CONTINUITY & RELATEDNESS
IN HOUSING AREAS

by

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ABSTRACT

It is the contention of this thesis that with present changes taking place in the urban residential environment as a result of growth, increasing density and new trends in the life styles of people, new urban residential developments are becoming, physically and socially, more self-contained and detached from their surrounding communities. This leads to social segregation in the community and to physical discontinuity of the built form. In the 50's and 60's similar problems were already evident in public housing projects. Here also segregation and discontinuity from the surrounding context and between people had resulted from development. In both cases the consequences of this disjunction affect the neighborhood character, the development of the urban form, and the quality of life in the city.

The purpose of this study is to make the case for continuity and relatedness as urban design objectives. Continuity and relatedness are complementary concepts which define essential physical and social characteristics in the residential environment, enhancing the quality of life in the city. When this is recognized in the creation of urban residential environments at the predesign stage of new development or at the redesign stage of existing projects, a greater integration of the project into the surrounding community can be achieved.

Continuity is defined as the quality which when present in the changing urban environment, maintains unity in building form and helps link the characters of adjacent places in such a way that it provides people with a sense of belonging and contact with their surroundings. As an urban design objective, continuity can also be used to direct
environmental change.

Relatedness concerns the interaction between man and his environment, - the setting for social contact among people. As an urban design objective, relatedness focusses on promoting activities and physical amenities which support social interaction.

This study hypothesizes that existing proven cases of physical and social discontinuity and segregation in public housing projects can provide a rich insight into the malfunctioning characteristics of a project's continuity and relatedness with the surrounding context.

Projects exhibiting these negative characteristics are defined as misfits.

It is the contention of this thesis that we can learn from our mistakes by developing methods of evaluating misfits and creating strategies for predesign analysis, complemented with design guidelines which can be used by architects, planners, politicians and developers to avoid misfits.

The first part of this study is devoted to establishing the author's point of view. It tries to develop a base to support the notion that physical and social factors influence man's interaction in the residential environment, and that there is an impact of the man-made environment on man's behavior. Physical and social factors influencing continuity and relatedness are identified and correlated with practical case studies.

The total framework is an analytical search for causes of misfit between project and community from a designer's point of view. Within this framework two approaches are implemented, an urban design strategy for analysis and an environmental design evaluation for organization.
The research focusses on developing a framework for analyzing housing projects and their surrounding contexts, in physical and social terms, by examining three areas of study: (a) people's attitudes; (b) the characteristics of open spaces; and (c) people's activities and levels of interaction at three levels: (i) the urban level; (ii) the project level; and (iii) the cluster level.

Three public housing projects have been analyzed in their relationships with the proximate communities in terms of continuity and relatedness and a great number of misfits found both in terms of social disjunction and discontinuity of places and built forms.

These misfits have lead to the development of problems between the projects and their surrounding communities and could easily apply to any other urban residential development.

In conclusion, a framework has been developed for the identification and analysis of misfits, paralleled with a set of guidelines to help the designer of residential environments to promote the elements of continuity and relatedness in the improvement of existing misfits or in the design of new developments. The set of guidelines provide recommendations at three levels: how to integrate the project into the urban grid; how to develop the gates and edges of the project to integrate the project with its surrounding community; and finally, how to organize the project's open space in terms of circulation, clustering and continuity.
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Finally, a measurement of appreciation to my ex-classmates in the Master's Program whose ideas and serious dedication to learning were of great encouragement.
CHAPTER I

... Nowadays we build in all styles and tastes, and nobody has the inclination to bother about his neighbour; it is no longer as it was in the good old days, when the matter of a choice of style was still unthought of, and all buildings spontaneously turned out to be in harmony with each other and with their group as a whole.

Vienna, May 7, 1889 C. Sitte

Introduction

My initial formulation of this thesis was motivated by my exposure to the Strathcona community. This community, located on the east side of Vancouver, was the subject of a term paper for the graduate program in the School of Architecture at U.B.C. during the Fall of 1978 and Spring of 1979.

From the point of view of an urbanist, I analyzed the Strathcona community's socio-cultural character and its physical setting. I was struck by the contrast between the physical and social characteristics of the public housing projects and those of the community.

Further investigations clarified the fact that the presence of public housing in the community of Strathcona was the bitter legacy of interrupted urban renewal plans. Even though public housing projects are no longer built as they were in the 50s and 60s, their physical and social disjunction in contrast with the surrounding community still persists. My awareness of this disjunction, in terms of segregation and discontinuity from the surrounding community, grew from this experience.

It contributed, first, to sharpen my perception of the developments taking place in the urban residential environment, where new housing projects emphasize an internalized character with little or no concern for the existing neighbourhood context. Second, it sparked my interest in the design and development of housing prototypes that can be responsive to new trends in the lifestyles of their residents, and equally responsive to the context in which they are located. Third, it helped me to formulate the concept that the quality of life in a city as a whole depends not only on existing isolated parts and incremental additions, but also on the strength of the links of those parts and additions with the existing urban context which can create continuity and relatedness within the community. These observations, growing out of disjunction, determined the basis for the thesis tested here.

Thus, from my point of view, the quality of life in the urban residential environment begins with the integration of a project or building within the context of its surrounding community. The disjunction that public housing projects pose in relation to their surrounding context provides the antithesis. Finding a way to integrate this misfit into the urban residential environment is the missing link that is needed to develop the individual's social relatedness and the continuity of his living environment with the larger community.

1. Continuity and Relatedness

Continuity and relatedness are part of two parallel urban processes that are interconnected in the growth and development of the city. While continuity is concerned with the city as a form, relatedness
sees the city as a social entity.

The intention of this thesis is not to discuss Continuity and Relatedness in their processes and particular characteristics at the urban level. Rather, it is to study the relationship between the setting of a building and its proximate social and physical contexts as a means of improving the quality of life in the urban residential environment.

The relationship between Continuity and Relatedness in the urban context, and the need for their inclusion in the residential environment could be illustrated in the following scenario.

If one looks at present trends of change and growth in cities, perhaps the most dramatic effect on their urban form is the densification of land use. This has a pervasive impact not only on the commercial core of the city, but also on its residential environment. One cannot help being struck by the fact that much of the built commercial and residential environment in the city consists of large or small parcels of real estate organized as single entities which maintain very little or no relation to their community context. Their internalized character, on one hand, tends to be responsive to present changes in the family structure and lifestyle patterns of their residents, as they are influenced by social and economic trends and the present availability of new technology and cybernetic aids in the home. On the other hand, they tend to break away from the traditional single detached pattern of the residential unit into blocks of buildings. These facts are becoming more and more common in our cities. They are at the roots of present redevelopment of the residential environment and represent the basis for
densification in housing. Furthermore, they are also related to the urban decision-making processes in the city and to concepts of public and private realms. Their social and physical consequences are often ignored, however, or only considered inadvertently. The neighbourhood character, the patterns of use in the residential street, and the exposure for people to develop social contact in their neighbourhood are hindered by the incremental development of internalized, that is, inward-looking multi-residential environments. This transformation of the urban residential environment affects both the local community context and the urban context in their physical forms. In both cases some housing blocks stand in isolation or become different in character from the rest of the local context. In some cases isolation is deliberately imposed, while in other cases the housing block is the exception rather than the rule. The housing block could then, in principle, be considered as possibly taking over the entire city.

It is in this scenario that Continuity and Relatedness represent a striving for clarity and unity in the urban residential environment. It is also within this scenario that the decision-making process in the city exerts a determining impact on the way change, under the effects of growth and densification, affects the residential environment.

a) The Urban Residential Environment and the City

The shaping of the urban residential environment under the influence of the decision-making process presents a crucial duality, in planning functional and satisfying environments for the community, and in supporting new residential development and redevelopment in the city which promote individuality. This new residential environment in turn
leads to withdrawal not only from the physical form of the existing environment but also from the social life of the proximate community.

In this context the decision-making process is found in contradiction with the creation and development of the urban environment. It is here where theorists and critics who point to the loss of meaning and isolation in the urban patterns of the city have found inspiration. Considered from this point of view, the city emerges as a conglomerate of parts within a multi-system (socio-political, economic, cultural, environmental, etc.), which emphasizes development either as (1) a process or as a (2) form.

The theories and ideas discussed by Christopher Alexander in "A City is Not a Tree"² and Notes on the Synthesis of Form,³ together with Francis Ferguson's system approach,⁴ can be considered as examples of the first approach emphasizing a process. Their terms of reference consider that the vitality of the city can be redirected by subtle techniques of intervention simulating the feedback systems of biology or machinery. Under this process the intervention of social criteria in the city is considered a determinant in the creation of the urban context.

The second approach, which emphasizes the development of the city as a form, is represented in the works of Kevin Lynch,⁵ Rob Krier,⁶

Aldo Rossi,\textsuperscript{7} and Colin Rowe and Fred Koetter.\textsuperscript{8} Lynch's terms of reference are largely psychological and perceptual. For Krier, Rossi, and Rowe and Koetter the city is made up of a series of experiences which allow for its division into blocks with a particular character and defined aesthetic. Although they are critical of the lack of structure in the city, their approach is concrete in responding to the present by preparing alternative structures based on the history of the city, or in the memories of the past that give meaning and cultural continuity to the city form.

Therefore, the city, seen within this framework of theory and practice, magnifies the problems radiated from the simple setting of a new multi-residential building in the community context. It also illustrates the lines of thought on the development of the urban context as a whole and the particular emphasis that, in this thesis, is given to Continuity and Relatedness as social and environmental qualities contributing to the enrichment of the quality of life in the residential environment.

Continuity and Relatedness can also result from a professional emphasis in the planning and designing of the residential environment by the disciplines of Architecture and Planning. While both disciplines have similar aims of improving the urban quality of life in the city, their points of view favour independent approaches.


The lack of emphasis given to Continuity and Relatedness seem to be caused, in part, by the increasing complexity of the urban environment. Small towns and villages have evolved far beyond their original scales. In the past they were comprehensive entities, easy to analyze and relatively simple to organize as places for people.

The complexity of the present urban environment has limited the ability of the disciplines of Architecture and Planning in creating an urban residential environment. These limitations caused by the diverging emphases of the disciplines have eased with the emergence of urban design as a multi-disciplinarian "liaison" between them and other related disciplines.

Urban Design, in this thesis, is considered as a supporting process which aims at unifying the approaches of both disciplines. It engages the socio-spatial qualities of Continuity and Relatedness to enhance the quality of life in the residential environment and the behavioural patterns which take place within it over time. Also implied is the need for the close collaboration of planners, architects, developers, politicians and laymen in the creation of the urban residential environment.

In spite of the fact that Urban Design varies its scope from the immediate to the very large scale environment, the focus of Urban Design in this thesis is to assist in developing the framework in which Continuity and Relatedness will be explored and their qualities employed at the local level.
Urban Design concerns are based on "no man's land", which, in fact, is "every man's land."\(^9\) This is the space defined by the physical relation between buildings in the urban context. It is the same concept that Camillo Sitte regarded as the basic principle for designing cities,\(^10\) that of the quality of open space supporting people's mobility, traffic, and the picturesque conceptualization of positive and negative (built and unbuilt) space in the organization of the city. For Sitte, Urban Design in the 1800s consisted of an appealing arrangement of spaces in a picturesque sequence, rather than the division of the city into blocks of buildings separated by servicing traffic arterials.

Sitte's ideas have maintained a recurring use as part of a particular mode of vision closely related to the fields of architecture and planning. Although the picturesque and recreational character of the city's beauty has been left behind, Urban Design has come to be treated as a "central discipline rather than a window dressing."\(^11\) Perhaps the major achievement of this retrospective look at the essential values of the city is the understanding "that setting rather than object is more crucial to city sense."\(^12\) This also implies an awareness and contextual responsibility to the urban environment from those involved in its development, design, planning and redevelopment.


\(^10\)Camillo Sitte, op.cit., p. 24.


\(^12\)Ibid., p. 49.
The skills and participation of anyone involved in achieving the integration of a project with its surrounding context must then take into consideration: first, the degree of change asked for by the community; second, whether or not the community character will be enhanced or maintained; and third, the possibilities of integrating a proposed project as part of the whole. Thereafter, the architectural design considerations and the urban design strategies can be implemented to introduce or augment Continuity and Relatedness in the residential environment.

Continuity emphasizes the unity of the built form, the creation of successiveness of place, which Kevin Lynch\textsuperscript{13} describes as the temporal and spatial dimensions of a place and their ability to present visual events, built forms, and people's activities, and, in time, to link the new with the old development. This space linkage provides people with a sense of belonging and contact with their living environment. Continuity as an Urban Design objective can be used to direct environmental change.

Relatedness can be considered at different levels of the environment. Its main function involves the continuation of certain patterns which establish the social and physical image of a place. In architecture it is a matter of paying attention to the neighbourhood and fitting into the physical context.\textsuperscript{14} Relatedness in this thesis will be considered as the socio-behavioural pattern of interaction


\textsuperscript{14}Dennis Michael Ryan, "Urban Design of Continuity." Unpublished Ph.D. Dissertation in Architecture, Faculty of the Graduate School of Arts and Sciences, Univ. of Pennsylvania, 1976, p. 90.
between man and his environment as influenced by the characteristics of the setting and social contact between people. Relatedness as an Urban Design objective focuses on promoting activities and physical amenities which support social interaction.

The value of this design approach is not exclusively for the creation of new residential environments for people, rather it also has a use in the re-evaluating and re-design of the residential context. Such a design approach can act as a consolidating tool in unifying both physical and social characteristics of the community with a particular project. As a physical design tool it is accessible to architects, planners and developers in the creation and maintenance of unified environments for people. If the architect, planner, developer and politician strongly support the use of such upgrading design strategy in the re-interpreting of the existing urban residential environment in conflict, or in the planning and designing of new urban residential environments, the result will be to improve the local and urban qualities of life in the city.

2. Objectives of the Study

The objectives of this study are to develop an urban design strategy for evaluating misfits and strategies for predesign analysis, coupled with design recommendations in the form of guidelines to introduce Continuity and Relatedness in urban residential environments. In order to achieve these objectives, the primary goals must be defined. First, the essential components of Continuity and Relatedness must be determined, and their relationship in the residential environment
acknowledged; second, the levels of analysis and the focus of the direct research must be established. These findings are valuable sources of information which are applicable when designing new or re-interpreting existing residential environments.

In order to identify the causes of disjunction or misfit with the proximate community, the identified characteristics will be related to the direct research method and applied in three study cases. The findings will then be incorporated into an interpretative physical design strategy and a mechanism for its implementation. The vehicle to reach this goal is the Hypothesis.

3. Hypothesis

Historically, the case for public housing as advocated in architecture, planning and social reform aimed at producing a better quality of life in blighted residential environments. Insights from these sources, in some cases, illuminate the social and physical causes of segregation and discontinuity of a residential project with its surrounding community.

Studying existing cases of segregation and discontinuity in public housing projects from a multi-disciplinary point of view identifies the basic factors of such disjunction. A hybrid research framework can be developed from socio-behavioural literature sources to provide information on man-environment relationships and interactions, urban design methods in research and organization, and the direct identification and evaluation of study cases.
It is then possible to develop a research framework that incorporates those findings into a series of recommendations which will be useful to architects, planners and developers to identify causes of disjunction in the design or redesign of urban residential environments to enhance continuity and relatedness.

4. Sources

Beyond direct observation the background information of this thesis is based on an investigation of literature relevant to social and environmental behaviour; urban and community planning, architecture and urban design. These literature sources and direct investigations have been used to formulate the topic and to define the scope of the hypothesis. The restatement of the problem, its terms of reference, and the development of a strategy responding to the required needs will be derived from the direct research findings.

5. Limitations and Scope

The direct research study cases are limited to public housing projects within an urban context. Three public housing projects were selected for this study: McLean Park, Raymur Place and Skeena Terrace. They are administered by the British Columbia Housing Management Commission and owned by the Federal and Provincial governments. The projects are located in urban areas and have populations of over one hundred residents. Built between 1958 and 1962 as Urban Renewal pilot projects in the City of Vancouver, B.C., their main characteristics are the internalized pedestrian systems which are detached from the surrounding streets in the community, and the alienated character of
The thesis will not deal with ethnic or racial aspects in public housing projects. Similarly, it will not be concerned with the managerial and tenant relationship. Rather the study will be specifically concerned with the physical layout of the projects; the organization of open space and the relationship with the proximate community; the particular behavioural activities of the residents in the open space; the pedestrian flow through and from the project; and the community attitudes towards the project residents.

