specific districts

in which permitted uses are listed and all others are barred, some ordinances classify a great number of uses as "special uses" permitted only after consideration by the board of adjustment (Appeals Board), then only subject to such conditions as the board may impose for the protection of the neighbours.' (Leary 1968) It is felt that this technique encourages laxity in drafting an ordinance, and it indicates an unwillingness or inability to make a decision 'as to where a certain use should be permitted as of right.'

The "floating" zone is one which is not shown on a map. When a property owner can meet certain specified conditions the ordinance declares that the city council will rezone his property to this classification. This approach is peculiarly applicable to neighbourhood shopping centres, garden apartment developments, and similar uses that might logically be located at any number of locations. The council does not want to make the choice but waits for a developer to make the move .

Another development has been to provide for the special consideration by the planning commission and city council of large-scale housing projects, shopping centres, or even "new towns."

"Density zoning" has been described as 'organic zoning for planned residential developments .' (Lovelace and Weismantel 1961). Large-scale development is seen as a normal permitted use with its own standards.

> 'A Density Control ordinance should contain several districts, each with different requirements regarding accessory uses, variety, open space, and density.

> The latter element is the important distinction between districts. This gradient enables Density Control Zoning to introduce whatever density is needed for each residential tract in the urban community, all according to a comprehensive plan.' (Lovelace and Weismantel 1961.)

Site-Plan approval is an approach Linowes and Allensworth (1973) feel should be adopted for all types of proposed developments, including the residential variety. 'Site plans are more detailed and cover more aspects of development than subdivision plans . . . Nothing of planning significance is omitted.' They feel it is an approach which encourages innovation and mixture in physical development and layout design .

A related approach is that of contract or conditional zoning, which introduces more flexibility into the community development process .

> 'Under contract zoning, as defined here, certain areas would be marked on the zoning map for uses subject to the approval of community planning authorities. Developers would propose uses and submit plans, maps, and models depicting the proposed uses . Public officials would consider the developer's proposal, agree with the developer on a mutually acceptable development plan, and contract with the developer to assure execution of the proposed plan. Governmental approval of the development package would be conditioned on the

developer carrying out the agreed upon plan.'
(Linowes and Allensworth 1973)

Linowes and Allensworth (1973) also suggest some new zoning categories :-

1. *Planned unit development zoning.* 'Where this category is applied the developer is free of customary constraints in the zoning ordinance, and may vary lot sizes, housing types, and land uses within general guidelines. Like the site plan and contract zoning processes, planned unit development zoning shifts development determinations from the ordinance to administrators. General conditions applying to planned unit development zoning would include consistency with the community master plan, compatibility with existing and planned community facilities, and perhaps population density controls.' (Linowes and Allensworth 1973)

2. *New town zoning* - which is planned unit development zoning on a broader scale, and which can be used for areas with significant population concentrations.

3. *Cluster zoning* 'Under cluster zoning, homes in residential developments can be grouped without regard to conventional lot size and setback requirements, as long as the overall density is not changed ... The advantages of cluster zoning are that more efficient layout and design patterns can be effected, development and

public improvement costs can be lowered, housing prices can be cut, and much land can be put to common use. . In effect, the area presently so commonly included in large lots and wide front, side, and back yards can be converted into major areas of open space, common greens, and recreational,school, and other community uses.' (Linowes and Allensworth 1973)

4. *Vertical zoning* provides for different uses within the same structure or building.

' The basic zoning category involved in the vertical zoning concept may be commercial or high-density residential, but the idea is that apartments, shops, and offices (or any two of these) are permitted, stratified in the same structure. Vertical zoning is a new zoning practice in the suburbs; it is a step toward greater mixture of uses in outlying areas.' (Linowes and Allensworth 1973)

Another aspect of zoning which must be dealt with in the ordinance, is that of Non-Conforming Uses. When a zoning ordinance comes into effect, there are usually some existing uses which do not conform to the new zoning regulations for their particular area. These are known as Non-Conforming uses. (Additional Non-Conforming uses may be created as the zoning ordinance is amended from time

to time.) The ordinance must indicate the restrictions and allowances pertaining to such uses. There are slightly varying approaches to the treatment of Non-Conforming uses, but these will not be examined here.

In concluding this discussion of zoning and zoning policies Leary (1968) has something important to say : '. .. the ordinance should contain as many limitations as possible on the discretionary power of the agency ... otherwise the ordinance will be imperiled both in the courts of law and in the court of public opinion.'

2 4. Zoning problems.

The most important part in the adoption of a zoning ordinance is in its enforcement. (Leary 1968) A zoning ordinance can be undermined or destroyed in three ways :-

1) By laxity or indifference on the part of the zoning enforcement officer in carrying out his duties;
2) By over-liberality on the part of the Appeals Board in granting variances; and
3) By willingness on the part of the legislative body to adopt unwise amendments to the ordinance based on the applications of individual property owners..

When any of these things happen, Leary says that 'public confidence in zoning is shaken, violators are encouraged, and judicial support for the ordinance is more difficult to obtain.' (Leary 1968) He also states

that the legislative body ought not to be involved in the enforcement process.

Besides the problem of implementing a zoning ordinance, there is also the question of timing. In his discussion of this problem, Mandelker (1971) points out that the initiative for development always lies in the private sector, and any system of control such as zoning must,therefore, begin with a very firm idea of how the private market in land and land development functions it is important - since the public regulatory system can control the timing of the zoning decision but not the timing of the private response to that decision - that the zoning take careful account of the time horizon on which the private market operates.

A great deal of speculation takes place in the market. Each person who performs this holding function does so in the hopes of realizing the potential capital gain which will accrue from the increase in land value arising out of the shift in land use. Some, if not the major part, of this increase in value is a product of the zoning decision which authorizes the change in use.

An equally difficult problem in zoning control arises in those situations in which an intensive land use has been indicated by the comprehensive plan or zoning ordinance, but the market is not yet ready to respond to the planning or zoning proposal at that level of development. Urban blight may result.

Mandelker points out that the courts have had an easier time limiting and preventing external diseconomies than they have had in limiting and preventing

the capture of external economies, and that a complete zoning policy requires both.

To sum up this question of timing succinctly Mandelker makes this statement ; ' How the zoning function is exercised, under what conditions of uncertainty the zoning allocation of land use is carried out, will in turn have important impacts on the price of land, on patterns of land holding and sale, and on the implementation of the municipality's zoning scheme.' (Mandelker 1971)

Linowes and Allensworth (1973) have a series of points to make against zoning, but their approach may be summed up in this extract from their book :

> ' Far from being a positive force in communities, it has been a negative one; it has been used to defend the status quo, to hold the line. Zoning is being used to stop change, not just to impede it - to put an end to change, not just to slow it a bit- It is a perversion of planning when localities can use it as the professional window dressing for status quo zoning. Communities are paying consultants, planning professionals, experts of all kinds to stamp the seal of approval on zoning practices founded on the narrowest of values and objectives.' (Linowes and Allensworth 1973)

Linowes and Allensworth see several weaknesses in the zoning practices, and, although their arguments are related to practices in the United States, they have general

applicability.

Firstly, zoning is exclusionary. If there is development , suburbanites would rather it be such that only higher-income residents would be attracted. Single-family zoning, especially larger-lot zoning, is apt to mean more expensive housing, out of the reach of families with modest means. Many people want to live in the suburbs because their jobs are there, but they cannot because of larger-lot zoning.

Exclusionary zoning is often used in the case of flats, to exclude them from single-family or Special Residential areas.

Secondly, zoning, as it is practiced, discourages diversity, variety, and experimentation. Used badly, zoning results in a "sameness" and a routine monotony.

Thirdly, zoning is prohibitive. The character of zoning is negative - the primary purpose being to exclude certain land uses. The average zoning ordinance is written so that changes are dictated by technological progress or other advances cannot be made, for example, new residentially - compatible manufacturing processes.

Fourthly, zoning weakens the tax base. Zoning may,and commonly does, weaken the tax base. Industrial, commercial, and flat uses are most attractive from a property tax point of view, while public expenditure tends to be higher for single-family zoned areas. These areas also have added private costs, because zoning has made key community or public facilities unavailable, and lengthy and expensive drives to such facilities are therefore incurred. Servicing costs

are also higher.

Linowes and Allensworth do say, however, that not all single-family or larger-lot residential zoning is undesirable on tax grounds, or other grounds; for example, areas acting as buffer zones between areas of concentrated development. What they do object to is the practice whereby numerous suburban local authorities zone much, or most of their land, into the larger-lot categories. The result is that the central city and inner suburbs are surrounded, almost choked by extensive areas of large-lot development. This makes outward migration and growth essentially impossible, and has spiralling effects on inner-city and close-in suburban land prices, and consequently on rents and housing and business costs. They feel that 'this sort of zoning and development cannot be justified on any grounds.'

Cramer (1961) takes a similar viewpoint to Linowes and Allensworth in that he feels zoning legislation is a negative thing, consisting only of prohibitions.

> 'Consequently it never has been able to exert a positive or constructive influence actively to promote a well-designed community. The abortive attempts to zone stylistically have been repudiated by the courts U.S.A. ; but even if they had not been, we would have come to recognize that it is no more difficult to design an ugly Georgian house than an ugly contemporary one. Stylistic tags have nothing really to do

with livability or elegance.' (Cramer 1961)

Cramer and others (Joint Study Committee 1961) believe that current residential zoning is unnecessarily rigid and therefore, wasteful . They feel that certain changes should be made which would result in more compactness and greater flexibility, and which would improve the possibilities for the suburban house and for neighbourhood design, while at the same time economizing the demands for space . Cramer (1961) says rigidity restricts technical invention as well as design initiative.

The U.S. Chamber of Commerce (1950) has pointed out some further problems :

> '.. many zoning enabling acts and local regulations are sadly out of date, making it increasingly difficult to apply them to the new patterns of land use and development. There are many reasons for this condition. Chief among them can be mentioned the slowness with which legislation is passed, difficulties in getting revision through local city councils, and the inertia of the public.' (The U.S . Chamber of Commerce 1950 .)

The importance of public opinion and of the part played by public representatives is highlighted in this extract :

> ' As land use and zoning are determined by the municipalities, it is in this field that the concept of the cities of the future and their environs is to be determined. Such revisions of zoning as may be accomplished to

effect increased densities and other objectives will come about largely by mobilizing public opinion. Without the support of public opinion for new and better concepts of urban growth, nothing will happen . If better use of the land is to be gained and increase in density is demanded. With such increase will come savings in land, money, and services, and a much better physical environment.' (Joint Study Committee 1961)

.5. Flat Development and Zoning.

Having discussed the nature of zoning in general, this section seeks to draw together the points or issues which have a direct bearing on flat development, - this being the prime concern of the present study .

Several issues, mentioned in the preceding section, have important implications for flats, Firstly, that zoning can be used to exclude flats from certain areas of the city. Secondly, that in its application, zoning can discourage diversity and promote monotony. Thirdly, that zoning regulations tend to be out of date, and they are, therefore, not open to the new forms of development. Fourthly, the public needs to be mobilized and educated to accept new zoning patterns, as their support is vital to the success of any major revisions, and they are likely to provide the impetus for these changes.

The purposes of zoning which affect flat development are : -

1. To prevent the mixing of incompatible uses which may have such deleterious effects on one another as to depreciate property values and desirable environmental features.
2. To insure that uses requiring expensive public service facilities are restricted to those areas where these facilities exist, or are planned to be installed.
3. The provision of adequate open spaces.
4. To insure adequate light, air, and privacy.
5. Protection of property values against juxtaposed undesirable or substandard developments.
6. Protection against heavy traffic.
7. Protection, against physical dangers - fire and explosion.
8. Protection against congestion.
9. Protection of municipal tax base.
10. To control the population density.
11. To implement plans.
12. To regulate private land and building developments.

Zoning determines where flats will occur in the city, and whether it will be in combination with other land uses or not. Within these broad zones the actual appearance and structure of the various flat developments is guided by another set of regulations, known as the "development controls."

CHAPTER 3. DEVELOPMENT CONTROLS.

'Planning is not simply a matter of allocating land for various kinds of development. It is also concerned with the forms of development and redevelopment, and with the quality of the physical environment that is produced. In the end what matters is not simply where development takes place : its form is equally important, and the planning system will be judged by the quality of the results it produces.' (Planning Advisory Group 1965)

.1 Development Controls and Planning.

In the context of this thesis, "development controls" refers to the "dimensional regulations" controlling buildings in the urban environment, and the terms are used interchangeably. Two types of regulations are used to control development : firstly, land use regulations, i.e., zoning, and, secondly, dimensional regulations or development controls.

Development controls are another tool which planning authorities use to implement their plans, to regulate private development, and to promote and encourage a higher quality of urban environment.

.2. The Goals of Development Controls.

Dimensional regulations are aimed directly at the qualities that collectively contribute toward "livability."

Leary (1968) summarizes the goals as follows :-

1) to control the population density in various areas;
2) to insure adequate light, air, and privacy;
3) to afford safe play space for children and recreation space for older persons;
4) to reduce fire hazards; and
5) in general to maintain a healthful and safe environment.

These regulations are generally shown as a series of measurements of relationships of one kind or another .

.3. Types of Development Controls.

Leary (1968) has development controls grouped under five headings, and each one will be dealt with briefly.

.3.1 *Height Regulations .*

Height regulations may be expressed in feet/metres, storeys, or with reference to the width of the street on which a building fronts, e.g., permitting a building height of "X" times the width of the street.

The simple measurement of a maximum number of feet/metres is preferable, however, two points should be noted . First, to avoid disputes the regulations should specify the exact manner in which measurements are to be made . Second, there is a danger that some buildings may be built with lower ceilings than ordinarily desirable, in order to fit an extra storey or two into the permitted height .

If street widths vary in a particular area basing height

limitations on street widths may result in some very complicated situations.

In some cases buildings are permitted to exceed the maximum height if there is a series of setbacks from lot -ines corresponding to the increase in building height. This usually applies to buildings in the central business district.

The height regulations fix maximum building heights. In some cities, however, attempts have been made to fix minimum building heights for their downtown business districts. The courts in the United States have invalidated such requirements, saying that they are based purely on aesthetic grounds and are, therefore, outside the purposes for which the police power may be invoked.

A special type of height restriction is that imposed on structures in the vicinity of airports.

.3 .2 *Building Bulk Regulations*.

Bulk regulations are closely related to height regulations. Most ordinances achieve some control over building bulk through height limitations, and front-, rear -, and side-space requirements; although some of them use the newer devices, which will be discussed in the next section dealing with policies. Other ordinances rely on coverage specifications, and some require increased side and rear spaces when the building exceeds certain dimensions.

One type of bulk regulation is the requirement that residences have a specified minimum floor area or minimum cubic content. Leary makes the comment that the legal validity of such regulations depend on the city's ability to

show that they represent the minimum space needed for the mental and physical health of the occupants of the residence. If they are based on health considerations they should be the same for all neighbourhoods no matter where they are located in the city.

3.3 *Lot Area Regulations*.

The most common method of regulating population density is through provisions prescribing the minimum lot areas that must be provided for each dwelling unit. Such requirements have additional importance as health measures in areas where sewage disposal is through septic tanks, or water supply is by individual wells, and here the regulations should be based, at least partly, on the advice of the local health authority. Minimum lot size requirements are not usually imposed on business and industrial districts, except if residences are located within them.

When residential types are mixed in a single neighbourhood then an essential feature of the ordinance is a sliding scale of minimum lot sizes, based on the number of dwelling units per lot. In most cases the space required for each additional unit after the first is somewhat less than that required for the first unit on the lot.

Most cities have a set of residence districts whose requirements range from 10,000 sq. feet (930 sq. metres) down to as low as 2,500 sq. feet (232,5 sq. metres) per dwelling unit.

The requirements for the smallest lots may actually be less than the desirable minimum, but this may be necessitated

by existing patterns of land development in older neighbourhoods.

To prevent the creation of odd-shaped lots, even though they meet the minimum lot area requirements, most ordinances combine them with minimum lot width requirements. These requirements should be related to the existing lot widths in the area concerned, but should also be large enough to provide for the easy construction of a house within the building "envelope." A definition of how to measure lot widths in cases of irregularly-shaped lots should also be included in the ordinance .

.3.4 *Space Regulations.*

These usually consist of front -, rear -, and side-space requirements. Most ordinances require front and side spaces in residential districts only, or for residences situated in other districts, although front spaces are becoming increasingly required in certain classes of business and industrial districts, e.g., industrial parks. Sometimes owners are allowed to use their front spaces for off-street parking.

The front-space requirements are commonly expressed in four ways :-

1) as a minimum number of feet/metres between the front lot line and the front of the building;
2) as a percentage of the lot depth;
3) as a relationship to the front spaces of other buildings which have already been constructed in the immediate neighbourhood;
4) as a minimum number of feet between the front of the

building and the centre line of the street.

Most ordinances require that new buildings conform to the building lines established by certain neighbouring structures (subject to maximum and minimum limits). For areas where there are no neighbouring structures, a standard front-space distance is also specified.

Front-space regulations are related to setback requirements. Sometimes the front-space is increased for lots fronting onto a major thoroughfare to remove the residences from the noise, smoke, dust, fumes, and traffic dangers associated with such a street.

Side-space regulations should be based in part on fire insurance requirements, and they should be increased in areas where there is inadequate fire protection. Most municipalities require at least five to eight feet (1,5 to 2,5 metres) on either side of a building. Some requirements vary according to the height or length of a building or according to the number of dwelling units it contains. Although side-spaces are not usually required in business districts, where they are provided they should be at least three feet (0,9 metres) in width, so that they can be easily entered and cleaned .

Rear-space requirements are expressed either in feet/metres or as a percentage of lot depth. The minimum depths required are usually between 15 and 40 feet (4,6 to 12,2 metres). The regulations customarily permit the erection of accessory buildings, such as garages, in rear spaces, provided that :-

1) they do not occupy more than a stated percentage of the required space;
2) equivalent open space is left elsewhere on the lot; and
3) they are located at stated distances from all lot lines.

Corner lots present problems that need to be dealt with specifically. One major problem is to ensure visibility for motorists . This is done by prohibiting any structure or planting more than a certain specified height, usually two to four feet (0,6 to 1,2 metres) above the curb level, within a distance of 20 to 40 feet (6,1 to 12,2 metres) from a street intersection . Another problem is where buildings face each of two intersecting streets. In this situation the side-space requirement for the corner lot is usually increased so that it approximates the setback or front-space requirement of the neighbouring lot. Any accessory buildings on the corner lot are required to remain behind the front-space lines applying to adjoining lots.

As a means of affording additional outside window openings for the benefit of their tenants, many buildings contain outer courts (open on at least one side) or inner courts (completely enclosed). Many ordinances specify the minimum size for such courts, and this usually depends on the number of storeys above the ground level of the court, the distance from the closed end to the open end of an open court, and whether or not the structure is in residential use.

Most ordinances permit encroachments of various types

on the required spaces and courts. These include such things as open fire escapes, chimneys, flues, cornices, and eaves, and occasionally bay windows, carports, and open porches.

.3.5 *Off-street Parking and Loading Regulations.*

Special type of open-space requirement is the provision for off-street parking and loading spaces. Sometimes parking areas are permitted within the space requirements cited above, but, in any case, this aspect should be dealt with specifically in the ordinance. In general, the amount of space required depends on the use of the property, however, this may change from time to time, and a later use may need more parking space.

Some ordinances allow the property owner to meet off-street parking space requirements by providing space on another lot within a stated distance from the lot on which the main use is located. Where this arrangement is permitted the parking space should be owned by the same person as the property under review, otherwise difficult cases can arise.

.4. Dimensional Regulation Policies.

A pronounced trend in recent years has been towards more flexibility in dimensional regulations.

> ' At one time, dimensional regulations were almost universally expressed in terms of nonvariable requirements . Any structure erected in a given district could not exceed a specified height, and it was required to have front, side, and rear yards of certain

> dimensions. When all these specifications were considered together, they constituted an invisible envelope over each lot, through which the building could not protrude, but which it might fill completely .... It has become evident that this approach unduly limits design possibilities, and some recent ordinance provisions have been devised to afford greater leeway to the designer without sacrificing control objectives.'

(Leary 1968) Leary goes on to discuss a number of the recent approaches or devices, and these will be dealt with in this section. It should be noted, however, that even when such new devices are used, the more conventional approach is still followed in some districts, perhaps in combination with some of the newer devices-

.4.1 *Floor-Area Ratio.*

This is a very popular device, and it specifies the relationship between the area of permitted floor space in a structure and the area of the lot on which it is situated. The designer may then choose a variety of building forms in which this relationship is preserved. For instance, a floor-area ratio of 2,0 permits the builder to erect a two-storey building covering the entire lot, a four-storey building covering one-half of the lot, etc., etc. Figure 3-1 (Leary 1968) gives some examples of floor-area ratios.

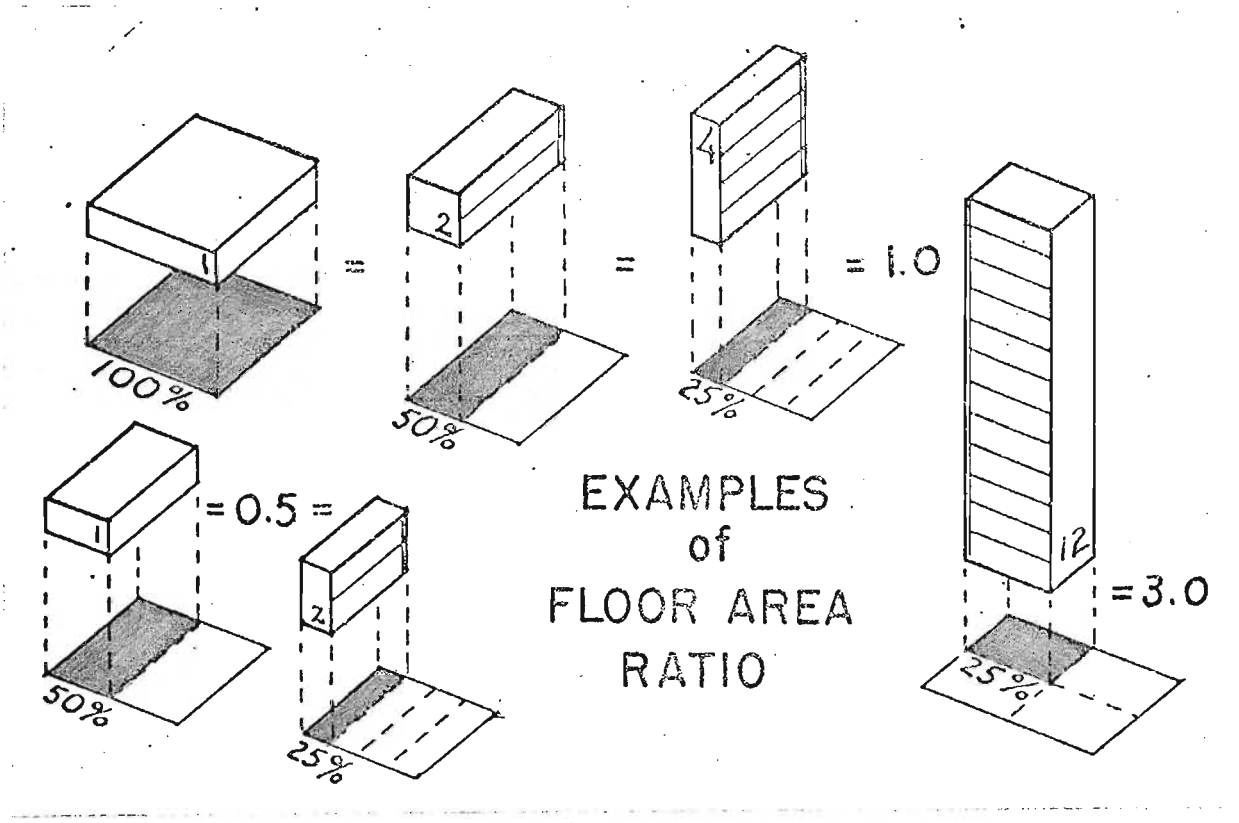


Figure 3-1.

3.4.2 *Bulk Control Plane.*

Ordinances employing this device do not specify maximum heights or a permitted number of storeys. Instead, they recognize that the purpose of height limitation is to ensure that the neighbours receive light and air, and describe a plane beginning at a certain height above the ground at the lot line and sloping upward over the lot at a given angle. In effect a pyramidal "tent" is described and the builder may erect a building of any height or

shape as long as it does not penetrate this "tent," see Figure 3-2. (Leary 1968)

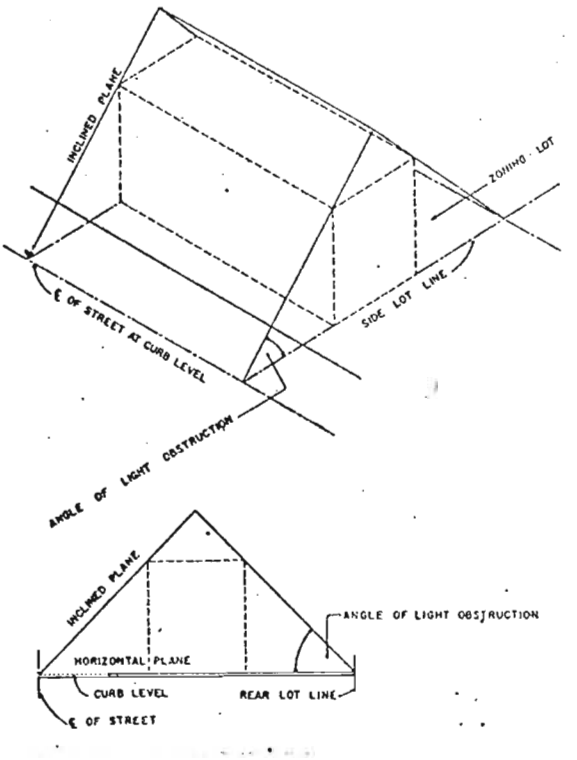


Figure 3-2
Bulk Control
Plane.

A variation of this device specifies an "average angle of light obstruction" and permits the builder to penetrate the "tent" with portions of the frontage of his building, if he leaves an equivalent amount of space inside the "tent" free of obstructions. Another related provision specifies an area of required window exposure for each outside window, so that the occupants of the building may have light and air.

4.3. *Open space requirement.*

The nonvariable front -, side -, and rear-space requirements are replaced by a requirement merely that there be a certain amount of unobstructed open space on the lot for each dwelling unit, with considerable flexibility as to where it is located. Some ordinances even

permit this requirement to be met by suitable space in the form of balconies or on top of flat roofs in high density areas. Other ordinances do not specify any amount of required open space ; instead they state the maximum percentage of the lot that may be covered by a building.

.4.4 *Premiums.*

Premiums are offered to the property owner who includes certain design features in his new building, - e.g., a building with an arcade at street level, with a landscaped plaza, or with setbacks at particular floor levels, - may be permitted to exceed the normal floor-area ratio or the height limitations. The municipality, therefore, provides an economic incentive to builders to install added community amenities. Extreme care must be exercised, however, to balance the gain to the public against encroachment due to the over-liberalization of the regulations.

.4.5 *Land Use Intensity Rating.*

This is a new measure of land use activity developed by the Federal Housing Administration (U.S.A.) which offers great promise in providing an even more sensitive control of residential development, while preserving the maximum flexibility in design solutions, mixtures of housing type, and variety in dwelling size. This system establishes ratios for open space, livability space, recreation space, etc., rather than the clearly defined areas or specific requirements so typical of traditional development control techniques.

.4.6 *Cluster zoning.*

Under this system a land developer is allowed to reduce the minimum size of his lots below that specified in the zoning ordinance for the district in which his land is located, if, in return, the land thus gained is preserved as permanent open space for the benefit of the community. This approach allows continued control of overall population density, but reduces, in many cases, the disruptive impact of development by permitting the more rugged or difficult land to be left open as cluster land .

In closing this section on the different dimensional regulation policies, Leary has this to say: 'When such devices as these are used in a co-ordinated fashion, they open up a whole new range of possibilities for the architect, site planner, and the landscape architect, while still advancing the objectives of zoning.' (Leary 1968)

.5. *Flat Development and Development Controls .*

The Development Controls determine the form of a flat development and the placement of the building on the site. An understanding of these regulations is essential to the planner seeking to achieve certain objectives in the built environment.

The aims behind the use of development controls have important implications for flat developments, and these are :-

1. To implement plans.
2. To regulate private development.
3. To promote and encourage a higher quality of development.

4. To control population density.
5. To insure adequate light, air, and privacy.
6. To afford safe play for children and recreation space for older persons.
7. To reduce fire hazards.
8. In general to maintain a healthful and safe environment.

All buildings have to comply with regulations concerning, for example, height; bulk; lot size; front -, side -, and rear-spaces; and off-street parking.

Some more recent devices have, however, provided more flexibility in the design of flat blocks, where they are in operation.

3.6. Development Control and Zoning.

Zoning is used to regulate the use to which land is put, while the development controls act within the zones to control the size, shape and position of the developments on individual sites. Zoning, therefore, deals with areas and the broader context of urban development, while the dimensional regulations relate to the individual sites. The zoning and development controls naturally affect one another and interact with one another.

Having examined the two types of regulations separately, this section seeks to compare and relate them. Looking at the goals and at the use of each type, a number of similarities emerge. Both zoning and development controls are used to :-

1. control development;
2. implement plans;

3. regulate private development;
4. promote and encourage a higher quality of urban environment;
5. maintain a healthful and safe environment;
6. control the population density in various areas;
7. insure adequate light, air and privacy;
8. afford safe play space for children and recreation space for older persons;
9. reduce fire hazards.

It should be noted that, when these regulations are used without thinking, both result in an urban environment which is lacking in diversity, variety, and experimentation; and different areas of the city are characterized by a sameness, and a monotony of physical expression. The goals and objectives behind these regulations need to be kept in mind when they are applied to real-life situations.

Although there are characteristics of zoning and of development controls which are dissimilar, it can be seen that zoning and development controls are inextricably linked together as part of the same system of controlling the urban environment. They are the means by which the Development Control function is carried out and through which the plans and policies of the Local Planning Authority are implemented.

CHAPTER 4 . FLAT DEVELOPMENT.

.1 . The Nature of Flat Development.

A "flat" has been defined as a unit of accommodation in a building containing three or more such units. These multi-family buildings are associated with the high density residential areas of cities.

Flats are found in differing forms. They occur as high-rise structures and low-rise structures; as slab blocks and point blocks; as duplexes and row houses; and in combination with other housing types and other land uses. Flat developments occur in large districts or in clusters; and these clusters may group to form a mixture of high density housing types, or they may be scattered amongst the single-family dwellings .

Flats cater mainly for single people, young married couples, young families, elderly couples, and mature families . They are also related to differing life styles .

Flats usually occur in the form of medium - to high-rise structures, but their most common physical

expression is the high-rise block of flats.

2. Why Flats?

With the increasing concentration of people in cities vertical expansion is a necessity, and a fact, of urban life. There are other reasons why flats are on the increase .... In many cases the economic situation is such that flats are the only viable housing proposition, both for the developer and for the resident. Although the single-family home is regarded as being the preferred residential unit, the costs of owning and maintaining such a home are spiralling beyond the means of many households.

'On a more positive side, there are people who choose to live in flats for reasons such as the fact that they are smaller and easier to manage and they have no garden to maintain; their location with respect to places of work and community facilities; and because they are more suitable and convenient for their lifestyle or stage in the family cycle.

Another reason for the increase in flats is the introduction of Sectional Titles and similar legislation, which allows for individual ownership of flats.

Flat development is an integral part of the residential component of the present-day city, and it is becoming an increasingly important part of the housing stock.

3. Reasons for controlling flat development.

Residential properties are by far the most numerous in any city, and they occupy the most land area.

The regulations governing residential development therefore have great quantitative as well as qualitative significance. Flats make up a substantial part of the total residential development, and their impact upon the community is, perhaps, greater than that of the other forms of housing.

In the older ordinances, the practice was to divide residential districts according to the dwelling types permitted; flats always forming a separate district. The arguments made for this classification were -

> 'that multiple family developments might damage property values in single-family districts, that they tended to cut off the light and air of single-family neighbours, that their tenants took up all the curb parking space in the neighbourhood, that the increased population density overloaded the street and utility systems, and that rental tenants did not take as good care of their properties as did owner-occupants in single-family residences.' (Leary 1968)

Leary says that recent ordinances have attempted to eliminate particular adverse features of multi-family buildings and to mix the dwelling classes. The argument being that neighbourhoods made up of different dwelling types are more interesting aesthetically, more socially satisfying and they have the practical advantage of enabling a family to meet its changing housing needs as it grows, without having to leave the neighbourhood. Regulations

embodying this theory require multi-unit residences to have increased lot areas, to hold down population density ; provide larger open spaces, to avoid cutting off light and air from their neighbours and to afford play space for children; and install adequate off-street parking . The differentiation among residential districts in these later ordinances is usually based on permitted population density, and the zones with the higher population densities are then located in proximity to community facilities which will provide the higher level of service necessary to service the greater number of people per unit area.

Flat development needs to be controlled because of its significant visual impact upon the community; the need to provide adequate light, air, privacy, parking, open space, and community facilities, for all residents of a community; and the need to preserve the amenities of an area as well as to ensure the basic health and safety of the population. There is therefore, strong justification for advocating a framework for flat development.

.4. Reasons for choosing the Berea North District .

The first reason for choosing the Town Planning Scheme area of Berea North for a case study is that it is one of the oldest residential areas in Durban. Flat development in this area dates from the earliest years right through to the contemporary period and current Town Planning Scheme. The extent of this district is shown in Map 4A, which also delimits the boundary between "High" and "Low" Berea.

The second reason for choosing Berea North is that 70,7% of the dwelling units in this district, in 1976, were flats. This is a large proportion of the total. Examining the 1970 figures for Whites in Durban, flats make up 52,6% of the total number of dwelling units, housing 44,4% of the total number of families, which is equivalent to 39,3% of the total population. Flats are, therefore, an important component of the housing market, but especially in Berea North.

Thirdly this is the closest suburb to the Central Business District of Durban, and as such it is constantly under pressure to increase the density of development.

Fourthly, it is a suburb which caters for a wide range of socio-economic groups, which is reflected in the type of units provided.

Fifthly, the flats in this area tend to be more family-oriented, which is recognized in the regulations regarding coverage and space about buildings.

The sixth reason is that there are many blocks of flats in this area, and they reflect a range of architectural styles, building ages, and the regulations under which they were built.

The seventh reason is that this area includes some difficult topography, which can provide a good test of the development controls and zoning regulations.

Finally, it was for the Berea North the first Town Planning Scheme in course of preparation was prepared,

and not all areas of the city have been planned to date.

Berea North is an important residential area of Durban, and, for all the reasons cited above, is an obvious choice for a case study.

CHAPTER 5.

APPLICATION TO BEREA NORTH, DURBAN.

5.1 Zoning and Development Controls in Durban.

The legal backing for zoning and the development controls is given by chapter four of the Natal Town Planning Ordinance No. 27 of 1949.

Section 46 (1) (a) states that town planning schemes -

> 'shall contain such provisions as are necessary or expedient for prohibiting or regulating the development of land in the area to which the scheme applies and generally for carrying out any of the objects for which the scheme is made, and in particular for dealing with any of the matters mentioned in the Schedule to this Ordinance.'

This Schedule, set out fully in Appendix 1 includes ' the demarcation or zoning of areas to be used exclusively or mainly for residential, business, industrial, and other specific purposes.'

In terms of section 47 (1) the provisions to be inserted

in a scheme with respect to buildings and building operations may include provisions -

a) prescribing the space about buildings;

b) limiting the number of buildings;

c) regulating or enabling the local authority to regulate the size, height, design and external appearances of buildings ;

d) imposing restrictions upon the manner in which buildings may be used including, in the case of dwelling houses, the letting thereof in separate tenements ; and

e) prohibiting building operations or regulating such operations in respect of matters other than those specified in this sub-section.

The Town Planning Scheme Regulations for Durban list 33 use zones, and state the purposes for which the land may be used or for which buildings may be erected and used. Some specified additional purposes may be incorporated in these zones with the special consent of the City Council. Appendix 2 contains a complete listing of all the use zones .

In addition to the general use zones there are a number of special zones, which refer to particular sites or areas in the city to which special regulations apply.

Each use zone has development controls relating to it which guide development within that zone, no matter where in the city that zone occurs, - unless otherwise stated in

the regulations.

.2. Zoning and its application to Berea North.

Preceding the report on the planning of the Berea (City Engineer 1965), a complete zoning of Berea North had never been undertaken. The Town Planning Scheme in couse of preparation relating to the Berea area, operative from 1953 was felt by the City Council and other interested persons, to be unsatisfactory in several respects, and these are summarized below. (City Engineer 1965)

1. The scheme provided for the application of the special consent procedure in numerous cases of development, and this procedure required the City Council to exercise discretion as to whether an application should be approved, modified, or disapproved. This involved the City Council with a heavy burden of responsibility, and, it was extremely difficult at times to insure uniformity of treatment of similar applications in various parts of the Berea.
2. The decision of the City Council under special consent procedure were subject to review by the Administrator, after a hearing by the Appeals Board at the instigation of either the applicant or the objectors, and this led to long delays in finalizing matters, which often seriously prejudiced developers financially.

3. The scheme in course of preparation had largely evolved from the City Engineer's original reports, but had been amended on many occasions as a result of the occurrence of isolated problems. Consequently, it was a "patchwork" of independent decisions by various City Councils at different times and on isolated problems over a period of twelve years. The result was a lack of co-ordination of planning and harmonious development, and in certain instances serious anomalies existed in regard to the treatment of developers in different areas.

4. The Town Planning Scheme in course of preparation had not gone far enough in positive planning, particularly in respect of the final allocation of areas for various uses - the setting aside of open spaces, shopping areas, schools, etc. The longer this was delayed the more difficult it would be to deal with, because of the continuing development and redevelopment taking place.