The study aims at identifying, through direct observation, interviews, reports and floor plans of the projects' layouts, the causes of disjunction outlined in the hypothesis.

This study will evaluate the problems of disjunction in public housing projects within the community, and develop a strategy for evaluating misfits and provide guidelines for pre-design analysis in urban residential environments.

6. **Methods and Procedures**

This thesis is organized into six chapters. In this first chapter the author's interest and particular point of view on the impact of the urban residential development on people's social interaction and on the character of the urban form has been introduced. This point of view evolved from direct observation of public housing and multi-residential housing projects; readings on urban theory and urban design; and city planning concerns.
Chapter II is devoted to developing a socio-behavioural search for the physical and social factors which influence man's interaction in the residential environment, and the impact of the environment on man's behaviour. Literature sources are analyzed in terms of spacial behaviour. Physical and social factors influencing continuity and relatedness are identified and correlated with practical study cases to define the focus of the research methodology.

The research methodology in Chapter III is focused on developing a framework for analyzing the connections between project and proximate community, in physical and social terms, by examining three areas:

a) people's attitudes;

b) the characteristics of the open space;

c) people's activities and levels of interaction at three levels: Urban (overall), Project (local), and Cluster.

Within this framework two approaches are suggested: an Urban Design strategy for analysis, and an Environmental Design Evaluation for organization. Four research phases are defined to help identify social and physical characteristics of both project and the community, and the impact of people's mobility and activities in the open spaces. Three data collection methods are implemented:

a) site planning analysis, based on plans and direct research;

b) documented sources (interviews) based on reports and direct research;

c) direct observation of mobility, seasonal outdoor activities, traces, and deviating behaviour in physical settings.
In Chapter IV the direct research is carried out on three public housing projects, and a graphic summary is developed.

Chapter V incorporates the research findings into a framework which identifies causes of segregation and discontinuity (misfit) between project and proximate environment. It also establishes, within the urban design process, the stages of implementation of this framework.

Chapter VI concludes this thesis with a comprehensive set of guidelines developed for the design or redesign of residential environments incorporating continuity and relatedness.
CHAPTER II

LITERATURE SEARCH:

MAN AND HIS RESIDENTIAL ENVIRONMENT

Introduction

The essential understanding of the socio-behavioral frame in which man, as a social entity, operates and establishes contact with the environment and with other individuals is the introductory premise on which the following literature search will be developed. Without this basic understanding of man and his environment the isolated analysis of the residential environment may result in futile exercise. A similar failure would be to ignore the man-environment relationship within the disciplines of architecture and planning. This thesis seeks to develop an urban design strategy to introduce or maintain continuity and relatedness in the residential urban environment.

This chapter presents the theoretical development of the focus of the search. Relevant concepts are introduced from the literature sources and analyzed. Some of these concepts are reinforced with practical studies, the results of which are also presented. A reference model is introduced to link the important concepts.

The theoretical development of the focus of the search establishes a frame of reference from which the man-environment relationship can be analyzed. It searches for the physical and social factors influencing man's interaction in the residential environment and the impact of the environment on man's behavior.
The literature sources which view the relationship of man-environment as a socio-spatial and behavioral interaction are analyzed, with a redefinition of the physical and social factors influencing this interaction, from which continuity and relatedness stem.

A correlation of the physical, social and behavioral factors is developed with the practical levels of environmental interaction in the urban context and the definition of the methodology focus.

Information gathered from existing studies on man and his residential environment and the behavioral process affecting this interaction are the sources of reference for the literature search. Furthermore, the identification of physical and social patterns of continuity and relatedness both between project and community, and within the project, will be used as the parameters on which the methodology framework of Chapter III develops.

A. Theoretical Development of the Focus of the Search

1. Man-Environment Relationship

In order to establish the linkage of architecture and planning with the behavioral sciences, and to understand the effects of the designed environment on human behavior if there is to be any collaboration between them, "... there must be first a common understanding of the term 'environment' and the processes involved in the man-environment
The basic characteristic of the environment is that "environment surrounds" and man is both the centre and integral part of his environment. Thus, man affects and is affected by his environment. W. Ross Ashby wrote: "Given an organism, its environment is defined as those variables whose change affects the organism and those variables which are changed by the organism's behavior." 
"Thus, the environment is not only a container for human activities but an integral part of a pattern of behavior." 

William Michelson's writings show the relevance of viewing man's immediate environment as being influenced by the behavior of the individual. He elaborates by saying that even "... the more macroscopic aspects of the environment can be considered in terms of their relevance to individuals." According to Michelson, the environment should be conceptualized in terms that can be socially meaningful to the urban dwellers on both microscopic and macroscopic scales of the urban environment. Similarly, combining immediate aspects of the environment

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4 Lang, et al., Ibid., p. 83.

to man has the potential to produce higher levels of environment. Donald L. Foley argues that in the urban environment the differentiation of the impact of both micro and macro scales on the individual "... should separate the effects of individual buildings from the spatial relations of groups of buildings when assessing the impact of environment."\(^6\)

Regarding this Michelson suggests that all concepts of environment stem from the same principle that "... All people are separated in space from other people and from non residential activities..."\(^7\) and that the basic element from which to view man in his environment is the individual's home unit. Seen from the point of view of the microscopic level of man's environment, the dwelling unit becomes the basic component of the macroscopic urban environment. The separation in space of people from other people can be viewed both as protection from visual exposure or as a deterrent factor in social interaction. Similarly, the separation in space of people from non residential activities can be established in several dimensions according to the individual's socio-economic, ethnic-cultural characteristics, as well as their preferences and aspirations. Both concepts of separation applied to people and non residential activities involve the concept of physical distance, which, in the case of people, can be implemented to manipulate degrees of interaction or privacy. On the other hand, 


\(^7\)Michelson, op.cit., pp. 47-49.
people and non residential activities can be used to facilitate accessibility, proximity and relatedness.

Michelson summarizes these ideas by stating that "... focusing on concepts of the city from the individual's viewpoint does not rob us of the ingredients for macroscopic levels of environment and, on the positive side, it gives us a basic unit from which to start ..."\(^8\)

This literature search will focus on the characteristics of the environment (physical, social) that bring together people and physically connect both macro and micro levels of interaction.

2. Man-Behavioral Process and Systems in the Built Environment

The interaction that takes place between environment and people is represented in the following diagram according to the interpretation of D.L. Foley.\(^9\) (See Figure 1.)

In this interacting structure, behavioral patterns are established enabling man to adjust or transform his environment. Human behavior has been explained in many ways under different disciplines and it has been assumed that human behavior can be articulated in a systematic way with the physical environment.\(^10\) Similarly, behavior

\(^8\)Michelson, Ibid., p. 50.


has been accepted by most psychologists as a significant determinant, affecting not only a person's activities, but also his perceptions and mental processes.

There are three psychological processes which are particularly important in understanding man's behavior in the environment. They are: Perception, Cognition and Spatial Behavior. Paralleled with them are other processes—Motivation, Affect and Development—which modify the way in which we perceive, think about and behave in the environment. Thus behavioral patterns are established by the unity of Motives, Precepts and Actions, which give freedom to the individual to select and organize information to achieve his goals, or to change, reorganize and learn new behavioral responses.

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11Lang, et al., op.cit., p. 83.


13Ibid., p. 20.
Given the large number of variations and the permutations that can occur between physical environment and social phenomena, and following the parameters outlined by the work of Michelson and Parsons, it is possible to establish a frame of reference on which a literature search can focus.

Both Michelson and Parsons depart from the social science approach to study people and their environment. Their study is based on three systems: Cultural, Social and Personality. Each system can be seen as independent of the other, and as being directly related to support the particular characters of the system to be emphasized. To these three systems Parsons has added two more: Behavioral Organism and the Environmental System which help determine the intersystem relationships of psychological processes, behavioral systems and the built environment.

In the following Figure 2 the architectural view of the fundamental concerns of environmental psychology illustrate Parsons' matrix of inter-behavioral systems.\(^\text{15}\) (See Figure 2.)

The relevance of this inter-behavioral system relies on the hypothesis that people are the product of a physical environment as well as a social environment.\(^\text{16}\) From Parsons' and Michelson's points of view this relationship has been neglected by behavioral scientists.


\(^{15}\) Lang, et al., op. cit., p. 85.

\(^{16}\) Lang, et al., Ibid., p. 85.
Figure 2. Architectural View of the Fundamental Concerns of Environmental Psychology (by Jon Lang, et al. in Designing For Human Behavior: Architecture and the Behavioral Sciences). (Drawing by the Author.)
Edward T. Hall, in his anthropological-behavioral studies, adds the following comments:

Everything man does is associated with the experience of space. Nothing occurs, real or imagined, without spatial context, because space (along with time) is one of the principles organizing systems for living organisms. Proxemics deals with man's use and structuring of space, particularly the unconscious patterns that deeply influence life.\(^{17}\)

Michelson departs from Parsons' tridimensional matrix and focusses on the interdependence of physical environment and social structure as it takes place in the man-made physical environment of cities, establishing a study model based on the potential congruence of intersystems. The congruence to which Michelson refers is not of determinism or the predominance of one system over the other, but rather "... of states of variables coexisting better with states of variables in other systems than with other alternative states."\(^{18}\)

This congruence model has its counterpart in incongruence and mismatches can be found in any residential environment. This contrast in congruence is more noticable in public housing projects where socio-economic congruence is not sufficient to develop self-esteem or pride in the environment. The same environment can be supportive of social interaction, however, as is the case with single mothers who can find others with similar problems.\(^{19}\)

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In this intersystem congruence model Michelson defines open space as a variable and not as an indeterminate medium to which people give meaning. Furthermore, based on the following statement, Michelson establishes two approaches for research in this area: "... Man as a thinking being, relates to his spatial environment both in mind and in his actual presence ...", thus establishing mental and experiential levels of congruence between people and their living environment. While both approaches (mental and experiential congruence) are different in focus, their interrelation complements each other's system.

Michelson supports as fundamental the use of the experiential congruence approach to study and identify the man-to-man/built environment congruence, notwithstanding a "... knowledge of mental congruence to assess public opinion and make successful proposed physical plans." This concept of the experiential congruence approach will be applied later in developing the methodology framework for direct research in Chapter III.

In the present context, it should be pointed out that Michelson incorporates this experiential congruence approach into his Multigrid system for Conceptualization and study of the Urban Physical environment.

The multigrid system for research on man's behavior in the urban physical environment is an amalgam of the general concerns of human ecology and the theoretical frame of references established by

\[20\text{Michelson, op.cit., p. 30.}\]

\[21\text{Ibid., p. 30.}\]
... it applies and at times redirects Parsonian concepts and theory so as to confront questions facing both policymakers and social scientists."\(^{22}\)

The multigrid system is based on five concepts which can be articulated with variables in the Cultural, Social and Personality Systems, and correspond to the analyses of Social Life in response to Urban Form. These five concepts are: Lifestyle, Stage in Life Cycle, Social Status, Value Orientation and Personality.

The combined approaches of Parsons' matrix and Michelson's multigrid are convincing sources of the multidimensional interrelationship of man and his environment leading to a comprehensive cybernetic approach which is beyond the intention and scope of this thesis. However, their mention and this simplified discussion has the purpose of defining the behavioral frame to which the present study belongs.

Stuart F. Chapin suggests three areas of study which he considers essential for designers in understanding the man-environment relationship. First, he suggests the appreciation of those significant historical values that influence the urban form and the growth of the city; second, the study and understanding of the urban dweller's values that are influenced by the environment in which he lives and the type of relationship he maintains with it and other people; third, the evaluation of perceptual features that give character and meaning to the urban environment which, in conjunction with the previously mentioned concepts, develops its urban quality.\(^{23}\)

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Since the main thrust of this thesis is to identify the sources of relatedness and continuity that contribute to improve the quality of life in the residential environment, it is within the second area of study suggested by Chapin that this literature will be directed, guided by Michelson's man's lifestyle--environment study approach, and within the behavioral parameters of his "experiential congruence system."

In other words, this literature search is a hybrid approach that aims at identifying the characteristics and qualities of the urban residential environment contributing to the development of social and physical relatedness in people, while enriching the quality of life in their living environment and maintaining unity as a whole with the urban context (continuity).

In Parsons' behavioral matrix this approach corresponds to a particular segment of the intersystem relationship between individuals' spatial behavior and the environmental behavioral system, as shown in Figure 3.

Figure 3 also permits the appreciation of the limitations in scope imposed by following a unidirectional approach. From the literature search it is our intention to derive a research methodology that can be related to the physical environment and to man's activities and social interaction.

The complementary behavioral processes of perception and cognition in the overall behavioral matrix, although relevant in shaping man's understanding of the built environment, will not be
discussed in their relevance to continuity and relatedness. Their particular characteristics, rather, will be generally acknowledged by their functions which aid man in identifying and formulating his concepts of the environment and the opportunities for a desired behavior within it, leaving spatial behavior to be considered as the expression of their interrelation. Yet, this expression, manifested in the spatial behavior process, will be considered to be directly affected by the predominant influence of some of the behavioral systems (organism, personality, social group, culture and environment) which the individual uses to analyze what his behavioral possibilities are. It is this

24 Lang, et al., op.cit., p. 95.
last interdependence between the spatial behavioral process and the influence of the behavioral systems on man's interaction with his surrounding urban residential environment that will set the focus of the following literature search.

Before introducing the literature concerned with spatial behavior and the interaction of man with his urban residential environment, a general overview of the psychological processes of perception and cognition will be outlined in relation to man and his environment.

3. **Perception, Cognition and Spatial Behavior Processes**

The man-built environment functions in three ways: it maintains the physiological states necessary to sustain behavior; it provides the necessary behavior settings; and it supports mental states by the use of forms and symbols which influence the psychological responses of man to his environment. In each one of these functions there is a perceptual, a cognitive and an activity component. The environment, in order to sustain these functions, must be perceived as being capable of supporting or favoring a determined behavior which, at the same time, the user must perceive and understand how to use. Further, the environment must be fully capable of supporting the required activity which satisfies the behavioral mode influenced by the setting and the user's behavior.

a) **Perception**

In the interrelation of functions in the behavioral process, Perception is the process by which the individual receives or obtains information from the surrounding context. The individual's perceptual
characteristics contribute to determine the selection of that information.

New insights about the process of Perception have come to light under the influences of Gestalt Theory, the Transactionalist school, and the Information-based Perception process. According to these theories, perception is no longer considered being determined exclusively by external stimulus. Rather, the stimulus' function is considered as a means of information which the individual uses to select and respond to what he is attending.

The relevance of perceptual theories has been enriched with the early works of Koffka on visual perception and the conceptual framework on object perception by Santayana (1955), and with the influential work of Jean Piaget on perception and cognition (1956). Jon Lang in his paper (1974) "Theories of Perception and 'Formal' Design," comments on the works of William Ittelson (1954) to whom he acknowledges the


30 Jon Lang, "Theories of Perception and 'Formal' Design," Jon Lang et al., op.cit., p. 45.

31 Ittelson & Cantril, op.cit.
identification of three major contributions to recent perceptual theories which bring to our attention some important architectural issues. They are: Action, Purpose, and Differentiation between Object and Environment. In the first case (Action), the emphasis is on the role movement plays in obtaining information from the environment. This can be identified in the works of Gordon Cullen (1962) and Jon Lang (1979). In the second case (Purpose), the way in which an individual's movement depends on his own motivation can be followed in the works of Philip Thiel (1964) who points out two levels of perception: one as a tourist seeing the environment and the other as the "Habitue." A similar reference can be found in Rapoport and Kantor's (1967) work discussing the ambiguity of the environment. They suggest that "we design environments that are ambiguous--ambiguous in the sense that they have different types of information and different meanings for the attention of different users." Another source of similar reference is in the well-known theoretical book of Robert Venturi (1966), Complexity and Contradiction in Architecture. In the third case (Differentiation between object and environmental perception), there is a contrasting


34 Philip Thiel, "The Tourist and the Habitue: Two Polar Modes of Environmental Experience, With Some Notes on an 'Experienced Cube'," July 1964 (Mimeographed) in Lang et al., op.cit., p. 87.


difference between perceiving buildings and cities as physical objects and the open space between buildings defining clusters of places. The perception of the open space consists of a variety of specific data directed to the individual's perceptual senses which enrich the experiencing of the environment. Visual perception becomes one of the stimuli contributing to establish a level of cognition, while the total experience of the environment depends on the other senses to develop the awareness and experience of places. This factor seems to be commonly ignored by architects. Reference to this non-visual perception of the environment can be found in the seminal book of Steen Eiler Rasmussen *Experiencing Architecture* (1959), as well as in James J. Gibson's work (1966) considering the environment as a nested set of spaces which the individual organizes and perceives through his perceptual senses. Moreover, Kevin Lynch's work (1960), dealing with the total perception of the urban environment and the stratification of visual information to develop mental maps of the environment, contribute in establishing the behavioral link between Perception and Cognition.

It is important to note that the outlined research on Perception presents a good departure for "aesthetic theory," since most of the research's focus is on object perception. Similarly, it provides a conceptual framework for research that may help designers measure the

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40 Lang, et al. (eds.), *Designing for Human Behavior*, op.cit., p.89.
perceptual attributes of the physical environment. However, further research needs to be developed and "... examined afresh in its basic principles." 41

b) Cognition

Cognition refers to the various means of awareness of the environment and the use that an individual makes of this knowledge in adapting to the circumstances of the surrounding social and physical context.

Cognition relates the environment to the mind in terms of preferences and meaning, while its working process depends on the physiology of the individual as an organism and on the source of the stimuli in the environment. The working process of cognition depends also on the symbolisms of language, culture and society. 42 Much work, both past and current, in this area of cognition has been concerned with developing ways and means of externally representing what is within people's minds.

Different theoretical points of view have produced a variety of methods from different disciplines in obtaining cognitive information on the environment from the individual and representing it in such a way that it can be analyzed. Gary T. Moore's current research (1976) 43 seems to be oriented towards describing the mental content of the environment, based on principles established in the theoretical works

41 Ibid., p. 89.
42 Ibid., p. 90.
of Piaget and Inhelder (1956), and Heinz Werner (1948) and Jerome Bruner (1956). Two concepts of representation are derived from these theories. One concerns a symbolic representation of absent realities (Werner and Kaplan, 1963). The second is related to the knowledge or thought that people have of the environment: "mental maps" Lynch (1960); Stea and Downs (1970); Hart and Moore (1973), and many others.

Parallel to this development in representation, some research has been oriented towards explaining overall feelings and their manifestations.

44 Jean Piaget and Barbara Inhelder, op.cit.


48 Kevin Lynch, The Images of the City, op.cit., p. 25.


51 For better reference see Gary T. Moore and Reginald G. Galledge (eds.), Environmental Knowing, op.cit.
(Cooper, 197552 and Hershberger, 197253), rather than the context, structure or process of cognition.54 Jon Lang and Charles Burnette in their book, Designing for Human Behavior, introduce present efforts at describing how the process of the mind might work, with the help of psychology, linguistics and computer sciences, in the works of Herbert Simon55 in computing information processing models.

Undoubtedly, the desire to better understand the relationship between the environment and the process of thought will receive continuing interest. This area of enquiry can be instrumental in producing better environmental designs. However, it should be kept in mind that "... the environment in both its physical and cultural aspects constitute the source of information and the ultimate test of its adaptative use by the organism."56

With this brief review of the processes of Perception and Cognition and the identification of their functions in shaping man's images and concepts of his environment, the present literature charts the interrelation of man and his environment at the level which


54 Lang, et al., Ibid., p. 91.


56 Lang, et al., Ibid., p. 92.
Michelson calls "mental congruence." The third component of the behavioral process as outlined in Parsons' Matrix (Figure 2) is Spatial Behavior.

c) Spatial Behavior

The concept of Spatial Behavior in Michelson's theoretical framework corresponds to the "Experiential Congruence System" and deals with the observation of how well the environment accommodates the characteristics and behavior of people. The following analysis of the studies of the Spatial Behavioral Process will focus, first, on establishing the unit for studying spatial behavior and, second, on determining the influences that behavioral systems exert on man's activities.

Architecture and planning have as one of their basic objectives the creation and specification of spatial layouts that support activity patterns required by determined types of users. This involves more than a simple arrangement of a physical setting in response to movement patterns, human dimensions, uses and character of spaces as determined by the needs of a single individual or the multiple needs of many individuals. Physical settings can be identified in the urban environment on two scales: the microscale of the residential unit, and the macroscale of the city. While the activity patterns are easy to establish, the complex system of behavioral components determining the activity patterns taking place within a physical setting is more complicated.

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57 William Michelson, *op.cit.*, p. 45.
Some activities are the result of a process of habituation, while others are the result of the interaction of an individual's behavior with a physical setting. If a physical setting favors or promotes a determined activity, the individual's behavior will respond to it by recognizing or reorganizing the setting. "Behavior is neither totally determined by the physical environment nor does it exist without reference to its spatial context. The physical setting can support some behavior and discourage others." 59

This relationship between spatial behavior and physical setting has been the focus of researcher and designer, although from different points of view. Some have called it "behavioral settings": Barker (1968); 60 Bechtel (1977); 61 Wicker (1979). 62 Others call it "man-environment system": Archea and Esser (1970). 63 Or "Activity Systems": Chapin (1968). 64 Or simply, "Places": Moore, Allen and Lyndon (1974). 65

59 Lang, et al., op. cit., p. 92.
and Zeisel (1973). However, all of them agree on the interrelation of both systems.

Two of the most helpful systems outlined above in studying human behavior in physical settings are: the Activity System, proposed by Stuart F. Chapin, Jr. (1968), based on the organization of sequences of activities taking place in a setting and comprised of a related series of small activities. The Activity System consists of a sequence of activities having the same context in some specific order and temporal rhythm." Secondly, Behavioral Settings, developed by Roger G. Barker (1968), suggests small units of study which are considered natural units of behavior that individuals perform in their day to day lives. "These behavioral settings have spatial and behavioral boundaries which circumscribe a standing pattern of behavior." The extent of influence that the layout of the setting has on the individual's behavior has not been exactly determined. However, the use of Behavioral Settings is helpful in identifying activities taking place in a setting which can then be analyzed and tentatively considered in the design process.


67Chapin, op.cit., p. 41.

68Barker, op.cit., p. 25.

69Barker, op.cit., p. 35.

4. **Spatial Behavior and the Behavioral Systems**

The spatial behavior of an individual is directly influenced by the behavioral systems (physiology, personality, social group membership, culture and environment) which require particular attention and understanding of their impact on the individual.

a) **Physiological System**

Physiological systems, such as Ergonomics and Antropometrics, relate the individual's physiological processes with work tasks and anatomical dimensions important in design.

b) **Personality System**

Literature related to personality and spatial behavior according to Jon Lang falls into three categories. First, studies related to the general nature of personality and spatial behavior explain a person's attitude toward space by his personality traits; or by determining the correlation between physical environment and the development of an individual's personality and ability to cope with change.  

Second, other studies show that there is a correlation between territorial behavior and dominance and environmental ambiguity and feelings of anxiety in schizophrenics. These two groups of studies on personality-environment relationships have mostly been developed in psychiatric wards with mental or schizophrenic patients. Some of these concepts have been applied in the study of people under normal conditions, such as:

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as in the work of Robert Sommer with his concept of personal space. Third, refers to the studies determining correlations between personality and cognition and the search for variety, and the relation between needs of privacy and personality components.\textsuperscript{73} All these studies in personality and spatial behavior require an adaptation to everyday circumstances, outside of psychiatric wards.

c) Social Group System

Another area of study has focussed on the correlation between social interaction and the physical environment. This kind of social interaction is based on Social Roles\textsuperscript{74} as defined by Altman (1970) or, as Michelson (1970) describes them, "role emphasis" determining the characteristics of life style.\textsuperscript{75} The participant determines the situation in which he is involved on the basis of past experiences. Then, he selects a behavior and role relationship with the environment which, later, he integrates with characteristics of the environment and himself to form a complex behavioral system. Moreover, this system continues being readjusted and modified as long as the interaction continues, creating a Dynamic System.\textsuperscript{76}


\textsuperscript{75}Michelson, \textit{op.cit.}, p. 62.

\textsuperscript{76}Jon Lang, et al., \textit{op.cit.}, p. 94.
d) Cultural System

Cultural systems have also been studied in relation to their effects on spatial behavior. Edward T. Hall (1966) and his well-known trilogy on anthropological and behavioral studies established the concept of "proxemics," or the socio-anthropological and cultural dimension in which an individual operates in relation to others, to the environment, and to time. Similar studies include the prolific work of Amos Rapoport (1969) discussing the relation between culture and spatial behavior (living patterns), and the works of Marc Fried (1961) and Herbert J. Gans (1962) on the socio-cultural networks in the old west end of Boston based on ethno-cultural relationships and their interaction with the environment. Another aspect of the cultural system is that of social organization and its structuring of spatial behavioral patterns, as noted by Jon Lang and discussed in terms of environmental programming for offices.

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The effects of the environmental systems on spatial behavior cover a broad range, from climatic conditions to the structuring of the physical environment itself. Both Hall and Sommer in their concepts of "proxemics" and "personal space", respectively, have focussed on understanding how the environment that an individual occupies becomes influential and part of his behavioral responses. The particular aspects of the interrelationship between physical environment and spatial behavior, as suggested by Barker and le Compte are dependent on the nature of factors such as, the setting's characteristics; the individual's behavior; the spatial definition of the setting by people and objects; and the kind of activities taking place. Jon Lang adds "All the components of the behavioral system -- physical, social cultural and administrative -- define and are defined by the nature of their interrelationship; a change in one will not only affect the others, but will, in turn, be affected by them." Furthermore, "...the environmental and the behavioral systems are unique at any given time and place, and are unique for each individual."

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81 Edward T. Hall, Silent Language, op.cit.
83 Roger G. Barker, Ecological Psychology, op.cit., p. 76.
84 William le Compte, "Behavioral Setting as Data-Generating Units For the Environmental Planner and Architect" in Jon Lang, et al., op.cit., p. 183-193.
85 Jon Lang, et al., Ibid., p. 95.
Since spatial behavior is oriented towards satisfying individual needs, environmental research has focussed primarily on those issues related to the individual's needs, such as social interaction, territoriality, privacy, and lately, defensible space. However, some of the researchers, such as Gutman and Westergaard, have expressed some reservations in the utilization of these concepts in the design of prototype places for people. Their criticism applies to the limitations of solving only specific basic needs in the creation of the built environment, which they compare to gathering components without concern for putting them together --"to prescribe a diet or to a chef to prepare a menu." Similarly, Sommers adds a comment to this criticism. "The quality of the physical environment has more to do with the fit between the whole behavioral and psychological program than just the way people relate to each other in space." 

Thus, when considering the relationship between architectural or planning designs and spatial behavior, it should be understood that their relationship is not a closed one. Rather, it is a dynamic one oriented to satisfying individual needs which require particular consideration at a detailed level. They also require understanding at a general level of their relationship and interdependence with the environment and the individual.

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In this section the interrelation of the behavioral systems and the psychological processes have been outlined and their relevance to man's behavior emphasized. In the following section the impact that the physical environment exerts on man's social and physical activities will be discussed under two particular aspects of their interaction. First, we will consider the extent to which determined physical characteristics of the environment influence behavior; and second, the influence of particular social characteristics of behavior on particular arrangements of the physical environment.

5. Behavioral Systems and the Physical Residential Environment

The literature on this subject represents an interesting progression in the development of socio-behavioral research, which has been undertaken in post-war residential environments. From social theories on "group formation," Festinger, et al. (1950)88 and "social proximity," W.H. Whyte (1957)89, the literature gradually becomes interrelated with the study of social and physical characteristics in the residential environment favoring people's interaction. Concepts such as "friendship and linear housing," Caplow and Forman (1950)90;


"friendship related to the placement of doors and windows," Kuper (1953)\(^1\); identifying the influence of the site plan on the communication process, Gutman (1966)\(^2\) and its effects on social behavior as influenced by "architectural determinism and propinquity," Broady (1966)\(^3\) are included. Following are further investigations on the influence of socio-cultural systems on behavioral levels of acceptance and interaction in suburban residential environments. For instance, "homogeneity," Gans (1967)\(^4\); homogeneity in pre and post relocation studies on life style and group formation in ethnic residential environments, Gans (1962)\(^5\); Fried (1963)\(^6\); homogeneity in slum areas, Suttles (1968)\(^7\); and investigations on users' levels of

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\(^4\) Herbert Gans, The Levittowners, op.cit., p. 150-159.


\(^6\) Marc Fried, The Urban Condition, op.cit., p. 157-171.

satisfaction and preference in multi-family residential environments by Clare Cooper (1971-1972), are considered.

Apart from these literature sources there are other studies focusing on particular conditions of the physical environment affecting behavior. Some of these studies are treated as pathologies in the urban context (i.e., high densities, ethnic ghettos, high-rise housing and public housing).

In the following analysis of the residential environment, one of these pathological cases, public housing projects, will be discussed regarding their physical and social characteristics and their relationship with the urban residential context. Another aspect of the residential environment that is important but beyond the scope of this thesis is the relationship between people and the urban context in terms of urban behavior. In this last area, the studies related to Perception and Cognition have an important role in creating the mental image of the city.

The following studies represent a general overview of some of the relevant concepts that can be helpful in understanding people's urban behavior and their relationship with the residential environment in the city. Concepts covered relate to the "neighborhood

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98 People Places, Berkeley: Department of Landscape Architecture (September, 1976).

In order to coordinate a line of thought in the literature sources that allows the identification of particular physical and social characteristics relevant to the development of environmental continuity and social relatedness in residential urban environments, the following literature search acknowledges two particular bodies of


104 Kevin Lynch, Images of the City, op.cit., p. 27.


knowledge that have been relevant sources and guiding references. First should be noted the works on environmental psychology by Charles Mercer, environmental behavior, Jon Lang, et al., and John Zeisel; and environmental planning by Thomas F. Saarinen. Second, particular reference is made to the works in sociology of William Michelson, whose point of view is the basis on which this literature search is structured.

B. Focus of the Search

1. Literature Search: Organizing Premise

The urban environment can be described at different levels depending on the scale of reference in which a determined concept needs to be understood. The complex interrelation that takes place between man's behavioral systems and his residential environment is more than a


complicated task which makes the transition from socio-behavioral concepts to descriptive physical design concepts difficult. Works by Charles Mercer and William Michelson agree on this point, and both comment on the fact that the interaction between man and his environment is not a simple relation process. Rather it is a multi-faceted process in which each component has an effect on every other, modifying individual characteristics and maintaining a continuous process of interrelations.

Facing the complexity implicit in the literature sources, it is necessary to establish a point of view distinguishing particular socio-behavioral characteristics relevant to the impact of the immediate environment on the individual. This task is made easier with the help of Michelson's concept of the ego-centered point of view. His concept is mainly oriented to binding together physical and social phenomena. It can be considered as a reference point for the analysis of the social significance of buildings, neighborhoods and cities to man. Furthermore, its objectivity in determining physical concepts can help to build up a socially relevant picture of the environment, both microscopic and macroscopic, providing the essential components for the selectibility of the literature sources.

The ego-centered point of view suggests two premises. The first conceptualizes the environment in terms related to the immediate environment that can also be considered with social meaning. What this premise suggests is the conceptualization of the environment in meaningful terms to

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112 Mercer, op. cit., p. 31.
113 Michelson, op. cit., p. 17.
114 Ibid., p. 46-47.
the unit of social behavior (man) that can be combined with other units to describe larger levels of the environment (city). The second premise suggests that concepts related to describing the environment should take as a fundamental truism that "people are separated in space from other people and from non-residential activities."\textsuperscript{115}

These two premises provide sufficient basis to organize the literature sources into two main categories, that of physical and social concepts. They set the scale of two environmental parameters on which to focus the analysis of these concepts at a micro or macro level. Michelson's premises complement each other and put forward the physical-social concept of contact which implies a separation factor or physical distance that is required to be overcome in order to establish social and physical interaction. In this way the concept of contact is related to the physical distance between two entities where both or at least one of them has to be displaced to overcome the existing separation in space and establish contact.

The concept of distance can be considered in different dimensions. Somers (Functional)\textsuperscript{116}; Hall (Visual, Aural, Territorial)\textsuperscript{117}. Two such parameters will be imposed on the literature search. We will consider the existing physical distance both in its own physical terms, and in its functional socio-behavioral terms, or manipulated distance.

\textsuperscript{115}Michelson, \textit{Ibid.}, p. 47.
\textsuperscript{116}Robert Sommer, \textit{Personal Space}, \textit{op. cit.}, p. 33.
Thus, for the purpose of clarity, each concept, either physical or social, will be considered according to its particular characteristics as they influence spatial behavior, rather than how the perceptual and cognitive processes influence it. Although these interrelationships of processes are certainly crucial in order to understand behavior in particular environmental settings, they do not rule out the basic relationships between socio-behavioral systems (organism, personality, social group, culture and environment).