5. The administration of the scheme, as it existed, was cumbersome and time consuming for the City Council's committees and the staffs of the City Engineer's and Town Clerk's Departments. This was because of the number of special consent applications and the procedures required to deal

with them

6. The formulation and gradual emergence of a Town Planning Scheme by regulations and the granting of special consent was considered a negative approach to the problem, and the feeling was that progress ought to be made in the positive planning of various areas of the City, particularly the Berea, as this constituted the most important residential area of Durban.

7. Uncertainty existed, in relation to the development of property, regarding the use to which the land could be put.

8. The owners of adjoining properties were at a considerable disadvantage because they did not know from day to day what form of development was likely to take place on their neighbours' land.

The new regulations the City Engineer proposes in his report (City Engineer 1965), provide for the elimination of the special consent procedure in respect of residential

development, except in the case of licensed hotels. The General Residential zones permit the erection of flats, maisonettes or single dwellings freely, the Maisonette zones allow the construction of maisonettes or single dwellings without special consent, and the Special Residential zones provide for the development of single dwellings only .

There are, however, certain forms of development which are always potentially detrimental to amenities in a residential area, and the special consent procedure is to be retained for these types of development. They include service stations, churches, public halls, licensed hotels, etc . It is not intended that these uses be prohibited, but the special consent procedure insures that each application is considered on its merits in relation to the amenities of the adjoining areas.

Extensions or changes of non-conforming uses are also to be examined separately and are, therefore, also subjected to the special consent procedure . The Town Planning Scheme Regulations list the conditions governing existing buildings or existing uses of land which are not in conformity with the provisions of the Berea Scheme .

The use regulations (Town Planning Scheme Regulations) cover the location of garages and servants' quarters on sub-divisions ; the position and number of vehicle and pedestrian access points ; access strips ; and the use of residential accommodation or land for other purposes, such as for the carrying on of a profession or occupation. Professional offices may be situated in General Residential (G.R.) 1 and 2

use zones, subject to certain requirements.

Flat development occurs only in G.R. 1 and 2 use zones in the Berea North district, although a few existing blocks may be situated in other residential use zones . Map 5A shows the location of the various general residential areas, and gives some idea of the times at which new areas came on stream for intensified flat development.

The rationale behind this zoning pattern is given in the report on the Berea . (City Engineer 1965). In demarcating the zones, the planners have attempted to 'eliminate certain pockets which intrude themselves into zones of a different nature.' They feel the present zones will make for a more harmonious development of the Berea as a whole.

There is a differentiation between the "High" and "Low" Berea, the former being a G.R. 1 zone with somewhat lower densities than the G.R. 2 zone on the lower slopes . This reflects the existing nature of development in these 2 areas.

The concerns which have given rise to the zoning in Berea North, as stated in the report, are :-

a) matters of public health;

b) the proper distribution of population;

c) the provision of public amenities for the people;

d) the effect upon the neighbours of the development of individual properties;

e) the space about buildings;

f) the ability of the public transport system to take care of peak demands; and

g) generally to create conditions which enhance the possibilities of harmonious and comfortable living.

However, the report also states that the practical planner must always consider the economic factors involved in property development as well.

The planners feel that the area set aside for general residential purposes is fairly extensive and any attempt to increase it will cause a number of problems. Firstly, it is difficult enough to provide open spaces, schools, and shops to satisfactory standards for the planned population, and any intensification of development can only have a detrimental effect on the area. Secondly, there is a limit to the capacity of subsoil services, and should it become necessary to renew such services on a large scale, this would involve the City Council in enormous expenditure. The planners, therefore, feel it is sound policy to increase the Berea population to the maximum extent compatible with harmonious living conditions, but unwise to sign the area over completely to flat development.

The report also mentions some factors which they regard as the " disabilities of permanent flat life," and these include the problems of noise, insufficient off-street parking, congested streets, congregations of Black

servants in and around blocks of flats, the wholesale provision of washing lines interfering with the amenities of the area, a lack of privacy for neighbouring properties overlooked by large blocks of flats,and the lack of garden development.

The conclusion reached in respect of the zoning pattern found in Berea North, is that' it is necessary to provide large areas for the development of flats in order to cater for the needs of the large population which, for various reasons, requires this type of accommodation,' however, the 'preservation of areas which are essentially Special Residential in character must be a matter of paramount importance.' The reason being that a large group of citizens desire to live in private secluded conditions . (City Engineer 1965)

The actual boundaries and location of the G.R. 1 and G.R . 2 zones has been influenced by various factors, namely :-

1. The character and existing use of buildings and land;
2. The existing road system and its adaptability for improvements within economic limits;
3. The suitability or otherwise of the subdivisional layout, taking into account the possibilities of consolidation;
4. The geographical situation in relation to major traffic routes, schools, shops, open spaces, and the proximity to the Central Area;

5. Topographical aspects with particular reference to views; and

6. The feasibility of providing public amenities for the increased population.

Each of the General Residential zones has specific dimensional regulations pertaining to it, and these operate within the zones to guide the individual flat developments .

.3. History of Development Controls affecting Berea North Flats.

Prior to 1952, flat development on the Berea was controlled only by Building By-laws, which were concerned primarily with general health and safety in the urban environment. It was at the close of the Second World War that the first movements were made towards developing a planning framework to guide the ongoing expansion and intensification of residential development on the Berea slopes.

What follows is a chronological review of the evolution of the development controls affecting the building of flats in Berea North. (A similar study was undertaken in Toronto - City of Toronto Planning Board 1970) . This review records the changes that have occurred in the regulations, and the reactions and goals giving rise to these changes. For each time period a number of examples have been selected to illustrate the resultant typical form of flat development.

.3.1 *Prior to* 1952 .

All development up until 1952 was governed by the Building By-laws. However, during the years after

the end of the Second World War, a number of proposals and recommendations were made concerning a new set of planning regulations which would provide the guidelines for development. This section deals, firstly, with the Building By-laws and the resultant flat development, and then proceeds to examine, chronologically, the various proposals that were put forward in the years preceding 1952.

The Building By.laws.

Goals. The Building By-laws were primarily concerned with providing an environment which was both safe and healthy, hence their precccupation with lighting, ventilation, and height. An implicit goal behind the limitation on height was probably "to preserve the residential character of the Berea."

Regulations.

Height: A general restriction of 35 ft. (10,7m) in height from ground floor level, which limits all buildings to 3 storeys, with a basement in certain cases.

Building line and spaces about buildings :

The regulations allow for "ample" setbacks from the building lines and for open spaces at the sides and rear of the buildings, to ensure adequate lighting and ventilation.

Coverage : Buildings allowed up to 95% coverage.

Resultant development :

The following selected photographs illustrate the type of development which is characteristic of the period before

the coming into operation of the first planning regulations in 1953. The lots tend to be small and the buildings are nearly always 3 - storey slab blocks covering a large proportion of the site area. This allows very little open space for gardening purposes, especially as the buildings are located fairly close to the front building line. There were no parking requirements, so only a few developments actually provided garaging or open parking areas for residents. This has resulted in a great deal of street parking where these old blocks occur . (Some blocks included a row of garages facing onto the street, while a small number provided parking space at the rear of the site.)

A typical 3-storey block built close to the building line.

Early development with garages opening onto the street.

A typical pre 1952 block.

1943.

The Special Committee re Post-War Development considered various proposals made by the City and Water Engineer to deal with the post-war problems of Durban, and recommended, inter alia, the appointment of a Town Planning Consultant to advise the City Council on the town planning aspects of these post-war schemes. Lt. Col. P.J. Bowling was appointed.

1945 *proposals.*

Col. Bowling submitted his report. His recommended regulations for the Berea residential areas were :-

Height: To be limited to a 3-storey maximum.

Coverage : Coverage on the Berea to be 20% for residential buildings, - which includes blocks of flats.

1950 *proposals.*

Response. The City and Water Engineer's reaction to Bowling's recommendations (City and Water Engineer 1950) was that too much stress had been placed on height per se rather than limiting the cubical content of buildings. The best method of bulk control, as far as he is concerned, is by floor area, and he favours the Floor Space Index because it gives no rigid determination of the number of storeys and leaves the architect some freedom of expression. The same Floor Space Index can be achieved by a variety of

buildings of different heights, and this helps to avoid the monotony of street facades.

Goals. The City and Water Engineer (1950) explicitly states the goals behind his proposed development controls for residential buildings in Berea North. These may be summarized in point form as follows :-

1) To allow residential buildings in a form that is in harmony with that neighbourhood;
2) To ensure ample space provision on the plots ;
3) To provide adequate light and ventilation;
4) To provide adequate privacy ;
5) To provide adequate amenity and safety;
6) To ensure that all Non-European employees are adequately housed; and
7) To ensure that garaging and parking facilities are available for all visitors and residents' cars.

Regulations. (City and Water Engineer 1950)

Height: The existing height restriction of 35 ft. (10,7m) to be retained. This allows a maximum of 3 storeys.

Building line and spaces about buildings :

i) No portion of any building to be less than 30 ft. (9,2m) from the street boundary, nor less than 15 ft. (4,6m) or half the height of the building - whichever is the greater - from any lateral boundary.

ii) Rear space : 15 ft. (4,6m) in width for buildings under 25 ft. (7,6m) in height; 20 ft. (6,1m) in width for buildings higher than 25 ft. (7,6m) but

less than 35 ft. (10,7m) ; and 25ft. (7,6m) for buildings of 35 ft. (10,7m) or more.

Any portion of the building which is below the level of the ground may fall within the rear or side space of the site.

Coverage : 25%.

Minimum size of sub-divisions : 15 000 sq. ft. (1395 sq. metres).

Floor Space Index : 0,4

Parking : Open space must be left on all plots which, on the basis of 250 sq. ft. (23,3 sq. metres) per car, together with any garaging facilities provided within the building or by standing agreement with a parking garage situated not more than 1,000 ft. (350m) away, shall be sufficient to give 1 parking space per flat. Such open space must have direct access to a street and be not less than 30 ft. (9,2m) in width. To encourage the provision of private garaging within the curtilage the "space about building" restrictions do not apply to private garages, as long as adjoining properties are not adversely affected, and any garaging area below the ground floor of the building is not to be taken into account in calculating the total floor area of the building. (The building line restriction does apply however.)

Servants' Quarters. Floor space for the accommodation of resident Non-European servants and employees is to be reserved to the extent of not less than one twentieth part of the total constructed floor space. This accommodation must be erected over at least 50% of this reserved floor space simultaneously with the erection of the main building.

Elevational control of buildings. It is essential that all proposed buildings and alterations or additions to buildings are in harmony with their surroundings as to design, external appearance, and materials to be used in their construction, and to this end all development is to be subject to such special control as the Council determines.

5.3.2. 1952.

Response. The City and Water Engineer's regulations became the nucleus of the Town Planning Scheme in course of preparation, as adopted by the Durban City Council on the 19th December, 1952, and which became operative on the 19th February, 1953. His proposals were not accepted in total, however. Coverage was increased to a third of the site, height was increased to 4 storeys, and the Floor Space Index to 0,8. Parking was not regarded as a necessity, so this was omitted from the regulations, together with the minimum plot size requirement.

The 1952 regulations were the first planning guidelines for development in Durban.

Goals. The goals set out in the City & Water Engineer'S report (1950) were adopted as the goals for the new planning regulations; except for the goal concerning the provision of parking spaces.

Regulations. (Town Planning Records)

Height. Height restriction of 45 ft. (13,7m) This allows a 4 - storey building.

Building line and spaces about buildings : A building line of 30ft. (9,2m) side spaces a minimum of 15ft. (4,6m) or half the height of the building; and rear space a minimum

of 15ft. (4,6m), but it varies with the height of the building.

Coverage : 33⅓%

Floor Space Index : 0,8

The regulations regarding the provision of Servants' Quarters, and those dealing with the external appearance of buildings, remained the same.

Resultant development.

Within the short period of time before the 1954 amendments, no blocks of flats were approved for the Berea North area.

.3.3 1954.

Response.

The City Council felt that the regulations for the Berea area were not comprehensive enough to adequately guide the flat development taking place, so special consideration was given to revising them. The amendments were adopted in 1954.

The regulations reflect the recognition of the "High" and "Low" Bereas as different types of residential areas. The Low Berea has slightly lower standards and a higher density of development, and it caters for the needs of the lower socio-economic groups, while the High Berea has tended to fulfil the needs of the more affluent groups. The regulations therefore require a higher standard of development on the High Berea.

For the first time parking requirements were incorporated in the regulations and these appear to be based

on some implicit assumptions about the types of people occupying certain sizes of flats and, therefore, about their car owning capacity.

The motivation behind the reduction in coverage was to provide better views for all flat blocks; as this 20% coverage purports to encourage tall, narrow, tower blocks rather than the slab blocks which were so prevalent until this time. The idea being that point blocks cut out less of the view than slab blocks.

The popular trend in flat development in the late 1950's was the "tower in the park" ideal, and this only served to reinforce the reasoning behind the 20% coverage and the removal of the height restriction. This ideal was expressed as a tall block of flats, with a low coverage, set in spacious landscaped gardens.

Goals. The most important goal was to lower the coverage and remove the height restriction in order to achieve the "tower in the park" ideal, and so that blocks would cut out less of the view.

All the goals listed for the 1950 proposed regulations (City and Water Engineer 1950) were adopted, including the one about the provision of parking spaces.

Regulations. The amendments made to the existing regulations were as follows :- (Town Planning Records)

Height : Limitation on height removed.

Building line and spaces about buildings : Rear space changed to read : 'not less than 15 ft. (4,6m) in width, or half the height of the building, whichever is the greater.'

Coverage : 20%.

Minimum size of subdivisions : 9 000 sq. ft. (837 sq. metres)

Floor space : Floor Space Index to be determined in accordance with Table 5 (a).

'However, in respect of the Development of the sites in the High Berea area for which, in terms of the above table, a floor space index of greater than 0,5 is awarded, the Council may, in approving such development, impose such conditions limiting the total number of dwelling units to be permitted on the site as it deems expedient.' (Town Planning Records)

Parking : 2 parking spaces for every 5 living rooms in 1 - and 2 - living roomed flats ; and 1 parking space for every 4 living rooms in 3 -, or more, living roomed flats.

Additional features of the regulations :-

Definition of "High" and "Low" Berea. "High Berea" defined as that land lying west of the centre lines of Windermere Road, Gordon Road, Cowey Road, Edith Benson Crescent, Botanic Gardens Road, Bulwer Road, Clark Road, Brand Road, McDonald Road, Frere Road and Bartle Road "Low Berea" defined as that land lying east of this boundary. This distinction is necessary because not all the regulations are the same for both areas.

Calculation of floor space.

In the case of buildings designed to contain 6 or more dwelling units, garaging and Non-European servant accommodation is to be accommodated wholly within the portion of the building below first floor level and such area is to be excluded in the calculation of the floor space index.

TABLE 5 (a). FLOOR SPACE INDEX - 1954.

SITE AREA SQ.FT.	FLOOR SPACE INDEX	
	HIGH BEREA	LOW BEREA
Less than 10,000	0,24	0,24
10,000 - under 11,000	0,27	0,27
11,000 - under 12,000	0,27	0,30
12,000 - under 13,000	0,30	0,33
13,000 - under 14,000	0,30	0,36
14,000 - under 15,000	0,33	0,39
15,000 - under 16,000	0,33	0,42
16,000 - under 17,000	0,36	0,45
17,000 - under 18,000	0,36	0,48
18,000 - under 19,000	0,40	0,52
19,000 - under 20,000	0,40	0,56
20,000 - under 30,000	0,43	0,60
30,000 - under 40,000	0,46	0,60
40,000 - under 50,000	0,50	0,60
50,000 - under 60,000	0,52	0,60
60,000 - under 70,000	0,55	0,60
70,000 - under 80,000	0,58	0,60
80,000 - and over	0,60	0,60

Likewise for laundries so located.

The subdivision of land.

Approval for the subdivision of land can be refused if the Council feels that the subdivisions to be created are less suitable for General Residential development that the unsubdivided plot.

> 'Where it appears to the Council that danger or obstruction to persons and/or vehicles using the adjoining street is likely to result from the use of a particular plot as the site of a residential building, then the Council may prohibit such building, use or authorize it subject to specified conditions.' (Town Planning Records)

In 1957 the Floor Space Index was altered. Table 5 (b) gives the adjusted information. The effect of this change was to increase the Floor Space Index for smaller sites.

Resultant development.

The photographs feature some examples of what was actually built in terms of these 1954 (and 1957) amendments to the regulations. Some development is, indeed, in the form of the "tower in the park" ideal, although the quality of the landscaped open space varies. However, as can be seen, the slab block still persisted under these controls.

TABLE 5 (b) FLOOR SPACE INDEX - 1957

SITE AREA SQ.FT.	FLOOR SPACE INDEX	
	HIGH BEREA	LOW BEREA
Less than 10,000	0,30	0,30
10,000 - under 11,000	0,30	0,30
11,000 - under 12,000	0,30	0,30
12,000 - under 13,000	0,30	0,33
13,000 - under 14,000	0,30	0,36
14,000 - under 15,000	0,33	0,39
15,000 - under 16,000	0,33	0,42
16,000 - under 17,000	0,36	0,45
17,000 - under 18,000	0,36	0,48
18,000 - under 19,000	0,40	0,52
19,000 - under 20,000	0,40	0,56
20,000 - under 30,000	0,43	0,60
30,000 - under 40,000	0,46	0,60
40,000 - under 50,000	0,50	0,60
50,000 - under 60,000	0,52	0,60
60,000 - under 70,000	0,55	0,60
70,000 - under 80,000	0,58	0,60
80,000 - and over	0,60	0,60

These examples also illustrate the difference in flat development between "High" and "Low" Berea.

Parking areas are a dominant element in the design of blocks built during this period. This is especially true of many blocks in the "Low" Berea, which are characteristically of medium height (3 to 7 storeys), with very little green open space, and with a "sea" of tarmac underneath and surrounding the block - on which parking takes place.

There are very few blocks which achieve a reasonable amount of usable open space, even though this is one of the aims behind the regulations.

"Tower in the Park" - High Berea.

Slab blocks in the "park" on the lower Berea Slopes.

No usable open space, only a "sea" of tarmac surrounding the block.

1965.

The Town Planing Scheme in course of preparation did not prove entirely satisfactory in several respects, owing to the numerous cases which required to be dealt with by special consent, and the large number of amendments which were made from time to time. The City Council therefore decided that a final scheme should be prepared in respect of the Berea Area. The City Engineer issued a report in this regard in May, 1965. He proposed a complete revision of the regulations applying to the Berea area. (City Engineer 1965)

3.4. 1967.

Response. The revised regulations were adopted by the City Council on the 19th June, 1967, and they came into operation on the 19th March, 1968. (These regulations are applicable to the Berea Section of the Town Planning Scheme in course of preparation for the City of Durban.)

One major change in the revised set of regulations is the abandonment of the Floor Space Index and the adoption of the Plot Area Ratio system. The report on the planning of the Berea (City Engineer 1965) lists some of the weaknesses and administrative difficulties experienced with the Floor Space Index (F.S.I.) system :-

a) The basic site area used in the F.S.I. calculation consists of the actual site area plus half the area of the abutting street. Difficulties occur

where streets have irregular boundaries or variable widths, or at complex street intersections .

b) The F.S.I. system controls only the total floor area without regard to the number of units to be provided. The tendency, therefore, is for entrepreneurs to crowd into the building a large number of very small dwelling units, as this is a more paying proposition.

c) The F.S.I. system gives a decided advantage to properties situated on wide streets as compared with those on narrow streets. This does not make for equitable treatment of property owners.

d) Corner sites are more advantageous than sites situated in mid-block positions because they are credited with half the area of both streets abutting the site.