In the following table, the basics of Michelson's premises as a frame of reference for the literature search are restated.

<table>
<thead>
<tr>
<th>Physical-social factor</th>
<th>Social-physical dimension</th>
<th>Environmental Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>to establish contact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance (To Be Overcome)</td>
<td>Physical (Existing) or Functional (Manipulated)</td>
<td>Micro Level Macro Level</td>
</tr>
</tbody>
</table>

2. Literature Search: Theoretical Frame of Reference

Further considerations establish that once a distance between two entities has been overcome and contact is established, there is a degree of interaction requiring physical and social moderation. This degree of
interaction is dependent on the levels of sociability or privacy that the environment facilitates. At the macrolevel, man remains the unit of interaction and the urban context becomes the moderating unit of man's interaction. This leaves the degree of interaction dependent on the accessibility and proximity existing in the environment between one individual and another and nonresidential activities such as work, shops, parks, schools, etc.

Following the above frame of reference, and centering the focus of the literature search on physical and social factors that contribute to the promotion of social interaction and physical continuity in the residential urban environment, the units of interaction in the environment will be considered. Initially, man is the social unit of interaction. But the environmental parameters of his interaction to be considered are "Project Layout" at the microlevel and "Neighborhood" at the macrolevel. These adjustments in the frame of reference reshape the content of the table on the previous page into the following outline (Figure 4).

The following frame of reference has been valuable in guiding the selection of most relevant physical and social factors in this literature search. This search has mainly focussed on the socio-spatial behavior of the individual and his interaction with others and his residential environment, which contribute to promote social interaction and, potentially, establish physical continuity in the character of the residential environment.
There are three concepts that have been found in the literature sources to be relevant in promoting social interaction and physical relatedness. Two of them are particularly related to physical characteristics of the environment, at either the micro or macro level. They are "Propinquity" and "Legibility". The third concept corresponds to a group of social characteristics that influence the individual's level of interaction through social similarities -- "Homogeneity". Implicit in this would
also be the influences of "Heterogeneity" or social dissimilarities between individuals.

The following outline synthesizes the characteristics of these three socio-physical concepts and their interrelation.

<table>
<thead>
<tr>
<th>A/ ISOLATED CONCEPTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROPINQUITY</strong></td>
</tr>
<tr>
<td>(The influence of spatial proximity between individuals)</td>
</tr>
<tr>
<td>Physical Factor</td>
</tr>
<tr>
<td>Influencing: SOCIAL CONTACT (MICROLEVEL)</td>
</tr>
</tbody>
</table>

| **LEGIBILITY**      |
| (The clarity of the environment to be recognizable and accessible) |
| Physical Factor |
| Influencing: RELATEDNESS (MACROLEVEL) |

| **HOMOGENEITY** |
| (The existing or perceived similarity in social characteristics) |
| Social Factor |
| Influencing: SOCIAL CONTACT & PROXIMITY |

| **HETEROGENEITY** |
| (The opposite of homogeneity) |
| Social Factor |
| Influencing: INDIVIDUALITY & DISPERSION |

*Note: Homogeneity and Heterogeneity apply on both Macro and Micro scales.*
### INTERRELATION OF CONCEPTS

<table>
<thead>
<tr>
<th>(Micro level)</th>
<th>PROPINQUITY = Physical Factor</th>
<th>Influences social contact which may develop into FRIENDSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOMOGENEITY</td>
<td>Social Factor</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Macro Level)</th>
<th>LEGIBILITY = Physical Factor</th>
<th>Facilitates social contact AND RELATEDNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOMOGENEITY</td>
<td>Social Factor</td>
<td>and physical proximity CONTINUITY</td>
</tr>
</tbody>
</table>

**Note:** The influence of heterogeneity at the micro level does not result directly in friendship, nor does it create relatedness or continuity at the macro level. Rather, its influence promotes diversity and individuality. However, this influence of heterogeneity in the social systems of the city plays an important role in the creation of groups with similar affinities, thus, it becomes an opposing and promoting factor in the development of homogeneity.

Substituting the interrelation of concepts in the frame of reference in Figure 4 for the factor of Socio-Physical Contact, or "distance", on both micro and macro levels, two independent charts are created as shown in Figure 5.
## Figure 5. Literature Search: Concepts' Frame of Reference

The following section will discuss these concepts and their particularities in regards to social interaction and spatial behavior.
3. **Architectural Determinism**

Two questions in the literature are posed in relation to the effects of the man-made environment on man's behavior. One of these questions asks to what extent buildings and neighborhoods shape the lives of people living in them, regardless of the individual's personal characteristics. Can the arrangement of the physical space defined by buildings influence or determine the level of interaction among people? The second question asks whether the architect and planner determining the arrangement of a site plan—can socially plan the grouping of people to live in a determined layout?

Both questions are related to a physical or architectural determinism influencing behavior on a larger scale rather than particular design features influencing behavior on a smaller interior scale. Their association with Propinquity, Homogeneity and Heterogeneity are the topics of the following discussion.

Architectural determinism most commonly associated with Propinquity (distance between units) has been considered, through the literature sources, to be the basis for friendship, social interaction, and community relatedness. Charles Mercer mentions in his book, *Living in Cities*, how the influence of physical proximity (propinquity) between houses was found to be an important determinant in the selection of marriage patterns in studies undertaken during the 1930's and 40's.118 He also mentions how the work of Leon Festinger, Schachter and Black119 in the early 1950's provided


the basis for considering propinquity as a determinant of behavior, and he supports what Broady (1966)\textsuperscript{120} calls "Architectural Determinism." Broady asserted that architectural design has a direct and determinative impact on the way people behave. But he denounced the use of this philosophy by uncritical designers whom he condemned for "not taking the trouble and worry of observing accurately and thinking clearly"\textsuperscript{121} about the implications of their design on the social life of people. Similarly, Charles Mercer,\textsuperscript{122} in reviewing the misinterpretations and over-generalizations made of the work of Leon Festinger, et al., quotes Festinger himself on the limitations of his findings on propinquity in developing friendships. Festinger emphasizes the influence of homogeneity as a social factor. He states that if the social characteristics of the group studied had been more heterogeneous, the results would possibly have pointed out different patterns of association.

There are always followers who champion causes. Perhaps Terence Lee (1970's)\textsuperscript{123} has been the most active proponent of Architectural Determinism. He considers the influence of architectural determinism on behavior as a matter for the individual to accept or reject. As long as the individual understands that he is motivated by the physical environment,

\textsuperscript{120}Maurice Broady, "Social Theories in Architectural Design" in Charles Mercer, \textit{Living in Cities}, \textit{Ibid.}, p. 70.

\textsuperscript{121}Broady, in Charles Mercer, \textit{Ibid.}, p. 70.

\textsuperscript{122}Mercer, \textit{Ibid.}, pp. 73-75.

it is up to him to choose the direction of his development.

Architectural Determinism, as a result of strong support from its advocates, and in spite of misinterpretations and careless assumptions made about its use, has become influential enough to be considered a physical factor which either directly or indirectly relates to social factors influencing individuals' spatial behavior ("Propinquity + Homogeneity = Friendship").

In the discussion on Architectural Determinism, there is a group of studies initiated by Merton (1948) and followed by the influential work of Festinger, et al. (1950), Caplow and Forman (1950), Kuper (1953), and W.H. Whyte (1957) on campus residences, small towns and suburban developments. Their outcome, if not totally convincing on the single influence of architectural determinism on individual's behavior, represent a relevant collection of physical conditions and layout characteristics influencing, or having some degree of involvement in, the individual's socio-spatial behavior. The critical reviews of these studies


128 William H. Whyte Jr., The Organization Man, op.cit., p. 175.

129 For further information and detailed account of these studies see: William Michelson's Man and His Urban Environment, pp. 170-183, and in Charles Mercer's Living in Cities, pp. 74-80. Both in op.cit.
by W. Michelson and Charles Mercer, from parallel points of view but approached from the separate disciplines of sociology and psychology, assess the degree and limitations of architectural determinism under particular social conditions.

On the one hand, the significance and validity of architectural determinism is clarified from the social science point of view as a single physical factor. On the other hand, from the psychological point of view, its interdependence with social and contextual factors is emphasized. Although both points of view agree in principle that propinquity as a physical factor in architectural determinism can be considered as the basis for friendship, social interaction and community relatedness, they disagree on whether it is the sole factor.

In order to pursue the focus of this literature on the identification of social and physical factors that can be implemented in the development of spatial continuity and social relatedness in the residential environment, the search will continue using as sources of reference Michelson's and Mercer's points of view on architectural determinism. The author will try to identify the relationship to spatial behavior in terms of the physical and social characteristics and conditions that each one considers essential or determinant in the formulation of social interaction. For this purpose a synopsis of the physical and social characteristics of the study cases forming the core of the discussion on architectural determinism will be briefly outlined. It is not the intention of this synopsis to review the full content of the study cases. Rather it will identify those physical characteristics of the projects' layouts that contribute to generate patterns for interaction, and try to establish the characteristics of the socio-spatial behavior which foster or impede social interaction.
The following study cases have been formulated with the premise that "Propinquity" is the basis for friendship and social interaction in homogeneous residential environments.

a) **Study Case: Westgate and Westgate West (M.I.T.)**

Leon Festinger, et al. (1950)

**Characteristics:** Single family housing, detached, grouped in courts.

**Site Plan:** Westgate

**Residential Type:** Students; married couples, veterans of World War II.

**Research Focus:** Determine the extent of environmental influence on the friendship patterns and opinions of the residents.

**Findings:** (Physical Factor)

- Proximity between front doors of units contribute to friendship.
- Friendship developed among people within the same courtyard.
- Opinions on given issues were inbred in friendship network.
Findings: (Social Factor)
- Courtyard Friendship
- Project Network of Communication

Spatial Influence Pattern:

b) Study Case: Westgate West (M.I.T.)

Leon Festinger, et al. (1950)

Characteristics: Two-level building; 5 units per floor; access to units outdoors; balcony or porch; 2 sets of staircases at the ends of the building.

Site Plan: Westgate West

Residential Type: Same as above.
Research Focus: Same as above.

Building Type:
Findings: (Physical Factor)  

They are similar to those in the Westgate study, except that the physical factor of distance, as in Westgate (operated in a horizontal sense), did not function in Westgate West's buildings. The pattern of sociability and friendship was found to be vertical.

Findings: (Social Factors)  

Friendship was manipulated by the location of stairs and the units in their proximity. Separation of friendship groups: few of the residents on the first floor were known to those on the second floor.

Manipulated Interaction Pattern:  

This study and others in dormitories at Princeton University (see Michelson in footnote 129(1967)) assert the influence of manipulated distance by limiting access points or centralizing facilities in proximity to residential units. Thus, the pattern of sociability was determined in terms of a horizontal or vertical distance (manipulated).

c) Study Case: University Villages, Minnesota  

Theodore Caplow and Robert Forman (1950)  

Characteristics: Single family housing; semi-detached double units with party wall at the centre.  

Residential Type: Student; married couples; veterans of World War II.  

Research Focus: Friendship pattern.
Site Plan: University Villages

Findings: (Physical Factor)
- Friendship followed the pattern given by the front doors.
- Friendship and visual contact was supported by the orientation of front doors to the sidewalk.

Findings: (Social Factor)
- Sharing of sidewalk and the orientation of front doors towards it promoted social contact.

Spatial Influence Pattern

d) Study Case: Braydon Road Estates, Coventry, England
Leo Kuper (1953)
Characteristics: Single family housing; semi-detached; walkway separating double units; courtyards facing central cul-de-sacs; party
Residential Type: Post-war housing (market plan)
Research Focus: Friendship pattern
wall between units.  

**Unit Type:** Attached houses oriented to each other. Mirrored floor plans.

**Site Plan:** Braydon Road Estates & Unit Types

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**Site Plan**

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**Findings:** (Physical Factor)

- Friendship was not developed with the shared party wall neighbor; rather it was developed with the neighbor on the opposite side or across the street.
- Friendship patterns were developed between neighbors whose doors faced walkway.
- Partition wall was source of annoyance (noise).
- Location of doors and windows influenced satisfaction of residents. Residents in cul-de-sacs were less satisfied with their housing than those who lived in a longer
straight line facing an external roadway.

Findings: (Social Factor)  Distance: (Physical and Manipulated)
- Lack of privacy in cul-de-sacs caused by placement of doors and windows facing mirrored floor plan units.
- Spatial proximity brought about intense relationships, both positive and negative.

e) Study Case: Industrial Town - Craftown, U.S.A.
Robert K. Merton (1948)

Characteristics: Population,  Residential Type: 4 families housed
700 families.  per building; 175 buildings.
Site Plan: Not available in Research Focus: Friendship pattern.
literature sources.

Findings: (Physical Factors)  Distance: (Physical)
- 19% of resident friendships were among people in the same building.
- 5% of resident friendships were among people in adjacent buildings.
- Placement of doors in the buildings were close to one another.
- Of the friendships that developed with neighbors across the street from
  one another, 74% were between residents with doors facing the street.

Findings: (Social Factor)  Proximity:
- People can be aware of each other's existence in many ways, but there are
  specific elements, i.e., doors, that can be located and oriented in
  residential accommodations to promote awareness and social contact.
f) Study Case: Park Forest III (Town)
William H. Whyte, Jr. (1957)

Characteristics: 25 miles south of Chicago; 17,600 dwelling units. Residents are young executives and professionals. Socially mobile.

Residential Type: Some single detached units and two-storey garden apartments grouped into courts.

Site Plan: Park Forest - Group Activity Areas

Findings: (Physical Factor)
- Courts produce their own pattern of behavior.
- Placement of play areas selected by children.
Placement of a stoop or direction of the street establishes contact.
Adjacent driveways or adjoining lawns.
People living at corners tend to be more isolated than those living in the middle of the block.
Residents in the middle of the block have more friends and assume the role of "leader."

**Findings: (Social Factors)**

- The social pattern of sociability and friendship in the courts remains active regardless of resident turnover.
- Children's need to play with other children nearby creates contact between parents.
- Isolation of residents at the end of the block from group gatherings and lack of social privacy to the residents in the middle of the block.

In concluding this synopsis the following observation should be made. Robert Gutman, in a short review on site planning and social behavior noted that the communication process of residents is influenced by the project's layout. "The site plan blocks off certain avenues of contact between persons, while others are open, even emphasized. The
presence of barriers or open paths in specific places influence the probabilities of contact, which could lead to communication. This comment helps to emphasize the effects that a particular layout may have on social interaction which may develop into a balanced friendship or the need for privacy.

Similarly, the role of propinquity (closeness or distance between dwelling units) has also been stressed in the promotion of social interaction. As suggested by W.H. Whyte, "... in suburbia friendship has become almost predictable." He considers propinquity a determinant of social interaction and argues that once a social pattern has been established in the arrangement of the dwelling units, a "social traffic" is determined and remains in spite of the turnover of residents through time.

In a clear review of the above study cases, William Michelson, from a sociological point of view, assesses the degree to which such physical determinism can be valid. He points out that propinquity becomes a factor in friendship under two conditions: homogeneity (existing or perceived), and the need for mutual aid. The particular characteristics of these two conditions will be discussed later on in relation to their influence on social interaction.

Now, looking into Charles Mercer's argument on propinquity as he reviewed these same study cases from the psychological point of view, "proximity" is considered a minimal factor in social interaction. Supported by a thorough research of the studies of Festinger, et al.,


he argues that the basis on which to consider Architectural Determinism (propinquity) as a source of friendship is often misquoted in its real intention. Mercer considers the work of Festinger et al. more of a piece of socio-psychological theory, rather than an assertion of architectural determinism, which he supports with evidence quoted from the study in its defined "basic theoretical interest." The only finding that Mercer gives credit to in the M.I.T. study of Festinger et al is, "The physical layout of a housing estate is important in friendship formation of homogeneous, physically constrained, transitorial population."132

In a brief review of some of the study cases mentioned above (i.e., Caplow, Forman, Merton and Whyte), Mercer concludes that all these studies "undoubtedly support the veracity of 'Architectural Determinism,' but only when social factors are brought so closely together that they cease to exert a pull on individuals' behavior."133 Similarly, the homogeneous characteristics of the study cases direct Mercer's criticism to the formulation of friendship. He considers friendship as being more likely a "cumulative sorting of similarities,"134 homogeneous conditions such as age, status, interest and occupational criteria. While these similarities are located within a framework of "propinquity," their choice and selection are constrained rather than controlled by this framework. Thus, from Mercer's point of view, since the bridging criteria for social interaction is exclusively based on social similarities, the argument that propinquity

132 Mercer, op.cit., p. 79.
133 Ibid., p. 81.
134 Ibid., p. 82.
influences friendship in homogeneous circumstances lacks strength. Furthermore, this contention is backed with findings derived from similar residential environments, but under heterogeneous circumstances,\textsuperscript{135} where socializing and friendship were found to be based on the same similarities as mentioned above under homogeneous conditions, where the physical factor (propinquity) played an unimportant role.