The Plot Area Ratio (P.A.R.) system operates by taking the actual plot area as the basic site area, and multiplying it by the Plot Area Ratio, in order to determine the total floor area of the building or buildings permitted on the site. The P.A.R. system eliminates the technical difficulties which have been described in using the F.S.I. system, and it also makes for more equitable treatment of properties, wherever they are located. (City Engineer 1965)

The report also puts forward a proposal to limit the number of dwelling units which may be included in a block of flats, this limitation being related to the total

floor area permitted. To encourage developers to provide larger flat units than would otherwise be the case, the plot area ratios have been calculated to give total floor areas approximately 20% greater than those under the F.S.I. regulations. This dual control system of limiting the number of dwelling units and also the total floor area, the latter being on fairly generous lines, leaves the way open for developers to provide larger flats than those ordinarily encountered on the Berea. The planners feel that this step is progressive in wncouraging a better class of development.

Another important feature of the P A.R. system is that it is on a sliding scale with a higher ratio for larger plots. This should encourage the consolidation of small plots into sites of reasonable dimensions. Some of the advantages of this are listed, as follows :-

1) The architect is given greater freedom of design on a large plot.
2) The consolidation of sites into larger plots will avoid constant applications for relaxations of building lines and space about buildings.
3) The dwelling units themselves can be designed on more generous lines if the building is larger.
4) The development of a street with large buildings on reasonable sites is more attractive than numerous small buildings situated in close proximity to each other.

Goals. The goals are never stated explicitly, but the understanding is that these are the same, or similar, to those initially stated by the City and Water Engineer in 1950. (City and Water Engineer 1950)

The report on the Berea (City Engineer 1965) does, however, give reasons or objectives, for some of the dimensional regulations, and these are set out below :-

1. *Building Line*. The objectives put forward for retaining a building line are :-

   a) to ensure an enhancement of the street picture by increasing the distance between buildings on either side of the street.

   b) to make land available between the buildings and the street for gardening purposes, the planting of trees, etc., thus increasing the aesthetic standard.

   c) sometimes to ensure that the street may be widened at some future date without unduly interfering with the ultimate aesthetic standard.

2. *Coverage and space about buildings*. The existing coverage of 20% is adhered to, to ensure that there is adequate space about buildings, - 'a condition which makes for more satisfactory living conditions for the community.' (City Engineer 1965)

The reasons given are : -

   1) It avoids multi-unit buildings being placed close together with the consequent interference with each other's amenities ;

2) It ensures that a reasonable amount of space is available within the curtilage of a particular site for the recreation of children ;

3) It enables gardening development to take place, thus improving the aesthetics of the whole community ; and

4) It avoids the wholesale destruction of trees when flat development takes place on a site.

Another argument put forward in support of the low coverage, is that, if the buildings are spaced a reasonable distance apart, - which the planners feel is ensured by the coverage and space about buildings regulations, - then other buildings can obtain views through the open spaces between them.

It is interesting to note that the stated priority is to ensure that each developed property provides its own open space to a large extent. This is also the explicit objective behind the off-street parking provisions, which arrange the parking spaces beneath the block where possible, so that they do not occupy the 'valuable open areas of the site.' (City Engineer 1965)

3. *Off-street parking.*

The report emphasizes the necessity of ensuring adequate off-street parking for the residents of blocks of flats, and sets the minimum requirement at 1 parking space per unit. The reason given here is that the road structure is hard-pressed to cope with the problem of increasing traffic

and any unnecessary long term parking which takes place in the street merely aggravates this problem.

Regulations.

Height : No height restriction.

Building line and spaces about buildings : No part of any building to be erected within 25 ft. (7,5m) of the street line.

Where existing buildings in any area are sited more than 25 ft. (7,5m) from the street line the Council may require any new building or additions to an existing building to be set back a similar distance. (The street line is the common boundary of the subdivision and the street, existing or as contemplated by the Berea Town Planning Scheme.)

'Rear space to be

a) not less than 15 ft. (5m) in width, or

b) a width calculated on the basis of 4ft. (1,2m) for each floor level, whichever is the greater; provided that outbuildings detached from the main building may be erected closer to the rear boundary than specified here ; and provided that where the rear space calculated in terms of b) exceeds 50 ft. (15m) the prescribed rear space shall be 50ft. (15m).

Side space to be

a) not less than 10ft (3m) in width, or

b) a width calculated on the basis of 4ft. (1,2m) for each floor level, whichever is the greater; provided that detached outbuildings may be

erected closer to the side boundary; and provided that where the side space calculated in accordance with b) exceeds 50 ft. (15m) the prescribed side space shall be 50 ft. (15m).

As regards front, side, and rear spaces, the Council may, by special consent, relax these requirements if it is satisfied that no interference with the amenities of the neighbourhood, existing or planned, with result, and that on account of :

(a) the location of the subdivision in relation to streets and other subdivisions in the immediate neighbourhood; or

(b) the levels of the subdivision or the adjoining land; or

(c) the shape or size of the subdivision ; or

(d) the siting of existing buildings on or in the vicinity of the subdivision; or

(e) the acquisition of portion of the subdivision by the Council for street improvements.

the development of the subdivision in accordance with the requirements would be unreasonably difficult or would be less harmonious with adjoining properties than if the space requirements were relaxed.

Any portion of the building which is below the level of the ground, may fall within the rear or side space of the site.' (Town Planning Records)

Coverage. 20% coverage for residential buildings in both G.R. 1 and G.R. 2 zones. In calculating coverage the area of the subdivision does not include the area of any existing street, area reserved for road widening, swimming pool, or tennis court. Special permission may be obtained to allow coverage up to 40%, if, by reason of the shape or topography of the site, difficulties of access, or the nature or position of any buildings on adjoining sites, the City Engineer feels it is unduly difficult to limit the coverage to 20%; provided that the extra coverage is provided by means of open patios, balconies, etc., which meet with his approval.

Density. 'In General Residential zones not more than 1 dwelling house, pair of maisonettes, or single building of the type permissible in such use zone, together with the usual outbuildings, is to be erected on any site; unless the area of the subdivision is 40 000 sq. ft. (3720 sq. metres) or more, then the Council may, by special consent, permit more than one building.' (Town Planning Records.)

Minimum size of subdivisions.

No new subdivisions are to be less than 9 000 sq. ft. (837 sq. metres), and no residential building is to be erected on a subdivision which is less than the minimum area prescribed for new subdivisions, without the special consent of the Council.

Floor space and number of units. No block of flats to have a greater area than that calculated in accordance with the relevant plot area ratio specified in Table 5(c) in sq. feet

TABLE 5 (c) PLOT AREA RATIO TABLE IN SQUARE FEET

SITE AREA IN SQUARE FEET	GENERAL RESIDENTIAL 1 USE ZONE		GENERAL RESIDENTIAL 2 USE ZONE	
	Plot Area Ratio	Maximum No. of Dwelling Units	Plot Area Ratio	Maximum No. of Dwelling Units
Less than 10,000	0,40		0,40	
10,000 - 10,999	0,40	4	0,40	7
11,000 - 11,999	0,40	5	0,40	8
12,000 - 12,999	0,41	5	0,44	9
13,000 - 13,999	0,42	6	0,48	11
14,000 - 14,999	0,43	6	0,52	13
15,000 - 15,999	0,44	7	0,55	14
16,000 - 16,999	0,45	7	0,58	16
17,000 - 17,999	0,46	8	0,61	18
18,000 - 18,999	0,47	9	0,64	20
19,000 - 19,999	0,48	9	0,67	22
20,000 - 29,999	0,51	1,000	0,69	600
30,000 - 39,999	0,55		0,70	
40,000 - 49,999	0,59		0,71	
50,000 - 59,999	0,63		0,72	
60,000 - 69,999	0,67		0,73	
70,000 - 79,999	0,71		0,74	
80,000 - and over	0,75		0,75	

TABLE 5 (d) PLOT AREA RATIO TABLE IN SQUARE METRES

SITE AREA IN SQUARE METRES	GENERAL RESIDENTIAL 1 USE ZONE		GENERAL RESIDENTIAL 2 USE ZONE	
	Plot Area Ratio	Maximum No. of Dwelling Units	Plot Area Ratio	Maximum No. of Dwelling Units
Less than 1,000	0,40		0,40	
1,000 - 1,)99	0,41	5	0,44	8
1,100 - 1,199	0,42	5	0,48	10
1,200 - 1,299	0,43	6	0,52	12
1,300 - 1,399	0,44	7	0,55	14
1,400 - 1,499	0,45	7	0,58	16
1,500 - 1,599	0,46	8	0,61	18
1,600 - 1,699	0,47	9	0,64	20
1,700 - 1,799	0,48	9	0,67	22
1,800 - 1,999	0,51	11	0,69	24
2,000 - 2,999	0,55		0,70	
3,000 - 3,999	0,59		0,71	
4,000 - 4,999	0,63		0,72	
5,000 - 5,999	0,67		0,73	
6,000 - 6,999	0,71		0,74	
7,000 - and over	0,75		0,75	

and in Table 5(d) in sq. metres, and depending on which G.R. we zone it is situated in. These tables also specify the maximum number of dwelling units permissible. In calculating the total floor area allowed, any portion of the building below first floor level, and which is intended for storage, laundry purposes, or garaging, is not taken into account. Servants' Quarters are counted however.

> 'If the portion of the building given over to garaging vehicles exceeds by more than 50% the minimum requirements for such parking, the excess may be required to be taken into account in the calculation of floor area ... Where the site is 20 000 sq. ft. (1860 sq. metres) or more, the maximum number of dwelling units permissible on the site is determined by dividing the permissible floor area by :-
>
> (i) 1000 (990) in the case of sites in a G.R. 1 zone
>
> or (ii) 600 (55) in the case of sites in a G.R. 2 zone;
>
> the resulting quotient in either case being taken to the nearest unit, or the next highest unit if there is a fraction of one half. If the building consists entirely of flats, the maximum permisible floor area may be increased by 20%, but this is not taken into account when calculating the maximum number of dwelling units allowed.' (Town Planning Records)

Parking :- One parking space for each unit. Parking spaces have to be arranged so that there is independent access to each vehicle parking space and suitable access from and to a street. The City Engineer has the right to indicate the position and number of entrances to or exits from parking areas. Parking areas can only be used for parking vehicles.

External appearance of buildings. ' The external appearance of all classes of buildings which any person proposes to alter, extend, or erect, and their harmonious relationship with their environment, is subject to the Council's approval. The Council may disapprove a proposal if it is of the opinion that the external appearance of such building would be unsightly in itself, or if it considers that the building is architecturally sub-standard or unsuitable for the locality, or, having regard to the character of the locality, existing or as contemplated by the Town Planning Scheme, or of the buildings erected in such locality, it would dis-figure or be out of harmony with the locality or neighbouring buildings.' (Town Planning Records). Any person may appeal to the Appeals Board against a decision.

Resultant development.

The flat blocks built according to these 1967 regulations do not differ widely in appearance from those built under the 1954 regulations. The parking space requirements in the more recent developments are, however, higher, increasing the dominant role of these areas still further .

The fact that coverage could be increased to 40% under certain conditions, opened the way for new, lower forms of development. Since 1972 there has been a trend in Durban towards "duplexes," "townhouses," and other similar types of development. This was possible because the extra coverage was allowed in the form of open patios, balconies, etc.

On some sites a mixture of the higher and lower forms of flat development has occurred, lending some interest and excitement to the residential built environment.

Mixed medium rise and duplex-type flats.

Tall Tower with extra parking at the side

Podium-type development because of coverage being taken up by parking space.

1969. *addition to the regulations.*

Parking.

' Special consent may be obtained to relax, modify, or waive the parking requirements if the Council is satisfied that by reason of limited access, or the frontage, depth, area or shape of the site, or any existing development thereon, compliance with such provisions would render the site incapable of development for the purpose for which it is zoned; and such modification or waiver would not create any danger to vehicular traffic or pedestrian traffic in the area .'
(Town Planning Record .)

.5 1970.

From the 1st January, 1970, all measurements had to be in metric units. An important addition was made to the regulations in terms of "floor space."

'The total permissible floor area is not to exceed 10 000 sq. metres without the special consent of the Council, which consent shall in particular not be granted unless :-

(i) the Council feels the development proposals will not have a detrimental effect upon the amenities of the area, and

(ii) adequate provision is made for the horticultural and recreational development of the site for the benefit and use of residents, and

(iii) adequate provision is made for indoor facilities, available to all residents, for active and passive recreation, for the care of children, and for laundry and washing facilities.' (Town Planning Scheme Regulations)

What is interesting to note in this addition to the regulations is the concern with the provision of extra facilities and amenities. People are beginning to expect more than just a dwelling unit from a flat development, especially in a very large building project. This is because flats are becoming more permanent homes for large numbers of people. A major reason for this is the high cost of single-family dwellings, as well as the introduction of Sectional Title.

3.6. 1977.

In 1977 an amendment was adopted in respect of duplex-type developments, to allow them a 40% coverage.

Coverage. The maximum permissible coverage of a site in a G.R. 1 and 2 use zone is 40% in the case of a residential building 'which does not contain more than 3 storeys in a vertical line, provided that each unit of accommodation has direct access from the floor containing its living accommodation to a garden area at approximately the same level, to the City

Engineer's satisfaction.' (Town Planning Scheme Regulations)

This amendment illustrates how the dimensional controls are moulded and influenced by the fashion and popular demand in housing at the time.

Summary. Table 5(e) is a summary of the historical evolution of the development controls for the Berea North General Residential 1 and 2 use zones, as these apply to the development of flats.

TABLE 5(e) HISTORY OF DEVELOPMENT CONTROLS AFFECTING BEREA NORTH FLATS

REGULATIONS

DATE	HEIGHT RESTRICTION	BUILDING LINE	SIDE SPACE	REAR SPACE	COVERAGE	DENSITY	MIN. SIZE OF SUBDIVISION	FLOOR SPACE	NO. OF UNITS	PARKING
PRIOR TO 1952	35ft (10,7m) 3 storeys		ALL	DEVELOPMENT	GOVERNED ONLY BY BUILDING 95%		BY-LAWS			
(1950 PROPOSALS)	same	30ft (9,2m)	Min. 15ft (4,6m) or half height of building	Min 15ft (4,6m) but depends on height	25%		15,000 sq. ft. (1395 sq. m)	F.S.I. = 0,4		1 parking space per unit
1952	45ft (13,7m) 4 storeys	same	same	same	33 1/3%			F.S.I. = 0,8		
1954	none	same	same	Min. 15ft (4,6m) or half height of building	20%		9,000 sq. ft. (837 sq. m)	F.S.I. depends on plot size & G.R. zone		No of spaces dependent on type of flat
1967	none	25ft (7,5m)	Min 10ft (3m) & 4ft (1,2m) per floor level Max 50ft (15m)	Min 15 ft (5m) & 4ft (1,2m) per floor level Max 50ft (15m)	20-40%	1 building per subdivision under 40,000 sq. ft (3720 sq. metres)	9,000 sq. ft (837 sq. metres)	Use P.A.R. -depends on plot size & G.R. zone	Calculated on plot size & G.R. zone	1 parking space per unit
1970 ONWARDS	none	same	same	same	Added 40% for duplexes etc. (1977)	1 building per subdivision under 3600 sq. metres (38750 sq. ft.)	900 sq. metres (9688 sq. ft.)	Same (Special consent necessary if exceeds 10000 sq. metres (107640 sq. ft.)	Same	Same

A view across the lower Berea slopes giving an indication of the form of development which can be expected to cover these slopes.

5.4 The Resulting Environemnt.

Having examined the use regulations and dimensional regulations separately, this section proposes to look at the interaction of the two in the resulting total environment of Berea North.

One noticeable feature of the zoning distribution is the very large area which is zoned G.R. 2 on the lower Berea and G.R. 1 on the higher Berea. If these very extensive areas are developed to the maximum within the existing limitations, the result will be one of large stretches of flatland with little in the way of open space or other development to break the overwhelming monotony. There is no reason why these areas should not develop to capacity, as long as there is a demand for flats in Berea North. There are already large pockets within these G.R. 1 and 2 zones which are fully developed, and some idea of the result can be ascertained from the following photographs. The monotony is aggravated by the sameness of the blocks the dimensional regulations are producing.

In some areas the blocks of flats are overlooking and overshadowing single family dwellings and maisonettes. It is a fact too, that many flat developments are cutting off the view from other blocks as well as from the low-rise forms of residential development.

Berea North is an area of contrast. Where there are pockets of pre 1952 development the buildings crowd onto the street and are very close to one another. They are typically 3 storey slab blocks on small sites, and usually have poor parking facilities. Along Ridge Road

Monotony on the lower Berea slopes.

Blocks range one behind the other up the Berea slope.

Blocks of flats overlook and overshadow Special Residential housing.

and other areas which have large sites, the high-rise towers are usually set further back from the road and parking is all off the street. Some gardening development has usually taken place, and these blocks have achieved the "tower in the park" atmosphere.

The subdivisions on the High Berea are usually larger than those on the Low Berea and this influences the nature of development. On the Low Berea there are many smaller blocks of flats all next to one another, while on the upper slopes the blocks are larger and are more spaced out.

Where a group of tall slab blocks are clustered together, as in Musgrave Road, they form a wall blocking off all views from behind them, and overlooking and overshadowing all surrounding development .

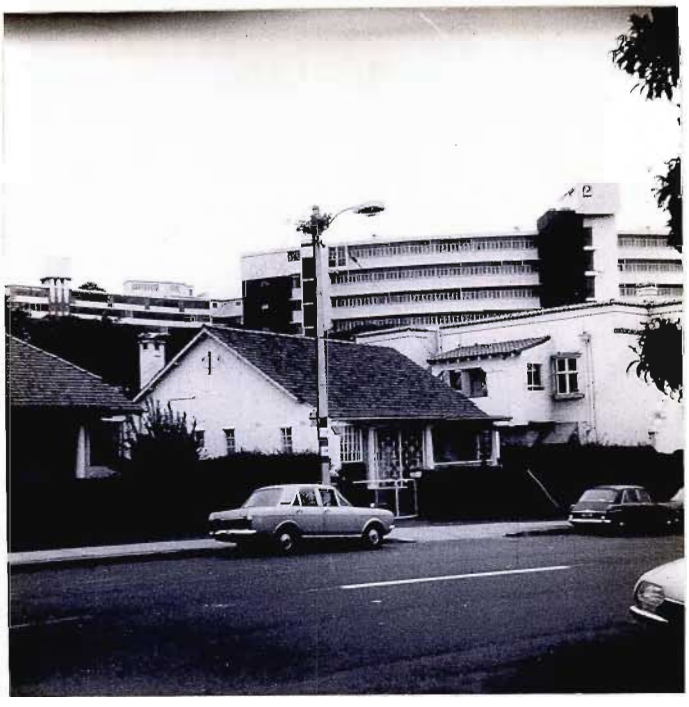
At present there are only isolated blocks, and some clusters, of high-rise development across the Berea slopes, so views can still be had by buildings higher up the slopes. However, if the slope becomes any more developed these will be cut off very considerably .