A study case, which perhaps helps to clarify Mercer's criticism of Architectural Determinism in considering propinquity as being the basis for friendship and social interaction, is the study of an interracial housing project in New York (Deutsch and Collins, 1952).\textsuperscript{136} This study also helps to explain the interrelation of propinquity, homogeneity and heterogeneity in a residential environment. The findings of this study pointed out what a physical and functional proximity between a heterogeneous group of people, in a residential environment, can achieve under the pressures of the same social and managerial conditions.

In this case, although the particular conditions of the residents were heterogeneous, the effect of the same social, economic and managerial pressures on them created a homogeneous concern or force affecting their life style; thus, a unifying consensus developed. The project management's policy favoring an interracial mix and the physical proximity of the residents contributed to develop a successful socio-physical pattern of racial integration and social interaction.

\textsuperscript{135}L. Carey and R. Mapes, "The Sociology of Planning," in Charles Mercer's, Living in Cities, op.cit., p. 82.

\textsuperscript{136}Morton Deutsch and Mary Evans Collins, "Inter-Racial Housing: A Psychological Evaluation of a Social Experiment," in Charles Mercer, Ibid., p. 84.
The thrust of the Deutsch and Collins study, from Mercer's point of view, is that it is a mistake to consider the effects of the environment on behavior as being exclusively determined by a physical factor (propinquity), in the same way as it is a mistake to consider the interaction of socio-physical factors independent from each other, or one of them preponderant over the other. What Mercer suggests is that, in understanding the effects of the environment on behavior, the interwoven participation of social, physical and contextual characteristics interacting with the individual should be considered equally important. Thus, failing to understand the interaction of all these factors may lead to irrelevant conclusions, as would be the case when considering Architectural Determinism in "its simple-minded quality." 137

However, the same does not stand true for W.H. Whyte. 138 His findings and opinions of Architectural Determinism consider the physical factor of propinquity as being the sole physical determinant in the formulation of friendship. He considers the city planner as having the power "to determine the nature of intensity of people's social lives, or the problems they face from resisting the ascribed intensity," 139 by simply establishing the shape, length, and spacing of dwelling units in a city block.

In light of both arguments on the implications of Architectural Determinism in the development of social contact and friendship, this literature search gives weight to both points of view in terms of the socio-physical behavioral mechanism that each one is ascribing.

137 Mercer, Ibid., p. 84.
138 William H. Whyte, The Organization Man, op.cit., p. 76.
139 Quoted from Michelson, Man and His Urban Environment, op.cit., p. 183.
The disagreements stem from the emphasis given propinquity as a determinant in the formation of friendship, as suggested by W.H. Whyte. However, in both arguments propinquity is considered as a physical factor influencing a particular aspect of an individual's spatial behavior; either as part of the components in the psycho-environmental and behavioral process of the individual (Mercer's emphasis), or as a determining condition in a socio-behavioral pattern (as Michelson quotes Whyte's comments). Although what both arguments seem to emphasize are not separate aspects of a socio-spatial behavior process, they seem to be focused from opposite ends, and on the wrong issues analyzing friendship or contact.

A momentary pause in this discussion will be made in order to analyze, in lay terms, what may be the sources of disagreement regarding the formation of friendship and the participation of propinquity in its development. Friendship is commonly developed after a certain time of incubation, in which an individual sorts through a number of dissimilarities until he identifies some common characteristics perceived in other individuals, giving rise to the development of a possible lasting or circumstantial relationship. In these circumstances propinquity in the development of a friendship seems limited to being one of the factors favoring the chances for friendship, rather than having an essential and deterministic function in its development. However, from this point of view, propinquity does become essential and, furthermore, determinant in favoring contact between individuals (either social, physical, visual or aural) from which friendship and any other type of social relationship can develop.

In the main context of this discussion, then, propinquity will no longer be considered as a determinant factor in the development of friend-
ship, but rather as a determinant in the promotion of social contact between individuals.

The focus of each argument now becomes shifted to enhance propinquity. First, in the behavioral process, an individual develops a particular attitude (spatial behavior) towards other individuals within a particular spatial arrangement (propinquity in a physical setting). Second, a socio-behavioral pattern (social contact) develops, which is determined by the physical characteristics of a particular spatial arrangement (propinquity). Guaging the literature from this point of view, each argument gains a complementary dimension in which both become related to the same spatial behavioral process, enhancing the element of propinquity in the development of social contact.

Without distorting either Mercer's or Michelson's arguments on propinquity as a determinant factor in friendship, it can be stated that propinquity exerts a determinant influence on an individual's contact as a primary condition from which any level of interaction (visual, aural, physical and social) can be developed, including friendship.

Social contact is, perhaps, the type of interaction which can be influential enough, supported by visual, aural and physical interaction, to contribute to the formation of friendship. It can also be considered influential enough to contribute to the development of other circumstantial levels of interaction between individuals. From the author's point of view, however, social contact is not necessarily the only basis for friendship, although it is definitely the basis from which it develops. Thus social contact can be considered as "a hybrid condition," determined by the particular characteristics of a physical setting (propinquity) and
strongly influenced by different social factors, in which an individual explores the particular characteristics of another individual, which in time may become influential enough to develop a solid friendship or establish a circumstantial relationship.

At this point, with the identification of the role of propinquity as a determining factor in the development of social contact, this literature search accomplishes one of its tasks--that of identifying an essential component influencing social interaction in the residential environment which can be related to spatial behavior. Furthermore, the physical characteristics of propinquity allow diversification and implementation in different types of residential environments and on different environmental scales, such as in a cluster of buildings, in a site-plan layout, or at the urban levels of the neighborhood and the city, thus, facilitating the understanding of the individual and group level of interaction in the community.

However, as stated above, propinquity as a physical factor influencing an individual's spatial behavior in establishing "contact" is limited in that it only prepares a circumstance, "a hybrid condition," which depends on the socio-behavioral systems to develop any meaningful type of social interaction.

The following section of the literature search will focus on identifying those particular characteristics of the socio-behavioral systems that influence an individual's "contact" and help to develop essential social conditions for community interaction.
4. Homogeneity and Social Behavior

Once again, both Mercer's and Michelson's work bring to light a common group of characteristics which they agree are influential enough to develop social interaction and convenient enough to illustrate a wider concept of homogeneity, rather than the simple meaning of "consisting of parts all of the same kind" and its counterpart, "composed of different elements" in heterogeneity.

This section of the search will focus on identifying social characteristics and particular conditions influencing social interaction, regardless of the emphasis given to their predominance over propinquity.

Charles Mercer, criticizing the validity of propinquity as a determining influence on friendship, establishes the limitations that a simple physical factor has on an individual's level of social interaction. Michelson assesses the validity of propinquity in the development of friendship under two conditions: "homogeneity and mutual aid." He points out that both of these characteristics were present in Whyte's study of Park Forests, and were also common characteristics of the population, lifestyle, and settled-in conditions in the study cases.

However, for Mercer, homogeneity in the study cases represents a group of similarities based on age, status, interest and occupational criteria, the choice and selection of which are constrained by the framework of propinquity. Although he agrees that they bring people together, he considers that they can't be established as an essential social pattern determining people's homogeneity.

Mercer further pursues this argument by establishing the characteristics of a population that have to be in accord before it can be called
homogeneous. He searches for social variables that can correlate with other behavioral characteristics of the individual to establish social class. His work is supported by that of Newson (1965; 1968) on child-rearing and social class. Newson's study takes as a social variable the father's occupation, which correlates with other characteristics such as income, residential area, education, etc. Class and status are also pointed out as being two of the variables related to homogeneity which are complex. "Class is referred to as an individual's capacity to gain income" and "status, as the chance of receiving self-esteem and life's chances ... that result from status prerogatives." Mercer, however, agrees that traditional class distinctions are based primarily on occupational differences. It could be added that planners have used this criterion as a social class indicator and "as a crude measure of population homogeneity."

Mercer's psychological interest in the individual's behavioral process, in establishing the correlation between social variables and homogeneous socio-behavioral patterns, is aided by Roger Brown's work on social class (1965). Brown considers social classes as being "Roles" performed by the individual, rather than functional real categories. Further support is provided in the work of J.S. Bruner, et al. (1956) on social thought.

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142 Mercer, Ibid., p. 90.
on the development of "status" as the mental process by which individuals perceive themselves to differ from one another, and in the work of W.H. Form (1955) on how homogeneous groups become stratified and are then seen by the people in them as heterogeneous. Thus, Mercer uses "class and status" as social variables related to individual behavior to establish the meaning of homogeneity from two different points of view.

From an outside point of view the individual uses a "social class index," while from an inside view the individual uses his own perception of the other members of the group to identify "status," similarities and dissimilarities. Thus he establishes the concept of external homogeneity and internal homogeneity.

Michelson's look at homogeneity focusses on establishing the circumstances under which an exiting or perceived homogeneity influences the development of social interaction (in his view, friendship rather than social interaction). His premise on homogeneity is that a perceived or existing status (accepted social hierarchy) among individuals creates relatedness and, consequently, social interaction. The circumstances that he identifies as being sources of social interaction are most commonly: contact among children in residential environments, which subsequently brings their parents in contact with one another; similarity in stage of life cycle among young couples with children; and orientation of values.

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146 Studies on the area of Detroit, Michigan by Aida K. Tomeh corroborates this, where the greater the perceived homogeneity of residents in a neighborhood, the greater was their participation within that neighborhood. See Aida K. Tomeh, "Empirical Considerations in the Problem of Social Integration," Sociological Inquiry, in W. Michelson's *Man and His Environment*, op.cit., p. 185.
in child raising. He also suggests another circumstance that could lead to social interaction is the strong or continued need for mutual assistance in new residential environments, where everyone is in a similar stage of settling in. It should be noted, however, that this condition is circumstantial. It only contributes to social interaction, which may be the basis for a solid friendship, or a friendly neighboring attitude, or it may, perhaps, not develop beyond the initial contact.

Within the group of circumstances noted above by Michelson, there could also be included some particular characteristics of the socio-behavioral systems (organism, personality, culture, social group and environment) influencing individuals' socio-spatial behavior. Culture and social group, could be particularly emphasized, since both relate to Mercer's concepts of "class and status" and to "life style characteristics," under particular circumstances, as suggested by Michelson. Furthermore, social class and culture are interdependent with life style. Michelson considers "life style" as a facet of "role emphasis" performed in a "particular sphere of life." This concept relates to Brown's concept of social class, since both emphasize "role performances," rather than a defined social category. Thus, the influence of "life style" or "role performance," under particular circumstances, can be considered complementary to the characteristics and conditions of homogeneity that Mercer and Michelson have suggested.

\[147\] W. Michelson, Ibid., p. 62.

\[148\] Roger Brown, op.cit., p. 91.
The following are a few examples in which lifestyle can be considered within its components, culture and social class, as a homogeneous condition influencing social interaction. Herbert Gans' study of Boston's West End is perhaps the best known study on lifestyle of an ethnic group where particular characteristics of the culture (Italian) enforced a strong social interaction, mostly promoted by kinship networks and the spatial management of the urban context (high density, before urban renewal intervention). This combination of proximity and accessibility to relatives, together with the street patterns and land uses, promoted a favorable condition for social interaction within a homogeneous context.

Although cultural homogeneity associated with ethnic homogeneity cannot be considered as a general pattern in North American lifestyle, there exists voluntary ethnic segregation (Kantrowitz, 1969) that maintains a separate image and community (i.e., Spanish-American, Oriental, Polish, Italian, etc.) where particular "cultural-ethnic" characteristics influence social interaction.

Fried and Gleicher (1961) suggest that different social classes use space differently. Social class as a homogeneous characteristic influencing social contact presents different patterns of interaction. The urban middle class uses space in a selective way with boundaries between dwelling units and sharp definition with the immediate environment.

149 Gans, The Urban Villagers, op.cit., pp. 75-112.
These barriers are also used to create social contact, i.e., talks over the fence, greetings from the thresholds, etc. The working class treats the street and exterior world as a "place," not simply as a path between significant spaces, where social interaction thrives. These factors of social class and life style should be carefully considered, since the prevailing rule for social class interaction is the degree of existing or perceived homogeneity among individuals. Similar consideration is suggested by Gans in The Levitowners, where the urban middle-class extended family interaction is transformed into a nuclear family, due to its relocation in the suburbs. In the suburbs low density and segregated land uses emphasize the life style of nuclear family activities and social interaction depends on propinquity and homogeneity.

Thus, what can be deduced, with the help of Mercer's and Michelson's points of view, is that homogeneity as a socio-behavioral factor, either existing or perceived, influences an individual's spatial behavior, depending on one or more of the following conditions and circumstances.

One, the individual's perception of similarities and dissimilarities --"status"--among other individuals.

Two, the individual's "role emphasis" or "life style," emphasized by the behavioral systems, particularly culture and social class.

152 This statement on social class interactions is backed up by the works of Robert Gutman in The Urban Condition; Peter Willmott and Michael Young, Family and Class in a London Suburb; and Suzanne Keller, "Social Class in Physical Planning," as can be found in W. Michelson's Man and His Environment, op.cit., pp. 118-124.

Three, the individual's social class demographic index in which the individual may fit according to income, education, age group, etc.

In addition, the need for mutual aid and similar styles in raising children can be considered as circumstances contributing to perceived homogeneous characteristics that may promote social interaction.

These conditions and circumstances suggest the complexity of trying to establish one single concept which represents homogeneity. Therefore, homogeneity's participation in the development of social interaction should be considered as a multi-social behavioral factor which complements the physical factor of "contact" and, together as "social contact," influence the type of social interaction to be pursued by the individual.

Having identified the physical and social factors considered as the essential units in the formation of social interaction, this literature search will establish a reference model by which social interaction is promoted and community relatedness developed in the residential environment. In addition, this reference model will point out areas in which the relationship of physical proximity and social homogeneity require specific attention or extended research in order to develop continuity and social relatedness (urbanity) in the residential environment.
C. Spatial Behavior: Reference Model of Social Interaction in Residential Environments

The construction of the reference model represents, conceptually, three stages of the social interaction process in which either homogeneity or propinquity, or both, are influential in bringing people together or into circumstantial contacts. Complementing this, comments and references are made on some of the particular implications of social interaction on privacy and sociability as well as the impact of the open space on social interaction.

The intention of this reference model is to understand the process of social interaction and its essential components from which the architect and planner can gain insight into the design of residential environments and contribute further to maintain a meaningful unity, character and relatedness in the residential urban context. It will focus on the implications of the residential environment in the creation of the urban quality of life in the city, from the point of view of the user's social interaction. The predesign or redesign of residential urban environments can only gain in scope if the architect, planner, politician and developer extend their concerns with the satisfactions of the users' shelter needs to include the contextual urban-social needs. If those needs are satisfied at the local level by the project, keeping in mind their contextual implications, it could contribute to an enhancement, on a large scale, of the urban quality of life (Urbanity). This also implies that architectural design should be committed not only to the creation of buildings as site objects in the urban context, but these buildings should be components in
the creation of a "Place" at both the micro and macro levels of the city (i.e., that to which a building relates and becomes part of).

1. Reference Model: Concepts

The construction of this reference model follows William Michelson's concept of the "ego centered point of view." It tries to bind together essential physical and social factors which relate to the immediate environment and to social behavior. It has the potential to combine with other concepts and describe larger levels of the environment. The reference model of social interaction considers time as a factor binding the stages of development.

The basic components of the reference model are propinquity and homogeneity.

**Propinquity** should be understood as a physical factor promoting "contact" (visual, aural, physical, social). Its characteristics in the spatial behavior process are "proximity" (privacy or sociability) on the micro scale (layout) and "accessibility" on the macro scale (neighborhood).