What is typical of development on the Lower Berea, is the straight up-and-down block with parking underneath and tarmac all around, leaving very little green open space.

Even with regulations aimed at achieveing areas of private open space around flats, the results are disappointing. This is true even of the luxury high-rise developments on the High Berea. The reason for this

A group of pre 1952 flats.

An area of large sites and high towers set back from the street.



A group of slab blocks in Musgrave Road blocking off the view from those buildings behind them.

The present situation with scattered blocks across the Berea slopes.

failure is the nature of the off-street parking requirements which have to be met.

The 40% coverage allowance for "duplexes," "townhouses," etc., has given rise to some enclaves of low-rise flat development on the Berea. This has lent some variety and interest to the high density zones and has helped to fulfil the particular housing requirements of some sectors of the population. However, privacy is likely to be a problem for these new developments where they are surrounded by tall blocks of flats.

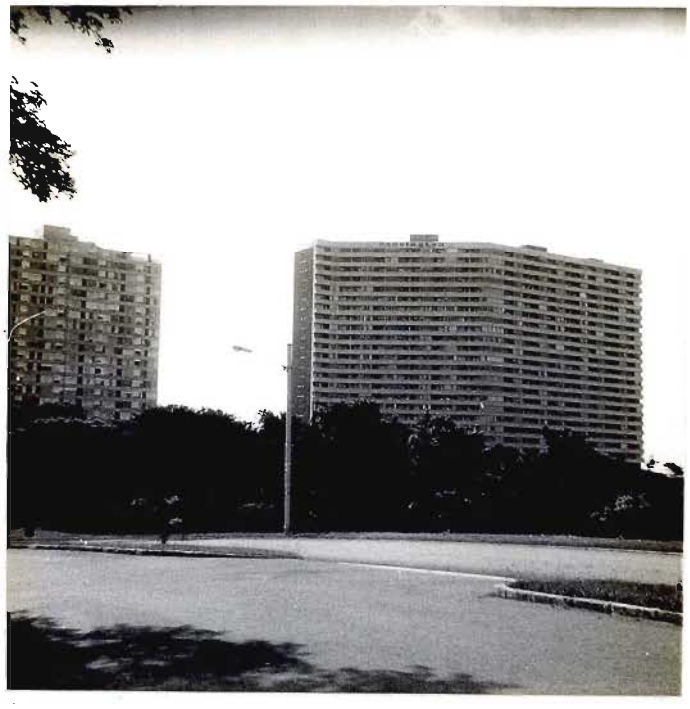
An example of the new developments taking place on the Berea slopes.

Luxury flat development with large parking areas.

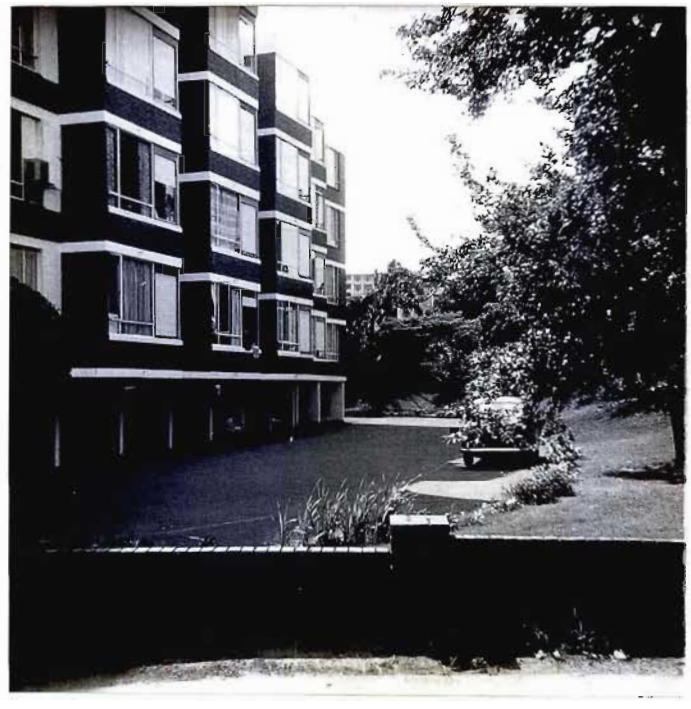
A new duplex development in Ridge Road.

A large site with little of the "park" effect.

There is a rather unique cluster of high-rise slab blocks situated at the north end of the ridge. This cluster stands out as a landmark on the top of the ridge and has expansive views out over the Umgeni Valley and the sea, as well as inland. It is surrounded by large areas of open space, much of it indigenous bush, which have tended to keep this high density zone separate from the Special Residential areas of Morningside.



Kensington Cluster.



Typical blocks of flats on the Lower Berea.

Another view of the typical development taking place on the Low Berea.

Duplex development between high-rise blocks.

CHAPTER 6.

EVALUATION OF THE BEREA NORTH REGULATIONS.

6.1. Evaluation of the Planning Process.

It has been ascertained already that zoning and development controls are "tools" for the implementation of plans. However, for these tools to be of real value they must be part of a systematic and rational planning process.

What has been said in general of the planning process, in chapter 1, can be applied to the Development Control aspect of planning equally well. Dimensional and use regulations should be the product of a systematic and rational methodology.

Initially therefore, the goals and objectives for these regulations should be spelt out. This should be followed by a consideration of many, if not all, possible ways of achieving these goals and objectives. Evaluation takes place subsequent to this, to determine which alternative achieves these the best. This may involve the testing of different possibilities in the built environment. Evaluation necessarily requires a measurement scale against which to rate each alternative, so performance criteria need to be

devised. These criteria give a rating for the performance of the alternatives in achieving the goals and objectives set out at the beginning. The regulations which best achieve the desired environment should then be adopted. This is not the end, however, as there ought to be a continuous process of monitoring and review subsequent to this, to insure that the goals and objectives continue to be achieved in the best possible way.

From a study of all the records and reports dealing with the Berea North district, it appears that no specific process has been set up to arrive at the regulations governing flat development in this area. Rather, the regulations have tended to evolve through trial and error and in answer to specific problems that have arisen .

The existing Town Planing Department structure also militates against the application of a comprehensive methodology, as the Section in charge of the planning and zoning of Berea North is different to that Section which applies the regulations and advises the public . The lack of strong communication links between them severely hampers the feedback from the private sector and the housing market from filtering through to the planners, and the intuitive goals and objectives behind the regulations from having any bearing on the decisions that are made with regard to individual applications .

This is not to say that there are no goals or objectives with regard to the zoning and dimensional regulations, but rather that there is no explicit systematic and rational planning framework from which they have evolved and which can be used to study and evaluate the regulations

guiding flat development on the Berea.

The general aims and goals do appear in the literature, to explain certain decisions that have been made regarding the regulation of the built environment, but these are not viewed as the beginning of a process. There is no elaboration of the goals into specific objectives, and from there to a consideration of different policies to achieve these objectives, followed by the examination of alternative strategies and thence to the possible controls or regulations required. There is no definite link between the goals and the regulations in force. It would appear that no alternative ways of achieving the goals are explored, nor is it conclusive that the chosen regulations are the best.

A certain amount of monitoring and review is seen to take place, as evidenced in the responsiveness of the regulations to particular changes; for example, the 1977 amendment allowing a 40% coverage for "duplexes," which was in response to a popular demand for this type of housing. A number of outside studies and reports were also submitted to protest in favour of an increase in coverage for flats.

All in all, there is no clear statement of methodology, and generally, an avoidance of stating things too specifically.

5.2. Evaluation of the Goals.

Both the goals put forward in support of zoning, and those in support of the dimensional regulations, compare favourably with those listed at the end of chapters 2 and 3 as being those goals which have particular relevance to flat

development. All the aims given for the Berea North regulations are reflected as being legitimate in terms of the theory.

5.3. Evaluation of the Regulations, their Objectives, and the Resultant Development.

5.3.1. Zoning Regulations.

Relating the Berea North zoning regulations to the earlier discussion on zoning (in Chapter 2), it can be seen that in Durban an attempt has been made to eliminate widespread administrative discretion - which Leary (1968) felt was very important. The Use Regulations are also positive in that they indicate the uses which are permitted in each zone, rather than the reverse of listing all the uses which are prohibited. In relation to Berea North, planned unit development and cluster zoning could bring about an exciting improvement to the development which is presently being encouraged.

Some of the criteria used to evaluate the zoning of Berea North are derived from the goals behind the zoning regulations, while the others have been drafted to fulfil the evaluation purposes of this study. These criteria will be dealt with individually.

1. *Is the area zoned General Residential suitable for flat development?*

Some parts of the Berea are very steep, making the construction of flats very difficult, such as in the lower Morningside area, while some other areas are relatively level. Most of this

General Residential area enjoys the prospect of sweeping views across the downtown city area and the ocean. These zones also have easy access to the central business district by private or public means of transport, and are centrally located with respect to the industrial zones of the City. The Berea North General Residential zones may, therefore, be regarded as being highly desirable in terms of flat development, except where the steep topography makes construction difficult.

2. *Is the zoning related to the provision of public amenities?*

The Berea North high density zones have been suitably located with respect to the major shopping nodes, schools, and open spaces; and the provision of these facilities is related to the planned total population for the Scheme area.

3. *Is the zoning going to achieve a more harmonious development of the Berea as a whole?*

This is a debatable point. However, it is a fact that a very large area has been zoned G.R. 2 on the lower slopes of the Berea, and G.R. 1 on the higher Berea. If these very extensive areas are developed to the maximum within the existing limitations, the result will be one of large stretches of flatland

with little in the way of open spaces or other development to break the overwhelming monotony. There is no reason why these areas should not develop to capacity, as long as there is a demand for flats in Berea North. With the high-rise form of flat development which is so typical at present, this means that large areas within the Special Residential and Maisonette zones will be cut off from the view. The blocks of flats will also interfere with each other's views. Having large areas given over entirely to flat development and other areas preserved solely for single-family dwellings may not be the most harmonious form of development for Berea North. A more pleasing environment may have been created if the high density residential buildings had been located in clusters scattered here and there throughout the district, instead of in the present form of large continuous strips of flat development.

4. *Is the zoning going to have any ill-effects on the Special Residential and Maisonette zones?*

Where the General Residential zones end alongside Special Residential or Maisonette development, or protrude into such areas, it is likely that large blocks of flats will overlook and overshadow such development, and the residents will suffer a loss of privacy

and amenity. Many dwellings will also be cut off from the view, due to the location of the General Residential zones.

The Berea North areas is seen to be suitable and desirable for flat development, especially with regard to its proximity to the CBD. However, the actual location and extent of the General Residential zones is likely to cause problems for the surrounding single-family and maisonette developments, and it will result in large stretches of high density housing. Although the topography is a problem in areas where it is steep it is also the most important factor in lending character and amenity to the residential zones on the Berea, and in breaking the overwhelming monotony of the large tracts of flat development planned.

3.2 Dimensional Regulations.

In terms of the general discussion about the nature of development controls (Chapter 3), the Berea North dimensional regulations are classified as being traditional and fairly rigid, as they define set spaces about buildings, coverage, etc. However, in combination with these conventional requirements, the regulations also include one of the new devices mentioned by Leary (1968) i.e., the Plot Area Ratio.

There are a number of criticisms which have been levelled at the existing dimensional regulations. These criticisms revolve around several factors which have not

been taken into account in arriving at the regulations, and they are discussed below.

1 . *Slope*.

The Berea rises from approximately 7m to 150m above mean sea level over a distance of about 1,6 km, with an average slope of 1 : 10, which in places becomes as steep as 1 : 4 . However, the development controls are applied uniformly over the whole area, with no regard to gradient, orientation, prospect, vegetation and access . (The Durban Chamber of Commerce 1976)

2. *Orientation*.

The orientation of the building on the site, and in respect to neighbouring blocks, has not been taken into account in determining the side space requirements; as two abutting blocks facing in the same direction do not require a side space, whereas, in the case of two blocks which face each other, the side space is not great enough to afford them any privacy .

The side spaces that are created are usually too narrow to allow them to be used for anything worthwhile, and they are frequently over-shadowed. This, coupled with the fact that the wind tends to be funnelled down these narrow gaps, makes them very unpleasant places which are hardly ever utilized .

3. *Sociological and Psychological Problems* .

The Chamber of Commerce and other interested persons feel that not enough attention has been given to these problems. They feel that there are sociological and psychological problems associated with high-rise living environments, and

the Chamber's memorandum (The Durban Chamber of Commerce 1976) points out aspects which have been researched namely, the psychological alienation experienced by many tenants; the problems of supervising children; vandalism and crime, which breed where spaces are public but enjoy no surveillance - lifts and corridors; the isolation suffered by mothers with young children, and by the aged and the infirm; the relatively high turnover rate ; and the lack of a neighbourhood atmosphere.

4. *Cost.*

High-rise flat developments cost more than low-rise ones because of a number of reasons, including more expensive foundations, more and/or faster lifts, longer building periods resulting in greater loss of interest, expensive water and fire services, extensive lighting of corridors, emergency electricity supplies for lifts and lighting, etc.

The regulation requiring parking to be provided underneath the block has lead to an increase in the height of buildings, and it cuts the units off from any direct connection with the ground. However, in many cases there is the very expensive construction of basement or semi-basement parking, and in most cases the need for a very costly structural system between the column grid for the flats above and that for the garage below, since the spatial dimensions of flats and of parking garages are very different . The Chamber suggests that separate parking structures, well integrated by sensitive landscaping and with recreation provided on the flat roofs, may be a better solution. (The Durban Chamber of Commerce 1976)

Another cost is the considerable amount of unproductive floor space in tall buildings in the form of foyers, access

corridors, and public stairs. Low-rise developments are, therefore, more economical.

5. *Permanency and Amenity.*

Tollman and Partners (1976) point out that Sectional Title will result in flats becoming regarded as a more permanent mode of accommodation for a much larger section of the population. The potential owners will, therefore, expect a greater level of amenity for their flat/home than has been the case in the past.

Having looked at these other issues, which appear to have been ignored in the formulation of the existing dimensional regulations, individual aspects of the regulations will be considered. Each aspect will be evaluated in terms of measurement criteria, some of which are drawn from the objectives - in the case of regulations; and in terms of what has been produced on the landscape.

a) *Coverage and space about buildings.*

Low coverage compels one form of development, - that of high towers, - and allows no alternative . Tollman and Partners (1976) make the point that low rise development would have a reduced visual impact on the environment which,in the context of the Berea, would have a greater potential for being harmonious with what has traditionally been a low rise residential area.

Although the Durban Chamber of Commerce (1976) welcomes the increase in coverage to 40% for duplex-type flats, they point out that this relaxation solves the problems only in respect of sites up to 5000 sq. metres. Full

utilization of bulk on larger sites requires a greater coverage, the barest minimum being 45% - which severely limits the architecture.

Tollman and Partners (1976), in a preliminary survey of recent buildings on the Berea, found that the average coverage for the residential tower component was about 7%, making the tower approximately 14 storeys in height, or more. The reasons given for this are, firstly, individual and contextual design decisions, and secondly, the problems encountered in providing covered parking as envisaged in the regulations. Elaborating on this last point, they found, in their survey, that it is impossible to accommodate all covered parking below the tower, and that most flat developments had resorted to separate single storey structures around the periphery of the tower, - the reasons for this being the difficulty of reconciling the two differing modular requirements, and the greater economy of divorced structures. The consequence of this is the utilization of permitted coverage for parking structures thereby reducing that available for the tower block. This also has the effect of depriving the residential units of any connection with the ground.

c) *Is the low coverage preventing buildings interfering with each other's amenities?*

The low coverage has prevented buildings from being placed "cheek by jowl," but this has not necessarily meant less interference in each other's amenities. This is largely dependent on orientation, elevation, and

the sizes of the sites . Overshadowing by large slab blocks is a major problem, while many blocks interfere with the views of others behind them or farther up the slope.

ii) *Is the low coverage providing open space on site for recreation?*

Attractive gardens have been developed on some of the largest sites, but there is, however, a preponderance of smaller developments which are unable to provide much open space . These developments do not meet the ideal of the "tower in a park," but instead, they are buildings surrounded by a "sea" of tarmac, as a result of the combined forces of low coverage and mandatory parking beneath the building.

> 'The area of a site which is inevitably despoiled of vegetation and trees greatly exceeds the 20% coverage allowed for the building itself . Account must be taken of driveways, external open parking and extra covered parking not under the building. On many smaller sites virtually no garden and consequently no trees remain.' (The Durban Chamber of Commerce 1976)

iii) *Is the low coverage preventing the wholesale destruction of trees?*

As mentioned above, the parking areas and driveways, especially on small sites, are leaving little in the way of open space or trees on the site. The Durban

Chamber of Commerce (1976) considers that 'increased coverage may well make it possible beneficially to distort the otherwise regular plan of a building and thereby preserve worthwhile trees.' They also point out that mature trees are frequently being successfully transplanted.

iv) *Are the spaces about buildings large enough to be useful?*

The mandatory side spaces are generally too narrow to be useful, and they are frequently overshadowed as well as being very windy.

Generally, it is only the large sites that achieve any usable open space on site.

v) *Are the spaces about buildings being used for gardening development, thereby improving the aesthetics of the whole community?*

Very little gardening development does take place, except on the large sites, and even this is not always of the type which adds anything to the aesthetic quality of the area.

b) *Building Line*

i) *Is it achieving an enhancement of the street picture?*

It is a value judgment that the imposition of a building line enhances the street picture. The building line is felt by many to discourage diversity, and they feel, therefore, that it does not enhance the street image. The Chamber of Commerce

memorandum states this graphically -

'"City" consists of diversity; of buildings and spaces of interest; of a length of relatively narrow street where the buildings crowd on to the pavement, suddenly relieved by a square where the buildings are set back; of walls and gates and then trees and garden. "City" is not the rigidly enforced regimentation about a centre line of an equal width of carriageway, sidewalk, 7,5 metres of grass and shrubs, and a wall of building on either side.' (The Durban Chamber of Commerce 1976).

ii) *Is the front space being used for gardening development, thus increasing the aesthetic standard?*

The gardening development that takes place on many sites is not significantly adding to the aesthetics of the neighbourhood, especially as this space is not very large where it meets the minimum requirements.

iii) *Is it necessary to reserve this space for street widening?*

The street pattern in Berea North is fairly fixed and the new road developments have been planned already, so the need for road reserves on all sites seems unnecessary. In the Chamber's view, the sterilization of a strip of land on either side of every street in the area is 'an unjustifiably high cost to pay for the possibly unforeseen need for road widening in a very few isolated instances.' (The Durban Chamber of Commerce 1976)

c) *Parking .*

i) Is there sufficient of-street parking for residents and visitors?

The regulations allow for one parking space per unit, and many blocks provide only the minimum number . There are, however, many cases where households own more than one motor vehicle, especially among the higher income residents .

When parking takes place in the street it can cause acute problems, especially where the adjacent streets are very narrow, as in many parts of the Berea. The regulations do not provide for sufficient parking for the residents in many cases, nor do they encourage extra parking spaces, except to exempt parking areas from the total permissible floor area . Where blocks on smaller sites do provide extra parking areas, this is at the expense of green open space areas.

ii) Is the parking satisfactory for protection from the elements and from a security point of view?

Much of the parking in Berea North is provided in the form of open parking underneath the block with additional uncovered areas surrounding the block . This type of parking does not provide much security for the vehicles, and the uncovered parking provides no protection from the elements. Other flats provide some garaging with the remainder as uncovered parking .

The requirement that off-street parking be provided for beneath the block has had severe repurcussions for the form of flat development which has taken place, and it has used up areas which would otherwise have been allocated to open space. It is felt that more consideration needs to be given to alternative ways of dealing with the parking problem.

d) *Open space.*

i) *Are open space areas being provided on-site?*

It is important to note that, although the provision of open space within the curtilage of the site is said to be one of the prime aims to be achieved by the dimensional regulations for Berea North, no regulations deal with this aspect specifically or positively. The open space area is just what is left over after the parking requirements have been met. Not even a minimum percentage of the site is required to be open space. The result of this state of affairs has been that many sites have little or no open space.

ii) The nature of the open space. *Is it large enough to be useful? Is it level? Does it receive sunshine? Is it suitable for children's recreation? Is it landscaped?*

Even if open space is provided on-site, it needs to be evaluated in terms of these criteria. Some of the open space which does occur in Berea

North is not suitable for children's games because it is not level, nor large enough, nor is it protected from the street. Other spaces are landscaped or planted but are not usable.

A point to be borne in mind is that the open space being provided around the base of the blocks of flats is really only catering for the relatively young children, and supervision is still a problem for many mothers. The school-going children need larger spaces for ball games, and these are not normally provided on the site. No thought appears to have been given to the possibility of using the roof tops of buildings, or to the provision of indoor recreational space.

e) *Density.*

The fact that the regulations only allow one building on plots up to 3600 sq. metres means that no alternative to the tower block or duplex-type block can be considered. No allowance is made for mixed-unit developments, which provide a range of housing types on one site; or for clusters of units.

f) *Minimum plot size.*

i) *Is the minimum plot large enough? Is it a suitable shape? Can it achieve all the objectives of the regulations satisfactorily?*

The minimum plot needs to be examined in terms of whether it is large enough, and of a shape

which is suitable, to enable all the objectives behind the regulations to be achieved in a satisfactory manner . Many existing small developments on the Berea are unable to achieve a reasonable amount of open space on the site, and even parking areas are difficult to get into and out of. In some cases the minimum parking requirements have been waived because this could not be accomplished on such awkward sites.

g) *Flat units.*

i) Are they suitable for families with children?

The Berea North General Residential areas are known to cater for many families with children, but the typical high-rise block of flats found in the area is not suitable for young children. The flat units are divorced from the ground and in many cases access to the ground is not easy. The children's recreational needs are not being met by the provision of open space on many sites, nor are other facilities provided. The new duplex-type flats are, however, providing an alternative which is far more acceptable to families with children.

Tollman and Partners (1976) point out that two facilities which are an essential part of suburban living, and which are seldom found in high density developments, are :-

1) the ability to live in close contact with the ground; and 2) having direct access to a private garden.

They therefore propose low-rise high density development for Berea North instead. On a typical site in the area, with a P.A.R. of 0,8 and the coverage increased to 40% - making the minimum building height 2 storeys, the resultant development could look something like that illustrated diagrammatically in Figure 6-1.

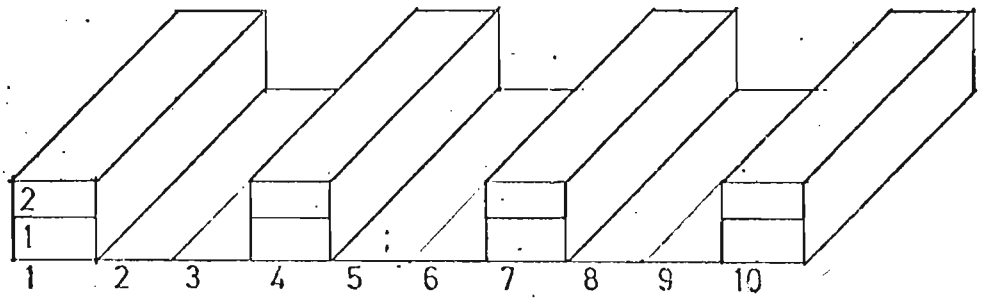


Figure 6-1. Low-rise development with 40% coverage. (Tollman and Partners 1976)

The major advantages of this type of development they give as -

1. Contact with the ground.

   Assuming that the units can be arranged in duplex fashion, each unit would have contact with the ground.

2. Private gardens.

   Following from 1, each unit has the potential of a garden at ground floor utilizing all or part of the remaining 60% of site area available.

3. Individuality.

   Because the units are independent in the vertical dimension, it affords greater opportunity for diversity, both in size and expression, than is possible in high rise buildings.

4. The domestic scale.

   As a consequence of being a low rise aggregation of small units, although more dense than conventional houses, they will nevertheless be contiguous in scale.

5. Environmental impact.

   The low-rise high density scheme envisaged will not have the same visual impact that tall towers have on surrounding residential areas.

6. Parking.

   It is felt that parking would be better decentralized and integrated in the development as a whole.

7. Cost.

> The cost savings of low-rise development as against high-rise development. (Tollman and Partners found that in cost comparisons based on current rates, a saving of 15% could be achieved on a unit basis between a low-rise and high-rise building on the same site.) (Tollman and Partners 1976)

The zoning regulations and dimensional regulations have been evaluated separately, but there are some points to be made about their interrelationship in the built environment.

1. *Views.*

The development form on each site zoned for general residential development is dictated by two major considerations. First, as many as possible, if not all the units, must face the view. Second, the building form must be designed economically, which implies the minimum number of storeys spread over the maximum permitted coverage. These considerations inevitably produce "slab" rather than "tower" blocks, and the length of each slab block will be limited only by site frontage and by the side space regulations. 'What results is not a park with widely spaced pencil towers, but walls of slab buildings repeated row after row down the Berea slopes, punctured only by the relatively narrow gaps between the buildings.' (The Durban Chamber of Commerce 1976) Low coverage has, therefore, not reduced the interference of buildings with

the views of others.

2. *Overlooking and Overshadowing.*

When the Berea North General Residential zones are more developed than they are at present, this will become an even greater problem than it is now. In the case of smaller sites the blocks tend to be crowded on top of one another, and there is a general lack of privacy for individual buildings. On the larger sites especially on the High Berea, overlooking is less of an issue. Throughout the Berea overshadowing is a problem for blocks of flats as well as for the surrounding low-rise single-family and maisonette development.

In conclusion, it appears that a reappraisal of the Berea North regulations is necessary, and especially of the dimensional controls. Not only are they not achieving the aims in the best possible way, but worse still, in some cases they are not achieving the aims at all.

CHAPTER 7. CONCLUSION.

1. Alternative Systems of Development Control for Berea North .

The preceding in-depth study of the Berea North zoning and dimensional regulations has revealed, and emphasized the need for a systematic and rational planning process ; one which has a logical method and a clear direction. Such a framework should be applicable to all areas of planning concern and decision-making, - from office development to that of parks and beaches. It is only when goals and objectives are spelt out, performance criteria are established, and alternatives are considered, tested, and evaluated, that optimum solutions can be realized.

Until explicit objectives are set out with respect to the control of flat development in Berea North, and alternative ways of achieving them are explored, Development Control in this area can never progress beyond the application of rigid use and dimensional regulations, which have been shown to have failed in terms of providing even minimal

guidelines for development. More sophisticated and more flexible techniques can only be utilized in situations where the planners have a clear knowledge and understanding of the goals and objectives structuring their approach to the control of the environment, and, in particular, to the guidance of flat development.

A number of new approaches to zoning and dimensional controls have been outlined in Chapters 2 and 3, but the intention here is to briefly consider three possible alternative Development Control systems : in the hopes that the advantages of these systems might be brought home to those who have the power to change the existing nature of Development Control in Durban .

Two other techniques, which have been tried and tested overseas, and which deserve special mention here, are the Land Use Intensity and Planned Unit Development systems. Owing to the present lack of information in Durban about these techniques, they have not been explored in this study. They have, however, been usefully and successfully employed elsewhere and should be seriously considered as possible alternatives for Durban.

7.1.1. *Bonus System .*

This is a system which offers bonus incentives to developers for including particular desirable "features" in their high density residential schemes. Such "features" would normally be in the form of community facilities, large areas of usable open space, a mix of dwelling types or sizes,, a consolidation of smaller subdivisions, and so on.

' There are some objectives that cannot be met without imposing very restrictive conditions, which developers would baulk at ; and these objectives could only be achieved by offering incentives to developers.' (Kahn 1972) The City of Toronto Planning Board (1970) points out that it would be a hardship, and in many cases an impossibility to require in the general regulations any substantially higher standards of residential development. However, they feel ' a system of incentives to induce developers to provide non-mandatory features adding to the benefit of the community has ample justification.'

The Bonus system offers the possibility of attaining greater variety in the built environment, and it offers greater flexibility. The bonus is most often in the form of a floor area bonus, but this should be given a maximum limit - which should be achieved only by large scale developments that fulfil nearly all the objectives .

Another benefit is that individual proposals come up for scrutiny by the city officials, who can thereby exercise some influence on the form of the final development.

An important factor, which needs to be kept in mind in the use of a bulk bonus, is the capacity of the infrastructure and facilities to deal with the additional population.

In Toronto a bonus system has been used in medium and high density residential zones, with a view to improving the land use patterns and the appearance of projects, and a reasonable degree of success has been achieved in this regard. (City of Toronto Planning Board 1970) . The use of bonus incentives is not, however, without its difficulties, and

careful thought must be given to the objectives. The bonus system must be tailored to meet the specific needs of the local situation.

Markus and West (1972) point out that a bonusing system can achieve the type of environment for a community which the community desires, and with a minimum expenditure of public funds.

To some extent the 1967 coverage regulations in Berea North operate along the lines of a bonus system, with increased coverage up to 40% being permitted in flat developments with the proviso that it is in the form of open balconies, patios, etc., and subject to the City Engineer's approval. This is only scratching the surface of the potential usefulness of this system, which offers great promise, especially in the area of providing usable on-site open space.

1.2. *Building Block Zoning.*

This approach was developed in the United States, and it separates the package of regulations for each zone into three independent units to create greater flexibility. (Sedway and Lloyd 1977).

Zones normally consist of a complete and inseparable package of requirements for use, structure, setback, height, open space, parking and landscaping. There are, however, many planning situations in which each of these elements should be considered individually, for example - the need to limit density in certain areas because of site constraints ;

the need for greater flexibility in housing design in newly-developing areas ; the need for tighter controls in developed areas to protect the existing neighbourhood character ; or the need to increase open space requirements in one area because of a lack of nearby parks. Conventional zoning has the effect of forcing the local government to impose unrelated and often unnecessary regulations in many areas to achieve specific purposes in a few.

The Building Block Zoning system uses the customary ingredients of zoning and development controls but arranges and applies them in new ways . Separate decisions can be made about the type of use, density, height, coverage, open space, and so on, and these can be shaped into the most appropriate combination for a specific neighbourhood . The regulations are divided up into three major parts :

1) Use unit;

2) Development unit ; and

3) Special area unit.

The regulations for each unit are written separately ; then zones are created by combining these three units. The great advantages of this approach are flexibility and applicability; because zones can be tailored to individual locations by combining different sets of the 3 units. Sedway and Loyd add - ' Regulations can be made as specific or as general as needed without legislative overload or widespread public controversy .'

The use unit defines what uses are permitted in the zone, while the development unit specifies how these can

be developed. This development unit would incorporate all the dimensional regulations of coverage, height, etc. These could be added to or corrected over time, as the result of changing technology, changing community attitudes, and so on. Development standards can be listed in tables and selections are then made from each of the tables to create the set of regulations applicable to a particular neighbourhood. If a certain regulation does not apply it will be left out. Apart from some general guidelines, the makeup of the development unit is independent of the use unit, and this provides the flexibility. Sedway and Loyd give the following example :

> 'Two neighbourhoods may be designated R-10 residential use unit, but one may be zoned for a density of four units per acre with detached structures as the building form, while the other may be zoned for eight units per acre with attached and semi-detached structures. Under usual zoning practice, two areas labelled R-10 would have exactly the same requirements.'

The third building block is the special area unit, which applies to sites that have unusual geological, topographical, scenic or developmental characteristics, e.g., scenic areas, beaches, and flood channels and plains. Extra standards are written for these sensitive locations, and these are independent from the other two units.

The advantages of this system of controlling development are :- (Sedway and Loyd 1977).

1. Its flexibility makes it a more effective tool

for implementing policy.

2. Zones can be tailored to increasingly complex planning policies. This also means that zoning can be tied more directly to the general plan or special area plans, and can keep up with their increasing detail.

3. As new issues arise the zoning regulations can respond ; so the building block structure will remain usable for many years.

4. Building Block Zoning is easy to use and administer. To the public the system is visible and accessible, while for the officials the up to date and precisely defined zones allow the streamlined processing of applications as well as more consistent decisions.

This approach would allow the sensitive handling of the different areas in Berea North, and would provide better guidance for flat development and its integration with other residential forms.

1.3 *Community Impact Assessment.*

This system is heavily dependent on the setting out of specific goals and objectives for the development of a particular area or neighbourhood. It is directly related to the rational and systematic planning process outlined earlier. Although the analysis which will be considered here was devised with respect to office development, the method is one which has general applicability to all forms of urban development.

The Community Impact Assessment process has been proposed for the regulation of office development in North York, Ontario, based on the experience of review committees, set up to review projects designed for two special areas in the city. (Borough of North York.) This approach reflects the new attitude which is being taken towards development by the city of Toronto and the State of Ontario.

The process is outlined in Figure 7-1, and, will be discussed here briefly. Developers making application for development permission would be required to complete a standard "Project Description" form, giving all the descriptive information about the project which is required in the evaluation. The Borough staff complete a "Data on Local Environment" form for the project, providing information about local traffic loads and capacities, land use, parking availability, etc.

Each project is then analyzed in terms of thirteen Community Impact Objectives, each of which is broken down further into measurement criteria, with their associated evaluation benchmarks and point ratings. Figure 7-2 is an example of how each objective would be treated, and in terms of which a project would be assessed.

1) Statement of objective.

2) Measurement Criteria. These are used to gauge the achievement of each objective.

3) Evaluation benchmarks, which state, in terms as specific as possible, exactly what constitutes a "satisfactory," "moderately satisfactory" and

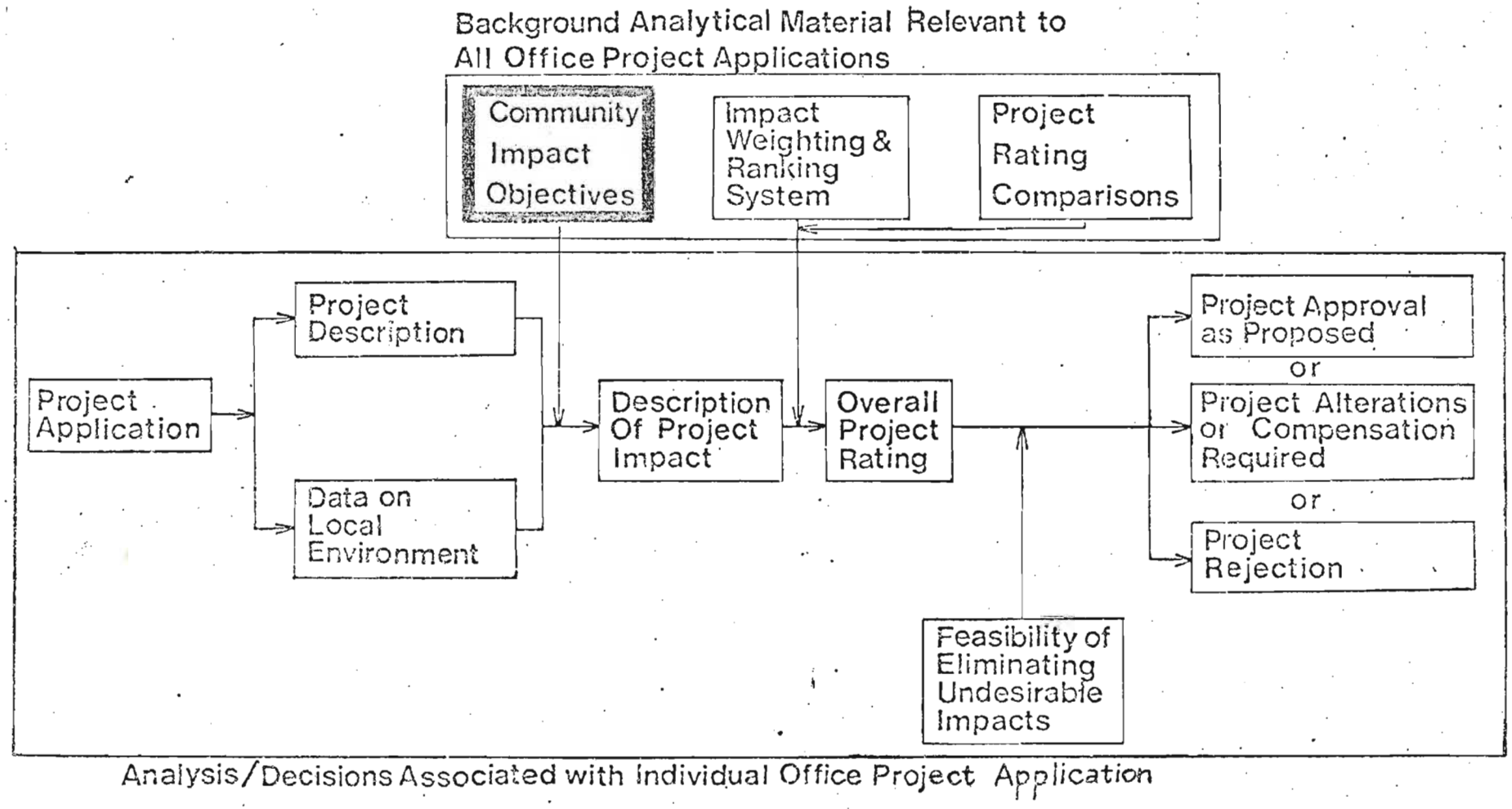


Figure 7-1. Community Impact Assessment Process.