**Homogeneity** should be understood as a multiple social behavioral factor which involves the perceptual systems of the individual in establishing his own social identity as well as those with whom he chooses to interact. The selection of characteristics in others with whom he would like to develop further social levels of interaction are based on two social values—"Class and Status." These values both relate to life style characteristics and to a demographic index of similarities.

a) Social Class

Social class is a label usually applied to a group of individuals
whose characteristics are based on particular demographic indicies such as income, education, occupation, age, etc. In the individual, social class is externally perceived and internally evaluated by personal values (life style, culture, etc.). Thus, social class is an internal determinant of the individual's perceived homogeneity or heterogeneity with others in the group.

b) Status

Status refers to a recognizable hierarchy of individuals in a group, although it is externally influenced by the individual's perception of similarities with others. The "pecking order" of hierarchy in the group depends on the individual's internal perception of dissimilarities and values, independent of the others in the group. Thus, status in a homogeneous group, is the externally accepted (stratified homogeneity) hierarchy of the individuals in the group, which internally corresponds to an individual's perception of heterogeneity.

2. Reference Model: Phases

This reference model of the social interaction process in residential environments is considered in three, independent but interrelated, phases. Each phase emphasizes particular characteristics of its own, and is sequentially dependent on the previous one to develop its own characteristics. The three phases considered in the process are as follows:

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156 Jerome S. Bruner, et al., op.cit., p. 89
Phase I - Contact and Identification = Social Contact
Phase II - Proximity and Selection = Social Relatedness
Phase III - Physical Pattern
   (Supporting Moderate Interaction)
   and
   Social Network
   (Individual and Group Interaction)
   = Physical Relatedness
   Social Interaction

In the following diagrams the reference model is outlined and the particular characteristics of each phase are described.

Figure 6. Reference Model of Social Interaction.
a) Phase I: Contact and Identification

In this phase the physical factor of "Propinquity" exists as a hybrid condition between individuals. The social factor of "Homogeneity" gives character to "Propinquity" by identifying similarities between the individuals, and determines the characteristics of interaction as Social Contact.

PHASE I:

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b) Phase II: Proximity and Selection

The identified similarities of "Class," either existing or perceived, promote the selection of relationships based on the individual's degree of affinity to others, while the physical factor of "Proximity" requires moderation to avoid or promote Social Contact. The resulting characteristics of the interaction of these two factors are:

i) The development of a friendship or neighboring pattern

ii) The balanced degree of social interaction to promote privacy or sociability between individuals (proximity). The result is a state of Social Relatedness to people and places.
c) Phase III: Physical Patterns and Social Networks

Having established the characteristics of Social Relatedness, and the role that the physical factor of "Proximity" plays in Privacy or Sociability, the patterns of neighboring and friendship become formalized under the influence of social contact and time. Similarly, the social factor of "Class," having developed neighboring or friendship patterns, begins an internalized process of individual stratification (status). The result of incorporating these factors creates two patterns which complement each other and can be considered as the basis for social interaction in a residential context. They are:

i) **Physical pattern supporting moderate social interaction**

ii) **Social network of individual and group interaction.**

Both contribute to the development of Physical Relatedness and Social Interaction in the group or community.
The characteristics of Phase III define the patterns of Social Interaction supported by social and physical factors which, if they are maintained through time, reinforce other characteristics of the residential environment, such as neighborhood and community relatedness.

In summarizing the characteristics of the reference model outlined above, the identification of the basic components of social interaction has two advantages in this literature search. It helps to clarify the participation of the physical residential environment in promoting contact between individuals and points out the need for privacy and sociability as moderating factors of social interaction. It also helps to clarify the basis of the individual's socio-behavioral processes in identifying and selecting other individuals with whom to develop neighboring patterns or friendship.
The social interaction patterns of friendship and neighboring, supported by the physical and social factors of propinquity and homogeneity, are the basic components of group and individual social relatedness, and their influence applies at both micro and macro levels of the environment in developing continuity and relatedness.

Neighboring, as a socio-behavioral pattern in the interaction process, deserves particular attention due to its focus on group interaction based on communal concerns. Thus, in the following section neighboring will be discussed in relation to individual spatial behavior. The characteristics of the micro and macro levels of the residential environment supporting spatial behavior and social interaction in developing continuity and relatedness will also be discussed.

3. Neighboring and Individual Spatial Behavior

Neighboring has a large range of influence and is able to foster relatedness on communal issues among the residents of a project. Although the characteristics of this interaction are general and circumstantial, they do create consensus in the group on communal issues.

Friendship, the other social behavioral pattern, has limitations in creating relatedness within a setting, since it has a more diversified range of influence and is not confined to one setting and is selectively limited to a small number of individuals.

Life style characteristics affect friendship and neighboring as social behavioral factors in the development of social interaction and the creation of relatedness in a group. Friendship and kinship, in particular life style situations, as reported by Gans,\(^\text{157}\) can be considered as the

\(^{157}\)Gans, *The Urban Villagers*, op.cit., p. 75-110.
unifying factors which create relatedness in a group. Similarly, ethnicity has an impact on neighboring and social interaction. In certain situations this factor may tend to segregate or alienate groups, thus creating ghettos. Under less extreme heterogeneous conditions, the relatedness that a physical setting may convey to its inhabitants, the similarities and pressures in life style that a group may share, and the enforcement of continuous social interaction between individuals, can help to develop relatedness between people and their residential environment (as commented on in the Deutsch and Collins report).\(^\text{158}\)

Neighboring and friendship share some similar characteristics, particularly that of 'social traffic,' as suggested by W.H. Whyte.\(^\text{159}\) Friendship is considered as a network that once established develops a physical-social pattern which remains through time in spite of resident turnover. Similarly, neighboring affects individual spatial behavior (mobility) and is associated with memory (cognition), developing 'association patterns' for behaviors in a particular setting. The unmarked parking space that is recognized as belonging to someone else; the daily routes followed by people when walking their pets; or a particular site used for children's games, all create a cognitive spatial pattern of neighboring. These 'association patterns' though closely related to the perceptual and cognitive processes of the individual, are beyond the scope of this thesis.

\(^{158}\)Norton Deutsch and Mary Evans Collins, "Inter-Racial Housing: A Psychological Evaluation of a Social Experiment," in Charles Mercer's Living in Cities, op.cit., p. 84.

\(^{159}\)William H. Whyte, The Organization Man, op.cit., p. 360.
On the other hand, the socio-spatial pattern of neighboring in terms of spatial activity allows for the establishment of "mobility" as the point of reference between social interaction and individual spatial behavior.

   a) Individual Spatial Behavior: Levels of Interaction (Micro and Macro)

   The interrelation of neighboring and mobility as a compound socio-spatial concept brings to light three functions of the physical characteristics of the residential environment: on a micro level, it influences and supports social interaction; on a macro level, it connects the various settings of social interaction; and in both cases it sustains the activities of individual spatial behavior (mobility and activities). The physical characteristics of the residential environment on the micro level are determined by the relationships of built features in a setting promoting different levels of privacy and sociability. On the macro level, it is the resulting relationship of the open space between buildings linking different levels of interaction and strengthening spatial behavior.

   The micro and macro characteristics of the residential environment are essential and interdependent on one another to create a good fit between a project and its surrounding context. Both the open space between buildings and the individual spatial behavior are the physical and activity systems sustaining social interaction and spatial continuity in the urban context. Thus, they are the basic spatial concepts from which relatedness and continuity develop in the residential environment.

   In the literature sources the relationship between residential environment, open space and individuals' activities is focussed on the micro level by either emphasizing the characteristics of a project which
help to satisfy users' needs or promoting social and project relatedness. On the macro level, the focus is on debating the characteristics of the urban context proximate to a project, either as a socio-political and demographic entity of people and places contained in an urban zone of the city (neighborhood), or as a mental concept structuring individuals' present reality with other individuals and places (socio-spatial schemata). Both focusses of the literature embody a vast amount of material, only some of which will be discussed here. The focus of this section is to selectively gather findings that can be helpful in establishing the physical characteristics of the open space, and the particular activities of the individual that take place in the residential environment (project and neighborhood) which sustain social interaction and spatial continuity.

b) Physical and Social Characteristics of the Levels of Interaction: (Project)

The existing research on the residential environment, at the local or project level, is mostly focussed on the inside, outside and communal spaces, and their levels of privacy, territoriality and sociability facilitated by the physical characteristics of the project layout. The studies of Festinger, Kuper, Caplow and Foreman, Whyte, Gutman, and Gans, on Architectural Determinism, are some of these

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160 Festinger, op.cit.
161 Kuper, op.cit.
162 Caplow and Foreman, op.cit.
163 Whyte, op.cit.
164 Gutman, op.cit.
165 Gans, op.cit.
sources. Perhaps the most relevant to architects and planners are the studies of Clare Cooper on the evaluation and satisfaction of user needs. Her prolific work supports the argument that "The semi-public spaces around and between buildings are often the crucial elements in the livability of such neighborhoods." 166 Other studies on the satisfaction of residents in new towns in England, by Shankland, Cox and Associates (1967) 167 and the Department of the Environment in London (1972) 168 have also found that the character of approaching areas and access points, the overall appearance of the estate and the exterior maintenance contribute to the overall satisfaction of the residents. Clare Cooper's research in California on St. Francis Square (1971) 169 shows similarities with the British studies. The users' satisfaction in this study case was based on: 1) moderate rent; 2) location in the inner city; 3) exterior appearance; 4) landscaping; and 5) site plan features. Cooper concludes that the reason for its success is the lack of "ambiguity" in the exterior spaces of the project. "The site layout should be designed with clarity, ... establishing clear delineations between private outdoor space and communal outdoor space" and "... space belonging to the housing project and that belonging to the adjacent neighborhood." 170 She suggests that clarity should be communicated


169 Clare Cooper, op.cit.

170 Ibid., p. 31.
in the location of areas for play, and in those which are not for play, as well as in the understanding of territorial control between residents and manager.

Therefore, it could be established that in a project the levels of interaction between people can be grouped in terms of territories, such as unit, cluster and that of the project, itself, and that the location of communal facilities and amenities is particularly important in developing activity centres in the project. Circulation routes, access points, clustering points, landscaping, and parking facilities should be clearly defined, avoiding ambiguity. Unit type, boundaries, front and back yards should be carefully related to provide enough privacy, but without curtailing sociability.

c) Physical and Social Characteristics of the Level of Interaction: (Neighborhood)

On the macro or urban level, the concept of neighborhood in the residential environment has created unresolved debates on what it describes: a physical area, or both a physical and social area; and furthermore, how is it perceived by the individual? It seems that, on one hand, planning approaches are focussed on creating community by physical means. While, on the other hand, sociological approaches emphasize the relationship of social structure and interaction for creating community. These variances on the focus and concept of the neighborhood, perhaps, contribute to increase the problem that architects and planners have to face in the integration of a residential project with its proximate urban context. Usually, a physical fit of forms and masses is pursued, rather than of people, and in many cases the fit does not occur, either physically or socially.
However, without becoming involved in the argument posed by the neighborhood unit concept, but instead focussing on identifying, from the literature sources, the physical and socio-spatial activities that help define the character of the proximate urban context to a project, two concepts are emphasized. One is physically and demographically oriented; and the second is socio-spatially oriented.

Clarence Perry's (1939)\textsuperscript{171} concept for a physically defined residential (unit) area creating a sense of attachment and promoting neighbourhood and community activities (neighborhood) illustrates the first concept of physical and demographic characteristics. Although his concept has been the focus of extensive debate, the conceptual characteristics of his residential unit have been adapted, updated and implemented in many cases and used in the planning and creation of the new British towns.\textsuperscript{172} They are currently being used in North America as well.

Perry's residential unit concept is comprised of six characteristics:
- **Size** - based on elementary school population, with a total residential population of between 3,000 and 9,600 inhabitants.
- **Boundaries** - creating a district entity and defined by traffic arteries.
- **Streets** - internally contained circulation routes.
- **Open space** - provisions for park facilities within the area.
- **Institutional buildings** - provision for school, library, church and community centre, centrally located.

\textsuperscript{171}Clarence Perry, "The Neighborhood Unit Formula," op.cit.

Local shops: one or two located on the periphery of the area.

The second concept relates to social behavior and physical characteristics of the residential environment that create in people "the sense of local spatial identity, including both local social relationships and local places." 173

The studies of Fried and Gleicher (1961) 174 and Herbert Gans, 175 on the west end of Boston, discuss how the combination of building type, street patterns, stores, and facilities scattered within walking distance allowed contact between people during daily shopping outings. 176 Terence Lee's (1968) 177 concept of "socio-spatial schemata," applied in the study of the neighborhood unit concept, better illustrates this point. Lee's concept is focused on people's mental plan of the "environment-person" setting in which their own behavior and experiences occur. His findings establish that people's concept of neighborhood is not linked to densities, but rather to territories and neighborhood amenities which satisfy their needs. Furthermore, there exists an awareness of physical aspects as well as of people. People's participation increases with heterogeneity of population based on social class.

A similar approach is used by Kevin Lynch, 178 on the urban scale, in identifying special features in the cityscape that give "legibility" 173 Charles Mercer, Living in Cities, op.cit., p. 159.
175 Herbert Gans, The Urban Villagers, op.cit., p. 87.
176 Ibid., p. 176.
to parts of the city. People use these features in organizing and orienting their behavior in the urban context.

From the above, it can be deduced that there are underlying discrepancies between physically organizing the residential environment in terms of facilities, density and geographic sizes, and a socio-behavioral approach based on social activity and spatial behavior supported by the open space. However, there are some physical characteristics of the residential environment relevant to both planners and residents because they are reference focal points in the residential context and part of the urban form. These focal points represent communal facilities, amenities and services (i.e., schools, parks, shops), which are common to Perry's six concepts and Lee's identified characteristics in the neighborhood unit concept.

Similarly relevant to planners and residents are the systems of pedestrian and vehicular mobility linking local levels of the residential environment with the urban structure of the city. These mobility systems also establish distinct boundaries in the residential environment, defining local centres for social and spatial interaction, bound by a transportation frame (arterials).

Summarizing the characteristics of both levels of interaction, project and neighborhood, and their relationship to open space and individual's activities, it could be established that within the project layout there is a system of places with particular territorial characteristics, which, in relation to the surrounding neighborhood, contribute to develop the project's territoriality. Similarly, the neighborhood area and the socio-spatial concept of it, both maintain distinctive boundaries defined either
by traffic arterials or by the individual's mental maps of his own social and spatial behavior in the residential environment. On both levels of interaction there are centres of activity that create focal points of reference and promote mobility routes. Furthermore, on the project level, there is a warning to avoid ambiguity in the physical definition of those places where activities take place and where changes in territorial realms occur. On the neighborhood or local level, there is an emphasis on physical organization of community facilities, transportation routes and the clarity of internal circulation routes.

4. Public Housing

The following section presents relevant aspects of public housing identified in the literature search. This section will also sharpen the focus of the research methodology.

The physical and social characteristics of public housing projects are, in some existing cases, examples of social segregation and physical discontinuity with their surrounding context.

Several studies have agreed that prospective tenants of public housing perceive a great difference between themselves and those already in public housing. Hartman (1963),\(^{179}\) in his research on low-income private housing residents in the North End of Boston, reports that the "....undesirable characteristics of the public housing residents and a lack of a sense of community" were the reasons for dislike of the public housing residents. Few objections were made regarding the institutional features

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of the buildings. Similar findings were reported by Young and Willmott (1957)\textsuperscript{180} in their study of the east side of London, sustaining this perception of heterogeneity between community and public housing residents.

In other cases the impact of public housing on its residents' attitudes and behavior were fairly positive, with some reservations. Cagle and Deutscher (1970),\textsuperscript{181} in their studies of urban renewal areas, report a general positive attitude of residents towards public housing environments, although the residents voiced an awareness of some limitations and constraints imposed on them by the lack of privacy and managerial rules. A study made by Wilmer, Walker et al. (1962)\textsuperscript{182} reports similarly favorable comments from the residents. They look upon their apartment units as the most acceptable feature of the project, although they consider public housing projects as being the least favorable place to raise children.

Clare Cooper (1965),\textsuperscript{183} in her Richmond, California study of Easter Hill Village public housing, found that more than half of the residents liked living there. Some features that contributed to their

\textsuperscript{180}Michael Young and Peter Willmott, "Family and Kinship in East London," in William Michelson's \textit{Man and His Urban Environment}, op. cit., p. 188.


\textsuperscript{183}Clare Cooper, \textit{Some Implications of House and Site Plan Design at Easter Hill Village}: University of California Institute of Urban and Regional Development, 1965, p. 75.
satisfaction were enclosed front porches, and front and back yards. Features they disliked in the project were poor construction; poor maintenance; lack of privacy; and lack of playgrounds.

A general profile of the particular attitudes of people living in low income areas that explains the behavior of some public housing residents is provided in studies directed by Hartman (1963), Fried (1963), Rainwater (1966), and Gans (1974). They suggest that the supported interaction between neighbors is a determining factor in the appreciation of their neighborhood; the loss of neighbors and the relocation of residences creates a feeling of lost social and spatial identity, and their residential units become shelter and freedom from the outside world.

Studies of the physical characteristics of public housing and their residents' attitudes and behavior by Yancey (1971) and Newman (1972, 1973) suggest that: the design of buildings and project layout have an

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impact on residents' sense of security, interaction, and control of their territory. Yancey's writing on Pruitt-Igoe public housing in St. Louis, Missouri emphasized the need in public housing for the development of informal networks of relationships and facilities, maintaining social contact in the open space of the projects. He calls it "defensible space."

Oscar Newman (1973), after studying 165 public housing projects in New York City, concluded that the behavior of residents and the incidence of crime were related to the project's layout, and that the design of the buildings had an impact on the quality of life in a project. He suggests that residents withdraw from community life because of the undefined character of the open space outside their units. Furthermore, he suggests that violence and petty crime can be eradicated from the project by enforcing the qualities of the open space or "defensible space." Newman talks of the creation of a sense of neighborliness that fosters different types of activities and enforces security and control in the project. He suggests that defensible space is produced by three interacting features of design:

One: the definition and delineation of the territories in the project and the perception, of residents and outsiders, of the public open space as being part of the residents' personal territory; the arrangement of the buildings on the sites; the use of physical and symbolic barriers between public street and semi-public grounds of the project; the use of low walls, stoops, textures and entry portals.

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Two: the facilitating of natural opportunities for constant surveillance, from buildings and grounds, over the public and semi-private spaces and paths by organizing the project into small recognizable clusters; locating building entrances close to and facing the street; providing good lighting systems over paths and entrances; favoring visibility from the street to elevator entrances and lobbies; and orienting kitchen windows to building entrances, play areas and parking lots.

Three: minimize residents' and outsiders' perception of the institutional character of the project by building two or three, rather than ten to twenty high-rise buildings; avoiding the use of material that creates an institutional atmosphere, such as glazed tiles, mercury-vapor exterior lighting; and providing automobiles access to streets within the project.

One more aspect of public housing that related to social and physical characteristics is the development of social interaction and friendship between residents. Deutsch and Collins (1952)\footnote{Morton Deutsch and Mary Evans Collins, \textit{op. cit.}, p. 84.} reported on interracial public housing projects and concluded there were three conditions that supported social interaction and friendship. The physical characteristics of the project grounds and buildings provided opportunities for social interaction; similar concerns and pressures in life styles were shared (economic conditions, management rules, and segregation from the community); the enforced social contact between individuals by the proximity of their units was supported by the management policy of interracial mix.
In summing up the studies on public housing residents and low income residents of private dwellings, their attitudes and behavior suggest that community feelings towards public housing are mostly negative, while for some of the tenants, it is a favorable situation, with some reservations. These attitudes vary, depending on the extent to which project and neighborhood residents feel their homes are safe, and social networks have evolved. These findings also outline design recommendations that have useful applications for existing and future public housing and commercial housing projects.

The causes of failure of some public housing projects seem to be the inadequate quality of the open space within the project which affects residents' social behavior; layout and design of buildings which produce a negative impact on the development of social networks, safety, and control of the territoriality of units and grounds; and an institutional and deteriorating image of the whole housing project.

D. Conclusions of the Search

As derived from the literature sources previously discussed and particularly emphasized in public housing studies, the integration of a project in the residential environment depends on more than the satisfaction of people's physical needs.

It is the interrelation of social, physical and behavioral factors, in the creation of residential environments, that contribute to enrich the
individual's personal and communal life. These sources of "relatedness" and "continuity" combine with environmental factors to integrate a project with its surroundings and enhance the quality of urban life.

In order to focus the development of the research methodology in Chapter III, it is necessary to define the characteristics and inter-relationships of the individuals' spatial behavior and the socio-spatial context upon which the direct research should be built.

The literature suggest that project and neighborhood contexts have similarities in their internal spatial organization, such as: the definition of a spatial hierarchy of places and territories; the development of a spatial network of mobility; and the spatial identity of centres of activity. These similarities are complementary and emphasize an order of social interaction, safety, and control within a project and between project and neighborhood. The literature further suggests that within the project's socio-spatial context there is an organizing system of the project's open space, the cluster. Although some attention is given to its participation in social interaction, it is not considered a component alone, due to its being physically part of the project. However, the cluster, since it has a micro-social and physical environment of its own and is equally affected by individual's spatial behavior, could be considered a socio-spatial context within the project. Thus, the project's socio-spatial context can be considered as being both internally defined by the cluster, and externally affected by the neighborhood context. The cluster itself may become a social unit of interaction involving small groups within the physical setting. But if it is used to establish the organization of the project's open space, it becomes a spatial concept affecting the individuals' spatial behavior and maintaining continuity
throughout the project. Therefore, the levels of interaction in the residential context can be considered as being defined by cluster, project (at the local level), and neighborhood (at the urban level).

Similarly, the literature points out the limitations of considering homogeneity as social factors alone, creating or retreating from social contact and relatedness.

People's attitudes and behavior are, in many cases, influenced by perceived differences, and social class is the most influential. However, social interaction is complementary to a physical setting, which fosters interaction.

Individual spatial behavior is considered in terms of mobility and static activities. It is supported primarily by the physical characteristics of the open space between buildings. It is also influenced by the physical characteristics of that space.

The interrelation of the socio-spatial and behavioral factors determines social relatedness and spatial continuity between people and places, and between clusters, project (local level) and neighborhood (urban level). Therefore, the focus of the research should build upon the theoretical and practical findings of the literature as a functional framework of reference for direct research. It should be oriented to identifying and evaluating, in the residential context, the relationships between the characteristics of the organization of the open space, individual's activity, and social attitudes. Furthermore, it should identify the characteristics of the connections between levels of interaction and, by detailed research, establish the impact of individuals' spatial behavior and social interaction on those connections in order to identify causes of discontinuity and segregation between levels of interaction.
Similarly, this framework should be accessible to architects, planners, or anyone involved in the design or redesign of residential environments and their buildings. It should be related to the Urban Design Process in order to achieve a project's urban fit (continuity and relatedness).

In conclusion, the literature search suggests that the integration of a project with its surrounding community depends on how well both social and physical characteristics of the project harmonize and its residents relate and become connected to the existing community. It also emphasizes the potential for activities in the open, public and semi-public spaces as an active link between people and places, project and community.
CHAPTER III
RESEARCH FRAMEWORK AND METHODOLOGY

Introduction

Chapter III develops a research methodology for identifying and evaluating the interrelationships between project and proximate community, in social and physical terms, which lead to social segregation and spatial discontinuity, and it proposes design alternatives for their correction. These methods and findings are intended to be implemented as part of an urban design strategy to bring about the integration of any urban residential project with its surrounding community context.

1. Research Framework

The focus of the research in Chapter II established three main areas of study. One, social, focussed on people's attitudes (i.e., between residents of the project and proximate community); two, physical, focussed on the open space characteristics of the project and proximate community context; and three, focussed on the interaction between open space and individuals' activities, and their function of relating people and linking places. Thus it is the interrelation of these three components in the residential environment that help to blend a project with the existing community. These are the elements on which the research framework has been developed.

In developing the framework for research and evaluation, two approaches were combined: an Urban Design Strategy for research, and an
Environmental Design Evaluation for organization.

2. *Urban Design Strategy*

Following the practice of urban planning, the Urban Design Strategy was used to establish the socio-political and physical framework of the urban context where the study cases were located.

The emphasis of the urban strategy was focussed on determining the community profile in planning and physical terms, and on identifying the characteristics of the open space surrounding the study case.

In order to complement the community profile with the attitudes of its residents towards the public housing projects, two existing reports on the community perception of public housing projects in the City of Vancouver were utilized. One was prepared by the Social Planning Department of Vancouver City Hall, and the second, an unpublished paper, was prepared by the author.

The reference to an urban design approach in setting the frame of the research was essential in developing an understanding of the community urban issues. Although urban design comprises the management of the environmental qualities of both form and open space, in this framework particular emphasis has been given to the open space use and definition.

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While the cognitive and perceptual characteristics of man associated with the environment are complementary to the scope of the research (they would discuss preferences and qualities of the built form), they are beyond the scope of this thesis.

3. Environmental Design Evaluation

The use of Environmental Design Evaluation was essential in facilitating the general and detailed analysis of the interrelation between people, and people and open space. In other words, Environmental Design Evaluation helped to conceptualize the units and levels of interaction in the environment, to analyze them and to identify the causes of segregation and discontinuity between them.

Thus, Environmental Design Evaluation aided with direct observation in the projects, and helped to analyze and identify the characteristics of the open space as it was used or affected by people's activity and mobility, and as it diverted social contact, activity and mobility.

Environmental Design Evaluation was chosen because of the adaptability of its framework for research and organization. The structure of this model is represented in Figure 1 in a five-part conceptual scheme, and is followed by the description of its content, as proposed by Friedman, Zimring and Zube\(^3\) (1978).

The combining of both approaches, the Urban Design Analysis of the community and project, and the Environmental Design Evaluation of the open

Figure 1. Environmental Design Evaluation Model

Social Historical Context

This concept refers to the large society in which one must consider large-scale social, economic, and policy issues such as changes in unemployment levels and demographic profiles.

Proximate Environmental Context

The ambient qualities, land use characteristics, neighborhood qualities that surround the setting.

The Design Activity

The activity of the designer in response to regulatory agencies, clients, users, etc., results in the final design of the setting.

The Setting

Is understood as the social and physical attributes of the project being evaluated on site.

The User

Refers to an understanding of the background, needs and behavior of people who are involved with the setting.
space's uses and characteristics, was helpful in identifying the location of severed links of continuity and mobility. Both approaches were useful in identifying the causes of social segregation within the projects' domains (clusters) and between projects and proximate community context.

4. Research Structure

In the following two diagrams the components of the research framework are summarized and the process of the research structure is outlined (see Figures 2 and 3).

In Figure 2 the Urban Design Strategy is outlined, while in Figure 3 the research model is conceptualized in its totality and into dependent research models.

The use of the 'Fit' term within this framework refers to the interconnection that should exist between different components in a system in order to become part of the same system. Thus, project urban fit and project fit organization emphasize the interconnection that should be achieved or that exists in relation to the community and within the project itself.

Physical setting refers to the identified place of diverted interaction which requires particular study and interpretation of its components.
A - ACTORS, PARTICIPANTS
derived from literature search

PEOPLE-OPEN SPACE-BUILT ENVIRONMENT

Levels of Interaction:
1. Community
2. Project
3. Cluster

B - RESEARCH MODEL FOR ENVIRONMENT DESIGN EVALUATION

C - URBAN DESIGN STRATEGY

Goals
1. Project Urban Fit
2. Project Fit Organization
3. Patterns For Redesign.

Objectives
1. Develop an urban fit for the project with the neighborhood
2. Develop an internal fit for the project and its parts (clusters)
3. Study specific cases of peripheral and internal clusters where the function of the open space and the users' activities conflict and further develop a series of patterns for improvement of these clusters.

Research Focus
1. Urban integration of the project
2. Project functionality
3. Urban and project patterns of continuity and function.

Areas of Analysis
1. People's Attitudes
2. People's Activity
3. Open Space Definition.
4. Open Space Continuity.

Levels of Interpretation
1. Community
2. Project
3. Cluster

Figure 2. Components of Research Framework
A - ACTORS
People interacting with the built environment at three levels of interpretation: Community, Project, Cluster

People Interaction = Social and Physical Interaction

Built Environment = Buildings and Open Space

Open Space = Open Space sustaining individual activities

B - RESEARCH MODEL FOR ENVIRONMENTAL DESIGN EVALUATION

User

Design Activity

Proximate Environmental Context

Setting

Socio-Historical Context

C - RESEARCH MODEL

Community

Proximate Environmental Context (Setting)

Design Activity

Physical & Social Interpretation

Project

Cluster

Open Space

D - RESEARCH INDEPENDENT MODELS

I - Project Urban Fit

Neighborhood

Project

Open Space

II - Project Fit Organization

Project

Cluster

Open Space

III - Physical Settings (Pattern for Redesign)

Cluster

Mobility Static Activities

Open Space

Figure 3. Research Structure Process
5. **Summary of Research Methods and Levels of Implementation**

Three research methods are implemented in this study:

- **Community and Project Site Analysis**: Community planning profile and residents' profile, analysis of places, and direct observation of the open space.

- **Documented Sources**: Social planning report and author's unpublished paper.

- **Direct Observation**: Mobility count, seasonal use of outdoor spaces, and deviating activities of people.

Similarly, there are three levels of implementation in the research framework: community, project and cluster.

Thus, the total scope and focus of the research framework has been organized in Figure 4.

The first level of interpretation of the research is the Fit of the Project with the Community. The second level of fit is the project's internal organization. In both cases, the main actors in the research are People and Open Space. The types of interaction to be analysed are People's Attitudes, Mobility, and Open Space's Definition and Continuity.

The focus of the first level of interpretation of the research, (community fit) is to establish a general understanding of the project as it is perceived by the community and as it is physically related to the surrounding context. The second level of interpretation, (the project fit) describes the organization of the internal layout of the project's open space.

It is at this second level of interpretation that the effects of the interaction between people and the open space is narrowed down to identify
<table>
<thead>
<tr>
<th>Community Fit</th>
<th>Focus: To Identify</th>
</tr>
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<tbody>
<tr>
<td>People</td>
<td>Attitudes &amp; Mobility</td>
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<td>Open Space</td>
<td>Definition &amp; Continuity</td>
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<table>
<thead>
<tr>
<th>Project Fit Organization</th>
<th>Focus: To Identify</th>
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<tbody>
<tr>
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<td>Open Space</td>
<td>Definition &amp; Continuity</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Detailed Analysis of Physical Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>User: Resident &amp; Outsider</td>
</tr>
<tr>
<td>Setting: Selected Cluster</td>
</tr>
<tr>
<td>Activity: Mobility &amp; Static Activity</td>
</tr>
<tr>
<td>Proximate Context: Project &amp; Cluster</td>
</tr>
</tbody>
</table>

**Scope:** To Develop Patterns for Integration

**Scope:** To Develop Selection of Clusters for Detailed Analysis (Physical Setting)

**Scope:** To Develop Patterns for Redesign

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**Figure 4.** Research Levels: Focus and Scope
areas in which this interaction does not occur. Therefore, the third level of interpretation of the research, (physical setting) takes place at the cluster level due to its specific character and detailed analysis. At both the second and third levels of interpretation the main focus of the researched is Mobility. At the second level, mobility patterns determine the areas in the project where conflicts arise. At the third level, mobility patterns and the activities of people are specifically analyzed as they affect the open space in the Physical Settings.

6. Research Phases

The organization of the research is divided into four phases:

Phase I: Descriptive Analysis of the Proximate Community Environment and Its Open Space.

Phase II: Descriptive Analysis of Project Characteristics and Open Space Organization.

Phase III: Descriptive Analysis of Spatial Mobility and Use of the Open Space.

Phase IV: Descriptive Analysis of Physical Settings.

a) Phase I: Proximate Community Environment and Its Open Space

Phase I introduces the most relevant characteristics of the surrounding social fabric in the neighborhood and its relationship with the project. It describes the morphological organization of the open space and its uses, as determined by pedestrian and vehicular mobility. It describes the community attitudes toward public housing projects and outlines a general social profile of the project residents.
b) Phase II: Project Characteristics and Open Space Organization

This phase is focused almost exclusively on the physical characteristics of the project's open space and its residents' profile. It employs site analysis, open space organization and a detailed analysis of privacy and territoriality at the interface of units and open space.

c) Phase III: Mobility and Use of the Open Space

In this phase activities and pedestrian mobility through the project are analyzed in terms of flow intensity and the grouping of activities in the open space. A selective analysis of the areas in the project with representative characteristics of the interaction occurring between people and open space is organized into a group of physical settings.

d) Phase IV: Physical Setting

The selection of physical settings in Phase III is analyzed and further extended into a microscopic scale of research (clusters).

The analysis of physical settings is based on a checklist of points organized in four categories:
- Physical Characteristics
- Circulation and Mobility
- Visual Control and Spatial Territoriality
- Summary

The above categories conclude with a summary and classification of each setting studied.