COMMUNITY IMPACT OBJECTIVE #5 - SHADOWING AND OVERVIEW

Ensure that the amenity which neighbouring properties, particularly residential areas and public places, enjoy will not be significantly reduced by the loss of sunlight, privacy and view created by the proposed office project. (See page 98)

MEASUREMENT CRITERIA		EVALUATION BENCHMARKS	POINT RATING
1. DWELLING UNITS SHADOWED	- Total number of dwelling units shadowed during the year.	(a) Satisfactory - 0-3 dwelling units (b) Moderately Satisfactory - 4-14 dwelling units (c) Unsatisfactory - More than 15 dwelling units	5 3 1
2. ACREAGE SHADOWED	- Approximate shadow hours x acres of residential land and public places affected per day on average.	(a) Satisfactory - Less than an acre for less than an hour. (b) Moderately Satisfactory - Less than an acre for several hours or more than an acre for less time. (c) Unsatisfactory - More than an acre for several hours daily.	5 3 1
3. ACREAGE OVERVIEWED	- Approximate acreage of residential property within 1,000 feet of the project which is not buffered* from overview by the office building.	(a) Satisfactory - Less than an acre. (b) Moderately Satisfactory - 1-9 acres. (c) Unsatisfactory - More than 10 acres.	5 3 1
4. DWELLING UNITS WITH VIEW BLOCKAGE	- Approximate number of low and medium density dwelling units within 1/2 mile from which several stories of the proposed building are clearly visible.	(a) Satisfactory - Less than 100 units. (b) Moderately Satisfactory - 101-499 units. (c) Unsatisfactory - More than 500 units.	5 3 1
SCORING:	14-20 - Satisfactory 12 - Moderately Satisfactory 4-10 - Unsatisfactory		

* It should be noted that one method of buffering from overview is to exclude windows from the office building wall in question; another method is landscaping around the residential properties.

Figure 7-2. Example of Objective Evaluation.

"unsatisfactory" rating for each criterion.

4) Point ratings. These are used in preparing an overall assessment of individual projects.

A numeric score would be assigned, reflecting a project's evaluation relative to each of the objectives. Each score would be multiplied by the importance weighting assigned to its particular objective, and the total would be compared with the levels achieved by other projects across the Borough.

> 'To be workable, this approach requires the application of weights to each objective which very accurately reflect its relative importance, and some experience in using the system to evaluate specific projects, in order to permit conclusions to be drawn about the "Overall Project Rating." If this were not done with the benefit of empirical experience, it could result in projects with several highly undesirable characteristics receiving acceptable "Overall Project Rating" nonetheless.' (Borough of North York).

There are two methods which will avoid this problem. Firstly, the evaluation benchmarks can be set so that the requirement can be imposed on all projects for attaining a "satisfactory" or "moderately satisfactory" rating on all of the objectives. This could, however, produce potentially undesirable situations where projects rate exceptionally well on all objectives but one, where the rating cannot be improved from an unsatisfactory level. A second and compromise approach, which they recommend, is to establish a group of

objectives for which a project cannot obtain an unsatisfactory rating if it is to proceed. These would be the highest priority objectives and the ones where serious community problems would result from a project's failure to meet minimum standards. As regards the remaining objectives, authorization for a minimal number of unsatisfactory ratings could be given, provided that these were not seriously dissatisfactory and/or that the project rated extremely high elsewhere, in a manner judged to more than offset the problems involved.

Otherwise, the "Feasibility of Eliminating Undesirable Impacts" would involve a preliminary assessment by the Borough staff, with input from the developer, as to whether the project should be rejected, or whether alterations and/or compensation would improve its rating to a satisfactory level.

Once a project had been rated and approved in the conceptual or preliminary planning stages, it would also be necessary to ensure that the final design did not jeopardize the project's satisfactory rating .

This Community Impact Assessment approach can be seen to have considerable scope. It is not restricted to office development or large community projects, but has significant implications for all types of development and can be usefully adapted to evaluate any of them .

In the case of blocks of flats, the objectives and criteria would relate to the provision of usable open space, sufficient off-street parking, the relationship of the

building to surrounding development, accessibility to community facilities, and so on.

Two important points that need to be made are, firstly, that such an evaluation system must be developed and refined with respect to local conditions and local viewpoints. Secondly, it is vital that the development proposals are evaluated initially in the sketch plan process before designs have become irrevocably committed.

The disadvantages of this approach are few. The evaluation system is not a simple one, but then neither is the development context. There is a need for a comprehensive approach to the development of flats. The process will place an additional analytical workload on the Development Control staff, 'particularly at the outset when the system is being put into practice and "fine-tuned" to local conditions.' (Borough of North York). There is the fact that each evaluation will be somewhat unique and this could conceivably be subject to errors and abuses.

The advantages of the Community Impact Assessment system may be listed as follows :-

1. The municipality will have an objective approach to deal with development proposals.
2. This approach will identify special problem areas and these can be dealt with specifically.
3. The interests of community groups can be protected while still permitting a positive and constructive approach to be taken with flat-developers .
4. Residents and community groups will have a system which directly recognizes their concerns and compels

developers to respond to them.

5. Residents will have the benefit of occupying developments which have been carefully planned.
6. The system will bring to light subtle and important differences between projects and their surrounding environment.
7. Developers will have a basis for assessing whether their proposed development will be acceptable, or not, to the Development Control staff, and can direct their design, land acquisition etc., towards the elimination of specific community impact problems and the accentuation of various benefits.
8. 'Considerable scope will be given to the creative side of the development process, which involves trading of economic consequences against community impacts. The restrictiveness of traditional zoning practice will be replaced by a flexible yet equitable system.' (Borough of North York.)

Minett (P.T.R.C. 1974) proposes a somewhat similar approach to Development Control. He recognizes three stages after the submission of an application :-

1) The identification of any interested parties and the nature of the interest.
2) Consideration of the effect the proposals may have on these parties.
3) The development and innovation of conditions to ensure that interested parties are safeguarded.

In a very comprehensive analysis of built - form in Toronto, Baird (1975) puts forward some general housing

criteria which he uses in the report for the evaluation of a number of case studies. A consideration of these would be most profitable in the establishment of a Community Impact Assessment system.

In conclusion, this approach to Development Control ensures that the objectives for flat development are met, not only occasionally, but in every instance. It also allows flexibility of design as long as the Community Impact requirements are fulfilled.

.1.4 *Summary.*

There are other frameworks for Development Control, and combinations of different approaches, which are in use or described in the literature. The three discussed here are, however, the ones which this writer believes hold the most promise for achieving a superior environment in Berea North, and indeed, throughout the city of Durban.

2. Development Control Issues.

No study of zoning and development controls would be complete without a consideration of the problems and possibilities inherent in the Development Control system as it operates from day to day. These issues have been the subject matter of a great many books and articles, and it is considered important to deal with them here. Although the literature deals almost exclusively with the British planning system, the comments made have general application.

2.1 *The Development Control Rationale.*

' Change and development is a continuous process and the public (i.e. Local Planning Authority) involvement must be a continuous process of decision.

> However, the day to day decision on development control must be related one to another if they are to have any relevance in achieving the objectives for the area concerned. This requirement presupposes some longer term view of the future development of the area - a statement of policy, guidelines, or whatever, but most usually a plan.
>
> ' The general objectives of land use planning relating to a convenient, safe and aesthetically pleasing environment in which to live, work, shop and enjoy leisure are widely accepted and equally it is accepted that to achieve these objectives public intervention in the process of land use change and development is necessary' (Barrett - P.T.R.C. 1974)

Minett (P.T.R.C. 1974), gives an overview and critique of the development control system :

> 'All planning, to be effective, relies on some measure of control. Thus in judging the success of planning it is important to consider the ability of the control methods to achieve their intended aim .. Although the explicit aim of the development control function has always been constructive, in practice it has been regarded as a rather negative administrative procedure which works reasonably well to stop development that contravenes a plan, but which does little to ensure that development which is permitted fits well into

its environment.'

Minett feels that the development control officer needs an approach which forces him to consider each new development situation as potentially unique, requiring its own control conditions springing from the particular problem under consideration . He needs 'a control methodology which is capable of adapting to ever changing circumstances, and which is valid for any planning control problem.' (P.T.R.C. 1974) .

The Planning Advisory Group also make a plea for a positive approach to development control in their report. The Future of Development Plans (1965) . Regarding applications for planning permission they had this to say :

> 'The planning authority must consider whether the development proposed would advance or hinder (or have no effect on) the policies and objectives set out in the plan. This should discourage control for control's sake, and encourage authorities to use their powers of development control, not in a negative way, but positively and imaginatively, to advance the objects of the plan .'

They also state that the plan should be conceived as a framework, and 'within this framework there should be the maximum freedom for the individual designer .'

2.2 *Plans .*

Minett (P.T.R.C. 1974) has some points to make about the relationship of plans to the development control process. Firstly, development plans do not provide enough information to cope with the detailed problems of control . Secondly, the general principles which are to be found in detailed plans

can never take into account the changing circumstances which initiate development. Thirdly, because they take a long time to prepare, once made, plans are difficult to change, and as a result the more detailed they are, the more obsolete they can become. Fourthly, general principles of any form may be alright as guidance frameworks, but they are very inhibiting if applied unthinkingly. Fifthly, plans are incapable of representing the wide variety of interests which make up the physical environment, and -

> 'the job of development control should be to try and take into consideration and weigh up the effects of land use changes on all interested parties. It is involved with wider issues than the implementation of development plans; it is concerned with regulating the development of land in conformity with policies established in all plan-making and political arenas,' -

including the owner-occupier of a house, as well as large bodies such as the South African Railways.

2.3 *Consultations and information gathering.*

Further criticism centres on the consultation procedure and the lack of a systematic approach in gathering information. Minett (P.T.R.C. 1974) points out McLoughlin and Webster's finding that, despite a wide range of information sources, planning authorities normally confine their consultations to other departments in the local authority. (McLoughlin and Webster 1971) Minett goes on to say that

> 'when consultations and investigations are carried out, the information is rarely collected in a way that allows for control criteria to be clarified.

> This particularly occurs in relation to the site visit ; development control officers seem loath to define criteria for ensuring compatability with surroundings .. Consequently, instead of deliberately synthesizing the reactions and requirements arising out of the consultations and site visit into a positive brief for the developer. planners leave it to him to put forward a plan for criticism. This is unsatisfactory for the developer who does not know what is required, and unsatisfactory for affected parties who are not being safeguarded.'

In his paper Minett suggests a control methodology which is capable of reacting to ever changing circumstances. The assumptions involved stress the most important points in his critique. The first basic assumption is that problems have an inherent and subtle uniqueness, as also does the environment, and therefore

> 'if the aim of development control is to obtain a "good fit" between development and its environment, it must operate with equal regard for the uniqueness and subtlety of the situation by identifying those parties affected, assessing the amount of the effect, and devising conditions accordingly . The second basic assumption is that developers should be free to solve their own problems in their own way, untrammelled by outside conditions except those that are needed to safeguard interested parties.' (P.T.R.C. 1974).

2.4 Delay.

In his address to the Town and Country Planning Summer School in September 1976 (Palmer 1976), Mr. C.I. Price says that the basic malfunction of the development control system is delay. As a result of this, the environment suffers : buildings remain empty and decay rapidly when they could be put to a constructive, if different, use. Delay also brings financial consequences : inflation causes costs to increase during the delay and often makes proposals no longer feasible. He also makes the point that delay can be misused, e.g., it can be used as an instrument of policy in order to frustrate enterprises of which the council disapproves on political grounds . His prescription for rectifying the development control system is, firstly, to reduce the number of controls - which appear to be unnecessary and ever-increasing; secondly, to return town planning control to the professionals, - which he feels would result in a fairer system ; and thirdly, the public should be made aware of why decisions are reached, and all political manoeuvring etc ., concerned with development control should be stopped.

In his report Dobry is also concerned with delay. (Dobry 1975) Delay, he says is due to inadequate guidance to applicants ; a shortage of staff ; the low quality of applications submitted ; the increasing demand for the public to be involved; and the increasing complexity of considerations . As a result of this report, the Secretary of State recommended a series of positive aims (Booth 1976) ; firstly, that the development control system give priority

to applications for major industrial development and for housing ; secondly, that there should be more delegation to officers ; thirdly, that there should be more frequent committee meetings ; and fourthly, that it was desirable for authorities to issue policy documents to assist applicants.

7.2.5 *Design Control.*

The question of control over design is a much debated issue in the literature. That it should be one of the objectives of development control was stated most firmly in a Government Policy Note, which reads :

> 'One of the objectives of development control is to prevent bad design and encourage good. Planning is concerned with the environment in which people live and work, and thus necessarily entails consideration of aesthetic qualities - those that make an environment visually pleasing, or the reverse, as well as those of practical convenience, health and safety. Aesthetic judgments are largely subjective and opinions often differ . Taste varies from person to person ; and it also changes from generation to generation. Control must therefore be applied with considerable restraint and great discrimination ...
> It must be remembered that control should not be used to stifle initiative experiment in design, or to favour the familiar, merely because it is familiar. Control should prevent design which is clearly bad, but it must also allow freedom

for the creative processes.' (M.H.L.G. Development Control Policy Note 10, 1969) .

Minett (P.T.R.C. 1974) has defined 'bad design' as not just that which looks bad, but also that which creates unnecessary problems for others, and he feels, therefore, that there must be criteria for deciding what is satisfactory and what is not.

In his article on "Design Control" (Dunbar 1975), Dunbar makes the following points :-

(1) New work should reflect the real identity and character of a place.

(2) There is a need for design guides and design briefs, and for a specialist advisory service to act as an aid to the local development control officer.

(3) The designer or applicant should be consulted before firm lines are down on paper, before attitudes have hardened, and before time and money have been expended .

(4) Local authorities should set high standards in their own work. The "do as we do", rather than a "do as we say" attitude is fundamental to a successful design control programme .

A further point can be added by Fraser and Davey (Fraser and Davey 1973) :-

(5) Sometimes there has been too much emphasis by planners on the detailed design of buildings rather than concentrating on such matters as the massing, scale, and layout of development.

To conclude this section on the question of design control is a quote from an article by Owen Luder (P.T.R.C. 1974), which highlights the relationship between the planner and the architect.

> ' Attempts have been made to deal with the problem of aesthetic control by employing panels of architects to advise authorities on design questions . I do not believe this system works well enough to warrant its general use. It suffers from the problem of local architects either scratching each others backs and making life difficult for outsiders - or their natural reluctance to judge or criticise a brother architect's work.
>
> 'The solution to the problem lies in a much greater understanding by architect and planner of each others problems and aspirations . A realisation that at the edges their roles overlap. Planners should, more often, lay down in advance general guidance for overall design to ensure proper relationships of the new building with its surroundings, and then leave architects to get on with it. Architects must have a greater awareness of how their building is to fit into the local environment in scale and in use of materials - something we have tended to avoid at times in the past.
>
> 'The important thing is that the system should encourage creativity rather than suppress it.

> To achieve that, less aesthetic control is needed, not more.' (P.T.R.C. 1974)

He adds this interesting observation : 'In reality control of any form of artistic-creative activity can only be a levelling down process . It may prevent the worst of the monstrosities - although even that is arguable to look at some buildings that have got through the planning net - but it certainly makes it more difficult to get a progressive design through a bureaucratic sieve .' (P.T.R.C. 1974)

.2.6. *An Information System .*

The first consideration is the question of an information system or data bank for Development Control McLoughlin (P.T.R.C. 1974) puts forward his arguments for a data bank :

> 'The newer styles of management reinforce the pressures for efficiency in development control which, being very labour-intensive, offers great scope for the help of modern data-processing methods. Development Control caseworkers need considerable volumes of information readily available to help in the framing of their recommendations . This takes a great variety of forms including the land use-allocation or zoning in the current development plan, proposed highway alignments, the existing building form and land use on and around the site, local topography, public utilities under and over the ground, previous applications and decisions affecting the site and the area, information about

> similar applications in other areas, the policies and programmes of other departments of the authority and other public bodies, the expressed and latent opinion of residents or occupants of the site and adjoining areas, and so on. In addition the caseworker will sometimes have to seek specialized advice from experts inside and outside the public service, including legal advice in certain cases . All of this adds up to a very considerable amount of diversified information. It takes much time and effort to assemble all of it. Some of the information - especially that which is "soft" of qualitative - is not susceptible to being handled by data-processing methods. But a very considerable fraction of it undoubtedly is, and casework could be made far more efficient if such methods were applied.' (P.T.R.C. 1974)

McLoughlin does, however, make the point that, although Development Control needs its own information system, this should be an integral part of that serving the authority as a whole.

The other consideration is that of Development Control providing information to the other branches of the planning system . Barrett (P.T.R.C. 1974) sees Development Control as the vital information centre of the planning department :

> 'Monitoring, and thus revision and, if necessary, plan review, is clearly an essential part of the flexible planning process. Development Control

experience and progress is at the heart of this information system. Only if revised forecasts etc., can be related to progress in development and change and locally revealed trends, can realistic and practical decisions be taken on the need for, and nature of any revision of policy or proposal.. All the aspects of development control activities can be important and, ideally, it is necessary to have available :-

i) Analysis of enquiries received (including those not followed up by applications) which can reveal market trends (and suppressed demands).

ii) Applications received and decisions issued, including refusals (of which increasing numbers can often be useful indicators of pressure).

iii) The nature and rate of development actually carried out.' (P.T.R.C. 1974)

McLoughlin also takes up this issue (P.T.R.C. 1974) and he says -

' Development control itself is potentially a rich source of information which is badly needed by policy-makers. First of all it is one of several means for monitoring current policies and plans . The most obvious example is the monitoring of the take-up of land allocated for various kinds of development .

But it can also be a part of the monitoring of changes in the local population, employment, traffic patterns, and so on . Although some information will be partial and incomplete, casework can contribute to the monitoring of the policies of the education and social services departments ... Such monitoring activity is also helpful in the evaluation of current policies and plans, for example, by showing the accumulative effect of numerous small-scale decisions over time and in showing what might have happened in the absence of particular policies and controls. Above and beyond this, development control can help in the formulation of policies themselves. It can do so because caseworkers are well placed to observe the build-up of certain pressures for change ... Development control often plays a major part in the operation of an "across-the-counter" service to members of the public who want advice and information. These requests are relevant for many activities of the authority, not just the planning department, and over a period of time some patterns begin to emerge which may be helpful in the evaluation and design of policies . Development control is one of several valuable "windows on the world" possessed by the local authority . These windows should

be recognized for what they are, maintained, cleaned and if possible enlarged.' (P.T.R.C. 1974)

In summary McLoughlin says that the information gained by development control should be gathered and transmitted to planners and other policy makers, and the closest possible links should be formed between development control and the preparation of local plans.

Having looked at some of the issues concerned with the Development Control activity within planning departments, this study of the Development Control system is now concluded.

.3. Conclusion.

The first aim of this study was to examine the nature of zoning and development controls, and their role in planning. Both zoning and the development controls were studied individually : taking account of their relationship to the planning system, the goals behind them, the types of regulations that have emanated from them, the different approaches to them, and their particular problems. They were both found to be essential elements of planning, as they are the major means by which plans are implemented.

A comparison of the goals and objectives behind zoning and development controls has shown them to be inextricably linked together as part of the Development Control system. They may be regarded as complementary aspects, in that zoning

regulates the use to which land is put while the development controls guide the form of the development that takes place upon that land.

An examination of the importance of flats in the housing market, of what has been built in the past, and of the problems which are caused by flat development, has proved that there is strong justification for controlling flat development.

The efficiency and sufficiency of the Berea North regulations has been evaluated by looking at the flat development which has resulted from the application of these regulations in the physical environment. The fact that the regulations have had little success in achieving what they were supposed to in terms of the objectives behind them, has been shown to be a result of the planning process from which they evolved. As regards the sufficiency of the regulations, there is a tendency in Durban to have too many regulations, and yet not the right ones to achieve the objectives.

Having concluded that the methods for controlling flat development in Berea North were neither efficient nor sufficient, a number of other Development Control systems were examined, and were found to be more successful than the one operating in Durban at present. This was primarily because these systems followed a rational and systematic planning process, in which they set clear goals and objectives. The characteristic feature of these alternative systems is that they are flexible and can accommodate innovation.

In conclusion, it is proposed that these alternative systems of Development Control be considered for implementation in the Durban situation so that a higher quality of flat development might be realized.

APPENDIX 1.

SCHEDULE.

MATTERS TO BE DEALT WITH BY SCHEMES.

1. A contour or topographical map of the area.

2. Streets with particular reference to -

   (a) their grades and widths and their intersection with other streets :
   (b) the volume and character of the traffic which they may be expected to carry in the future, and measures to ensure the safety of the travelling public;
   (c) the closing or deviation of existing streets; and
   (d) the cultivation of trees and the like and the provision of ornamental works to improve the appearance of streets.

3. The extinction or variation of private rights of way and of servitudes generally.

4. The prohibition, regulation or control of advertisements in public places or within public view.

5. Lighting and water supply.

6. Sewerage, drainage and sewage disposal.

7. The prohibition, regulation or control of the deposit or disposal of waste materials and refuse.

8. The reservation of land for new roads or the widening or other improvement of existing roads or for purposes of recreation or for parks and other open spaces, aerodromes, the parking of vehicles and other matters generally of a public nature.

9. The reservation of land for Government and municipal purposes of a public nature.

10. The demarcation or zoning of areas to be used exclusively or mainly for residential, business, industrial and other specific purposes.

11. The extent of lots to be laid off and the alteration of existing lots with the view to improvement in the design or lay-out of any portion of the area.

12. Buildings, structures and erections with particular reference to the matters mentioned in section 47.

13. The disposal of land acquired by the responsible authority or by a local authority.

14. Land to be employed solely for agricultural and similar purposes and the application thereto of differential rating.

15. The preservation of buildings or other objects of architectural, historic or artistic interest and places of natural interest or beauty.

16. Powers of entry and inspection.

17. Power of the responsible authority to remove, alter or demolish any obstructive work.

18. Application with the necessary modifications and adaptations of provisions of ordinances or of by-laws or regulations made thereunder.

19. Any other matter or thing provided in the Ordinance or reasonably incidental thereto or to any matter hereinbefore mentioned.

1. USE ZONE	2. SYMBOL ON MAP	3. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED	4. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED ONLY WITH THE SPECIAL CONSENT OF THE COUNCIL	5. PURPOSES FOR WHICH LAND MAY NOT BE USED OR FOR WHICH BUILDINGS MAY NOT BE ERECTED AND USED
1. Special Residential	Yellow	Dwelling House, Recreational Building.	Agriculture, Place of Instruction, Place of Worship, Social Hall, Creche, Special Building or use.	Other uses not under Columns 3 and 4
2. Maisonette	Orange	Dwelling House, Maisonettes, Recreational Building.	Agriculture, Place of Instruction, Place of Worship, Social Hall, Creche Special Building or use.	Other uses not under Columns 3 and 4.
3. Extended	Yellow and Orange Bands	Dwelling House, Recreational Building, Extended Residential Building.	Agriculture, Place of Instruction, Place of Worship, Social Hall, Creche Special Building or use.	Other uses not under Columns 3 and 4.
4. Duplex	Brown and Orange Bands	Duplex Flats, Dwelling House, Maisonettes, Recreational Building.	Place of Instruction, Place of Worship Social Hall, Creche, Special Building or use.	Other uses not under Columns 3 and 4.
5. General Residential 1	Light Brown	Dwelling House, Maisonettes, Recreational Building, Residential Building.	Agriculture, Institution, Licensed Hotel, Medical Offices, Parking Garage, Place of Instruction, Place of Worship, Professional Offices, Social Hall, Creche, Special Building or use.	Other uses not under Columns 3 and 4.
6. General Residential 2	Dark Brown	Dwelling House, Institution, Maisonettes, Recreational Building, Residential Building, provided that in the Merewent, Chatsworth and Austerville South and North areas a licensed hotel may be erected without special consent on a site marked by the symbol "H" in red.	Agriculture, Licensed Hotel, Medical Offices, Parking Garage, Place of Instruction, Place of Worship, Professional Offices, Social Hall, Creche, Special Building or use.	Other uses not under Columns 3 and 4.

(C.M. 22/4/74; C.M. 27/9/76)

1. USE ZONE	2. SYMBOL ON MAP	3. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED	4. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED ONLY WITH THE SPECIAL CONSENT OF THE COUNCIL	5. PURPOSES FOR WHICH LAND MAY NOT BE USED OR FOR WHICH BUILDINGS MAY NOT BE ERECTED AND USED
7. General Residential 3	Light and Dark Brown Bands	Dwelling House, Institution, Maisonettes, Recreational Building, Residential Building provided that in the Merewent, Chatsworth and Austerville South and North areas a licensed hotel may be erected without special consent on a site marked by the symbol "H" in red.	Agriculture, Licensed Hotel, Medical Offices, Parking Garage, Place of Instruction, Place of Worship, Professional Offices, Social Hall, Creche, Special Building or use.	Other uses not under Columns 3 and 4.
8. General Residential 4	Dark Brown with Light Brown Hatch	Dwelling House, Institution, Maisonettes, Recreational Building, Residential Building provided that in the Merewent, Chatsworth and Austerville South and North areas a licensed hotel may be erected without special consent on a site marked by the symbol "H" in red.	Agriculture, Licensed Hotel, Medical Offices, Parking Garage, Place of Instruction, Place of Worship, Professional Offices, Social Hall, Creche, Special Building or use.	Other uses not under Columns 3 and 4.
9. General Residential 5	Light Brown with Dark Brown Hatch	Dwelling House, Maisonettes, Residential Building, Licensed Hotel, Recreational Building.	Institution, Place of Instruction, Place of Worship, Parking Garage, Social Hall, Creche, Restaurant in a building containing flats which is situated below any part of the building which contains the flats, Special Building or use.	Other uses not under Columns 3 and 4.
10. Place of Worship	Cross-Hatched Red with Symbol "W"	Dwelling House, Place of Worship, Creche when ancillary to a Place of Worship.	A Special Building which is ancillary to a Place of Worship or any use so ancillary.	Other uses not under Columns 3 and 4.
11. Creche	Cross-Hatched Orange with Symbol "C"	Creche, Dwelling House.	A Special Building which is ancillary to a Creche or any use so ancillary.	Other uses not under Columns 3 and 4.
11 bis Minor Shopping	Light Blue with Darker Blue Border	Shops (excluding shops for the sale of motor vehicles) Residential Buildings.	Nil.	Other uses not under Columns 3 and 4.

(C.M. 20/4/74; C.M. 27/9/76; C.M. 18/4/77)

1. USE ZONE	2. SYMBOL ON MAP	3. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED	4. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED ONLY WITH THE SPECIAL CONSENT OF THE COUNCIL	5. PURPOSES FOR WHICH LAND MAY NOT BE USED OR FOR WHICH BUILDINGS MAY NOT BE ERECTED AND USED.
12. Special Shopping	Light Blue	Offices, Residential Building, Restaurants, Shops, (excluding Shops of the kind referred to in Column 4).	Dry-Cleaning, or Dyeing Establishment (but excluding a Receiving Depot), Laundry, Parking Garage, Petrol Service Station, Place of Amusement, Place of Instruction, Place of Worship, Shop for Sale of Motor Vehicles, Service Industry, Social Hall, Totalisator Depot, Creche, Special Building or use.	Other uses not under Columns 3 and 4
13. General Shopping	Dark Blue	Institution, Offices, Residential Building, Restaurants, Shops, (excluding Shops of the kind referred to in Column 4).	Dry-Cleaning or Dyeing Establishments (but excluding a Receiving Depot), Licensed Hotel, Laundry, Parking Garage, Petrol Service Station, Place of Amusement, Place of Instruction, Place of Worship, Shop for Sale of Motor Vehicles, Service Industry, Social Hall, Totalisator Depot, Creche, Special Building or use.	Other uses not under Columns 3 and 4.
14. General Business (Central Area)	Dark Blue with White Hatch	Business Premises (excluding those referred to in Column 4), Dwelling Houses, Residential Building, Restaurant, Licensed Hotel, Place of Worship, Place of Assembly, Place of Amusement, Institution, Place of Instruction, Creche, Industrial Building (excluding those referred to in Columns 4 and 5), Social Hall, Totalisator Depot.	Parking Garage except as is provided in sub-clause 6(23), Petrol Service Station, Panel Beating, Spray Painting, Other Uses not under Columns 3 and 5.	Noxious Industrial Building (excluding those referred to in Column 4).
15. Petrol Service Station	Light Blue with Purple Hatch	Petrol Service Station.	Parking Garage, Special Building. Sale of motor vehicles.	Other uses not under Columns 3 and 4.

(C.M. 4/2/74; C.M. 27/9/76)

1. USE ZONE	2. SYMBOL ON MAP	3. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED	4. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED ONLY WITH THE SPECIAL CONSENT OF THE COUNCIL	5. PURPOSES FOR WHICH LAND MAY NOT BE USED OR FOR WHICH BUILDING MAY NOT BE ERECTED AND USED.
16. Cultural and Entertainment	Light and Dark Scarlet Bands	Place of Amusement other than Billiard Saloon or Circus Arena or Skating Rink; Conference Hall.	Skating Rink, Business Uses incidental to a Place of Amusement or Conference Hall, Special Building or use.	Other uses not under Columns 3 and 4.
17. Educational 1	Pink	Place of Introduction, Recreational Building.	Dwelling House, Maisonettes, Place of Worship, Social Hall, Sports Club and any Residential Building or Special Building ancillary to a Place of Instruction or any use so ancillary.	Other uses not under Columns 3 and 4.
18. Educational 2	Pink with Darker Pink Border	As in Educational 1 Use Zone.	As in Educational 1 Use Zone.	Other uses not under Columns 3 and 4.
19. Educational 3	Pink with Darker Pink Border	Place of Instruction, Recreational Building.	Dwelling House, Maisonettes, Place of Worship or Social Hall which is not ancillary to any Place of Instruction, Residential Building, Sports Club, a Special Building which is ancillary to a Place of Instruction or any use so ancillary.	Other uses not under Columns 3 and 4.
20. Institutional 1	Cross-Hatched with Narrow Brown	Institution, Recreational Building.	Dwelling House, Maisonettes, Place of Instruction, Place of Worship, Residential Building, Social Hall, Sports Club, Special Building or use.	Other uses not under Columns 3 and 4.

1. USE ZONE	2. SYMBOL ON MAP	3. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED	4. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED ONLY WITH THE SPECIAL CONSENT OF THE COUNCIL	5. PURPOSES FOR WHICH LAND MAY NOT BE USED OR FOR WHICH BUILDINGS MAY NOT BE ERECTED AND USED
21. Institutional 2	Cross-Hatched with Narrow and Broad Brown	As in Institutional 1 Use Zone.	As in Institutional 1 Use Zone.	Other uses not under Columns 3 and 4.
22. Institutional 3	Cross-Hatched with Narrow and Broad Brown	Institution, Recreational Building.	Dwelling House, Maisonettes, Place of Instruction, Place of Worship, Residential Building, Social Hall, Sports Club, Creche, Special Building or use.	Other uses not under Columns 3 and 4.
23. Cemetery	Cross-Hatched Dark Green	Burials and all Buildings ancillary to Cemeteries (other than Crematoria)	Crematorium, Special Building or use.	Other uses not under Columns 3 and 4.
24. Special	Cross-Hatched Black and Numbered	Details of permitted and prohibited uses appear in Appendix 2.		
25. Private Open Space	Light Green	Recreational Purposes (excluding the erection of any Buildings).	Creche or any Buildings to be used for Recreational Purposes or Other Purposes ancillary or incidental thereto.	Other uses not under Columns 3 and 4.
26. Light Industrial	Purple	Light Industrial, Service Industrial.	Institution, Offices, Parking Garage, Petrol Service Station, Shops, Restaurant, Totalisator Depot, Special Building or use.	Other uses not under Columns 3 and 4.
27. General Industrial	Purple with Dark Purple Hatch	Industrial Purposes other than Extractive or Noxious.	Institution, Offices, Parking Garage, Petrol Service Station, Shops, Restaurant, Totalisator Depot, Special Building or use.	Other uses not under Columns 3 and 4.

(C.M. 27/9/76)

1. USE ZONE	2. SYMBOL ON MAP	3. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED	4. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED ONLY WITH THE SPECIAL CONSENT OF THE COUNCIL	5. PURPOSES FOR WHICH LAND MAY NOT BE USED OR FOR WHICH BUILDINGS MAY NOT BE ERECTED AND USED
28. Noxious Industrial	Purple with Dark Purple Cross-Hatch	Industrial Purposes other than Extractive.	Institution, Offices, Parking Garage, Petrol Service Station, Shops, Totalisator Depot, Special Building or use.	Other uses not under Columns 3 and 4.
29. Extractive Industrial	Cross-Hatched Purple	Extractive Industrial.	Other uses not under Columns 3 and 5.	
30. Indeterminate	Brown Dots		All uses.	
31. Beach	Hatched Wavy Green	Places of Amusement, Places of Entertainment, Pleasure and Angling Piers, Tearooms and Restaurants, Refreshment Kiosks, Bathing Booths, Changerooms, Public Conveniences, Beach Offices, Beach Equipment Stores, Lifesavers' and Swimming Club Accommodation, Bathing Enclosures, Buildings or Structures for Navigational Aid, Swimming Baths and Paddling Pools, Boathouses, Parking Lots and Parking Garages, Photographers' Kiosks, Places of Instruction, Shops for the Sale of Beach Goods.	Other uses not under Columns 3 and 5.	Industry (other than sand winning) Dwellings, Maisonettes, Residential Buildings, Petrol Service Stations, Licensed Hotels.
32. Harbour	Bordered Light Blue	Industrial, Place of Assembly, Place of Amusement, Offices and Business Premises (but excluding Shops), Special Building restricted to Municipal and Government Buildings.	Parking Garage, Petrol Service Station, Shop, Place of Instruction, Place of Worship, Special Building (but excluding Municipal and Government Buildings).	Other uses not under Columns 3 and 4.

1. USE ZONE	2. SYMBOL ON MAP	3. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED	4. PURPOSES FOR WHICH LAND MAY BE USED OR FOR WHICH BUILDINGS MAY BE ERECTED AND USED ONLY WITH THE SPECIAL CONSENT OF THE COUNCIL	5. PURPOSES FOR WHICH LAND MAY NOT BE USED OR FOR WHICH BUILDINGS MAY NOT BE ERECTED AND USED
33. Airport	Grey and White Bands	Landing, Taking-Off, Testing, Repair, Storage and maintenance of Aircraft, Special Buildings restricted to such uses which are necessary for the efficient operation of the Airport, Government and Municipal Buildings.	Parking Garage with or without Petrol Service Station therein, Place of Assembly (restricted to Non-Residential Club), Shop (restricted to it being sited within the main Airport Building and with no direct access to a public street), Special Building or use.	Other uses not under Columns 3 and 4.

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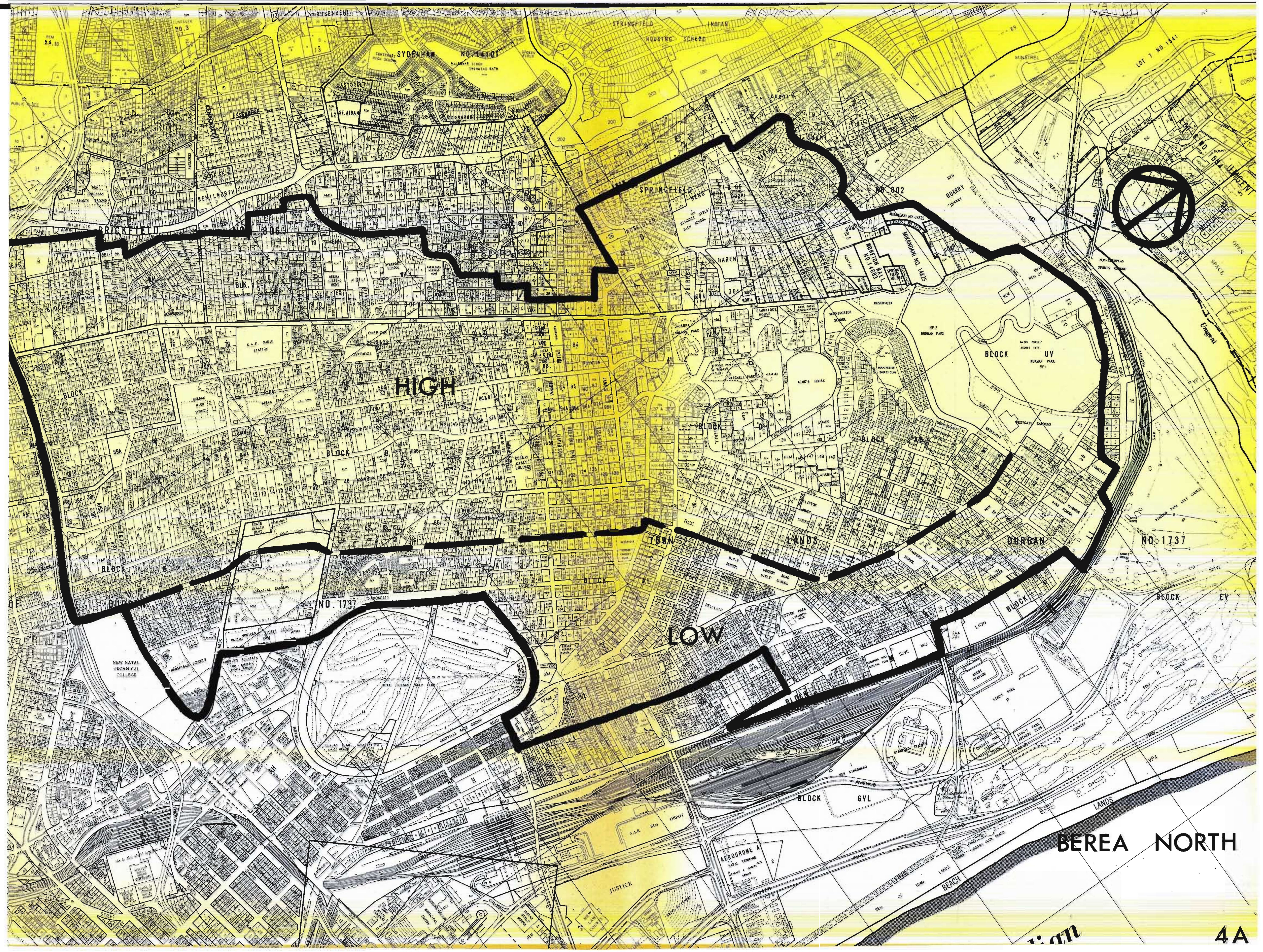
BEREA NORTH
4A
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SPRINGFIELD
SYDENHAM
NEW NATAL TECHNICAL COLLEGE
JUSTICE
BLOCK GVL
BEACH

BEREA NORTH ZONING

GENERAL LANDS RESIDENTIAL

EXISTED PRIOR TO 1952

AREAS ADDED SINCE 1952