In Chapter VI a series of recommendations to be used as Urban Design Guidelines in the reintegration of public housing projects to the urban context or simply to be used as design guidelines to develop housing projects that fit with the community context and its residents are presented.
7. Proximate Community Environment

and its Open Space

a) Research Phase I: Descriptive Information of the Projects and their Surroundings--Proximate Community Environment and its Open Space Relationships with the Study Cases

In Phase I the urban relationship between project and community is researched under three categories:

- Community Fabric
- Community Physical Frame
- Community Attitudes

i) The community fabric. This refers to the social and political factors shaping the urban characteristics of the community in which the project is located.

In order to pinpoint the proximate community surrounding the project, the urban characteristics are narrowed down to a comprehensive sector of the community as it is defined by community plan in city zoning. Thus the community fabric will introduce the most relevant characteristics of the sector* in which the project is located, i.e., population, age, income and density.

Here are some of the definitions employed:

Residential Quality - Housing age, stock and ownership
City Development Control - Zoning and land uses
Community Facilities - Services and institutions

*Sector: A specific community is generally sub-divided into smaller areas which have independent names and boundaries of their own, usually recognizable by their character and image to the rest of the community. These small defined areas within a community's boundaries are called sectors.
The main elements of the community fabric present a socio-economic cross-section of the community population and build up an image of the quality and character of the living environment in the neighborhood where the study cases are located.

Although the socio-economic profile of the community does not represent specific characteristics for each one of its residents, the statistical figures give percentages for age, group, income, ownership, which are representative of their lifestyle. By interpreting them, it is possible to obtain an accurate understanding of the predominant groups in the community as well as their life-style needs, i.e., large groups of families with children will need more child-oriented facilities, such as schools, nurseries, than a group of seniors or families without children.

Similarly, the character of the living environment can be established by the age of the housing stock, characteristics of ownership, location of schools, institutions, industry and commercial facilities.

Zoning densities and occupied dwellings provide enough information to evaluate the character of the community which could be low or high density, mostly owners living in the neighborhood or mostly renters.

Zoning and land use produce another piece of information that is essential in interpreting the possible expansion of the present community boundaries and the growth of any specific land use into the surrounding communities. For example, community land use may be all or partially zoned as residential while the boundaries determined for this community may be industrial, commercial or a mixture of all of them. However, the characteristics of these boundaries may be affected or reinforced by the existing character of the community.
In determining the character of a community, it is essential to analyze the community’s edges carefully if they border on different zoning and land uses. The potential development or integration of a community fabric depends, among many other factors, on the degree to which these boundaries are compatible.

The comprehensive analysis of the community fabric is a helpful tool in physical and social planning. It can produce a realistic profile of people’s lifestyles, needs and limitations, services and facilities available in the area, the possible directions of community growth, and land capacity to sustain a living environment.

ii) The community physical frame. This refers to the organization of open space and to the location of activity nodes and their connecting systems within the rest of the community.

The community physical frame describes the morphological organization of the open space, grid and block, within the community context and the general characteristics of the building typology. The community physical frame also presents the pedestrian and vehicular mobility outside and within the sector’s boundaries and the characteristics of the open space in terms of visual connectors and physical links. The community physical frame’s purpose is to establish the physical characteristics of the sector where the study is undertaken and to define the existing relationships between open space and people activity in the community.

The physical frame refers also to the relationship existing between open space and the massing of buildings. The open space is the product of the subdivision and assembly of land in an urban context, represented by the grid, while the massing of buildings is understood as the built form on
the assembled land (blocks). The community physical frame classifies the character of the systems of interaction in the sector that generates continuity and linkage in the open space, i.e., visual corridors and orienting streets, bridges, etc. It also depends on various factors shaping its form and character through the years.

The morphological development of the urban context, the topographic nature of the area, the subdivision of land and its uses, and the typology of buildings constructed on the subdivided land create the character of the built form in the community context. Changes affecting the morphological development of the urban context must find ways to maintain links with the existing character and form of the surrounding context. Thus, the open space between buildings, parcels of land and channels of mobility are the means by which the morphological characters of the community context can be traced and understood for future development.

While the grid is the organizing pattern that directs growth and continuity in the urban context, the open space in the community context has different characteristics according to its usage. The most common are public open spaces and private open spaces, such as streets, parks and play areas (public), and front and back yards of residences (private). However, there are other types of open spaces, such as the controlled public space in a community facility, a school, sports field or play area, and the public visual corridors defined by the edges of buildings and the topographic features of the community.

These four characterizations of open space as public, private, controlled and visual corridor support a fifth characteristic of open space, as a pedestrian connector throughout the community. The conjunction of the
five characteristics of open space create the multi-system of connectors and links in the community context and reinforce the character of pedestrian networks at the points where the community grid meet the public housing project.

iii) The community attitudes. The community attitudes and perceptions of public housing projects from the community point of view are drawn mostly from those individuals who live near public housing projects and those others who work or have contact with public housing residents.

The community attitudes toward public housing projects generally focus on the positive or negative reaction that is triggered by the degree of social interaction between residents of public housing and the neighborhood in the immediate proximity to those public housing projects.

Analyzing community attitudes toward public housing is a very extensive area of study and a very complicated field of evaluation since it involves a well programmed research technique and a well trained social science researcher to weigh the findings and come up with unbiased conclusions.

Consequently, in Phase I community attitudes toward public housing projects will be used as background information, rather than a key source, in identifying social attitudes between the community and public housing projects.

The research on community attitudes will be based on two studies made between 1972 and 1979. The 1972 study is a comprehensive report on Vancouver Public Housing and the Community, prepared under the auspices of the Vancouver Social Planning Department and the Central Mortgage and Housing Corporation (C.M.H.C.). The 1979 study is part of an unpublished
paper by the author on the community characteristics of the south sector of Strathcona in the City of Vancouver where two of the public housing projects under study are located. The research is based on a series of open-ended interviews with a few people living near the public housing projects and individuals whose work in the community or in the project has brought them in contact with public housing residents: community centre personal, social workers, administrators, caretakers, police, school teachers, etc.

The 1979 research is comprised of a selected group of interviews rather than a systematic research and evaluation. Consequently, the final weighing of the interviews lacks a measurable scientific base. The findings have some relevance, however, since they represent a longitudinal measure of community and professional attitudes toward public housing projects with a seven year lapse between studies.

At this point it is important to establish the relationship that both surveys have to each other. The 1979 survey was made without knowledge of the 1972 survey; thus, the format and scope differ between them. It was not until the early months of 1980, when searching for information related to public housing residents, that the 1972 report on Public Housing and the Community came to my attention. My interests in the south sector of Strathcona originated with two studies I conducted in 1977 and 1979. The first was a chronological study of the growth and development of Strathcona and the second a comprehensive analysis of the community's interacting patterns with the surrounding communities. Both studies raised interesting questions and the issues related to the redevelopment and rehabilitation of this area became a strong focus of interest.
Eclipsing the redevelopment issues in Strathcona was the social and cultural homogeneity of the people living in this area which was altered by the social differences between the community and the two existing public housing projects. Thus the intention of the 1979 study was to set an informed criteria of the major issues affecting the community and the public housing projects' relationship. In a series of open ended interviews, I first tried to identify the positive and negative attitudes of the community toward the two public housing projects in the area, McLean Park and Raymur Place. Second, I sought to investigate the degree of influence that the physical characteristics of these two public housing projects have in shaping the community attitudes.

In the 1979 unorganized observations 15 individuals were interviewed whose work was related to the community in terms of services and facilities, who lived in the community, or who worked in the public housing projects.

The people interviewed were classified according to the kind of work they did or their relation to the community. Six groups were established: 1) social workers, 2) community center directors, 3) public housing managers, 4) school authorities, 5) police officers in the area, and 6) neighborhood residents. The interviews were conducted in a very casual way, each lasting between 30 minutes to over an hour. Only a few of the interviews were recorded due to opposition from the respondents. Mostly notes were taken from which the interviews were reconstructed.

It is important to make note of the limitations of this survey. The groups surveyed were representative of only a small section of the community and the information gathered did not allow an evaluation of the respondents' opinions.
The length of the interviews and the open-ended format of the topics discussed, however, allowed me to penetrate into the respondents' understanding of the community structure as well as to identify their biases. Once I sensed the respondent's position I focussed on the attitude that he/she adopted in discussing the physical and social issues that were raised in relation to the public housing projects in the area.

The format of the 1979 survey was unstructured while the 1972 report was methodically formulated. The scope of this report is very comprehensive and analyzes, in detail, various aspects of public housing projects, such as: Project Characteristics; Family Characteristics; Community Relations; and Recreational Behavior, as they existed at that time in the City of Vancouver.

The section entitled Community Relations will be extracted from the 1972 report and used later to present documented data of community attitudes toward public housing projects. The Community Relations findings are based on the analysis of three attitudinal surveys: 1) Neighborhood Attitudes Survey; 2) Professionals Attitudes Survey; and 3) Groups and Projects Attitudinal Survey.

In the Neighborhood Attitudes Survey (1972) a total of 280 households living in four different neighborhoods near the housing projects were interviewed. The four neighborhoods chosen were those near the Little Mountain, Orchard Park, Skeena Terrace and Collounden Court public housing projects.

The neighborhood survey covered an area of approximately 500 households with a target of 70 randomly selected households per neighborhood. One individual per household was interviewed with the minimum age set at 10.
The format of the survey was designed around 31 questions covering various aspects of public housing environment, resident needs, project facilities, and community interaction. In this survey only 8 out of the 31 questions dealt with the degree of interaction between public housing projects and the proximate community.

The survey's focus covered two aspects of the communities' attitudes: 1) Recreational Behavior and 2) Public Housing Impact on Adjacent Neighborhoods. The evaluation of the survey consisted of a comparative analysis of public housing residents and those living in their proximities. Unfortunately, the evaluating system was only used to weigh the data from 1) Recreational Behavior, leaving 2) the Community's reaction toward public housing unweighed. However, the unweighed data of the community reaction toward public housing in the form of an attitudinal survey stands as a reporting document of the attitudes and perceptions of those living near public housing projects and, as such, the findings will be described in Chapter IV.

Similarly, the (2) Professional Attitudes survey and the (3) Groups and Projects Attitudinal survey will be discussed in relation to the open-ended interviews made in 1979.

8. Project Characteristics and Open Space Organization

Research Phase II

The second phase of the research is focussed on the analysis of the project's general characteristics and the internal organization of its open space.
The research is gathered under five major categories:

- Project General Characteristics
- Residents' Profile
- Site Analysis
- Project's Open Space Organization
- Project's Open Space and Buildings' Hierarchy of Privacy

a) **Project's General Characteristics**

An overall description of the project in physical and aesthetic terms will be given. Its intention is to present a concrete image of the project by establishing the date of construction, total area occupied, location in the city, type of project, population and proximity to community facilities. This description also includes the particular physical characteristics that give form, image and character to the project and the type of amenities and services within.

The scope of this section is to introduce the project's most remarkable characteristics briefly before going into specific detail.

b) **Residents' Profile**

A statistical analysis of the resident population will be given. It presents residents' age groups, income bases, and the fluctuation of resident occupancy.

The purpose in determining the residents' profile is to identify the living conditions of the average resident and identify their needs. The lifestyle of public housing residents is complicated, given the multiple variables affecting their goals and limitations. Since researching the lifestyles of public housing residents is in itself a topic for extensive research, it will not be possible to explore it here in great
depth. However, the general prototypes of the residents have been analyzed in the Residents' Profile of the 1972 report on Public Housing in Vancouver.

c) Project Site Analysis

The overall physical characteristics of the site influencing the project layout will be discussed.

Four aspects of the site analysis require special attention:

- Topography
- Orientation
- Boundaries
- Layout

i) Topography. Topography deals with the natural conditions of the site that influence the location and massing of buildings. The use of the natural fall of the land or the flatness of a site are topographic factors that determine the characteristics of the buildings' layout. In some circumstances the site topography is directly associated with the neighborhood or district character, for instance, Fairview Slopes in Vancouver and Lombard Street in San Francisco.

ii) Orientation. The sun exposure of a site is a determining factor in the layout of a building or group of buildings. The orientation of a site depends on various circumstances such as, the shape of the land, southwest exposure and its relationship with the main axes of mobility and transportation in the neighborhood.

iii) Boundaries. The boundaries of a site can be physical or visual. Any physical boundary is a determining factor along the edge of the site. A visual boundary is a physical element that stops visual contact with the end line of a site. It may be a topographic feature, such
as a cliff, mountain, horizon line, or a building or tree. There are other types of boundaries, however, which determine territorial zones. Such boundaries are recognized as social boundaries and are established by physical conditions in the site to which individuals' respond in terms of behavior as if they were spatially determined. Social boundaries will be dealt with in more detail in the section related to the hierarchy of the Open Space later in this chapter.

iv) **Layout.** The layout of a project commonly responds to the overall implementation of the physical, environmental and urban conditions influencing the potential development of a site. In this way the layout of a project follows the shape of the site, the environmental conditions of its location and the topographic qualities of the site. Secondly, the layout responds to the surrounding urban infrastructure, the streets, sidewalks, services, etc. Finally, the layout organizes an internal series of clusters through a system of circulations axes that usually link the internal spaces of the project with those of the surrounding community.

d) **Project's Open Space Organization**

Project's Open Space Organization refers to the comprehensive study and interpretation of the project layout by analyzing the open spaces between buildings.

The analysis of the open space in a project generally is focussed on playgrounds, central circulation and green areas. However, the open space in a project is not exclusively these areas, but also includes the parking areas and transitional areas into the units and to the project itself.

The relationships of all the different functions given to the open space in a project create a system of places that respond mostly
to the use, function and surrounding enclosure of these open spaces.

In order to visualize the system of places created by the open space in a project a comparison could be made between solid and void spaces, where solid forms delineate the shape of the void spaces producing a contrast of forms which can be read as solids and voids. Such is the case with the buildings and open spaces. The relevance of visualizing the contrast between buildings and open spaces is not focussed on the shape of the tridimensional form produced by the buildings, rather, it is focussed on the character of the open space and its capacity of sustaining multiple activities. The kind of activities sustained by the open space generates a system of places in a project with a similar or different character. Therefore, the understanding of how the open space is defined, how the buildings influence the character of the open space and finally how people relate and make use of these open spaces are the three major characteristics of the system that require detailed analysis. Definition, character and use are the three variables in researching the organization of the open space in a project.

The Definition of the open space by buildings can be categorized according to their function and according to the physical characteristics of the buildings creating the enclosure. They are: i) **Contained Open Spaces** and ii) **Dispersed Open Spaces**.

i) **Contained open spaces.** This category refers to the open spaces that have a legible spatial definition given by the surrounding buildings and a clearly established character in the project, i.e., the central court or plaza with buildings flanking every side and the court used for play areas, sitting or parking.
The contained open spaces category can be sub-divided into Defined Enclosures, which refer to those open spaces in the project that have a well defined frame of buildings, where the spatial relationship is constant in terms of building height and character of use, i.e., all buildings are three storeys in height and used for residential facilities.

Another sub category is known as Circulation Areas. This refers to the open space in the project that has been predetermined in the design layout to function as a linking corridor in the internal organization of the project as well as to exterior connections with the community.

The circulation areas may be totally or partially defined by buildings, but the height and use of the building is not relevant to this category.

ii) Dispersed open spaces. This refers to those open spaces that are partially defined by buildings where a total enclosure is not apparent regardless of heights and uses of the buildings, i.e., a group of buildings lined together without enclosing any open space or a group of buildings organized in such a way that they are not able to create a total enclosure on four sides since two or more sides lack definition.

The category of Dispersed Open Spaces allows more specific sub-classification into a) Semi-defined open spaces and b) Open areas. The first sub-classification (semi-defined open spaces) refers to open spaces that are not totally defined by the surrounding buildings but with the location of two or three buildings, a partial enclosure can be defined leaving one or two sides undefined. However, the one or two undefined sides in the physical enclosure of the open space can be substituted by an active change in function of the open space, such as in an open space defined on three sides by buildings leaving a fourth side open but
bordering a road, street or natural feature such as a row of trees which completes the enclosure of the open space.

The second sub category (open areas) refers to all those open spaces that exist in a project without relation to any buildings or to a specific function, i.e., open spaces mostly facing the street at corners of the block or used as landscape screening the project frame of the street.

Generally these open spaces are not related to the system of open spaces in a project. However, they exist as leftovers of undefined open spaces and are referred to in this classification as Open Areas.

e) Project's Open Space and Buildings' Hierarchy of Privacy

While the internal layout of a project retains the character of privacy in the organization of its open space, there is a secondary characteristic that overlaps with the privacy. That is the public character of circulation routes, streets and roads connecting the project's internal spaces to the surrounding community.

The dual characteristics of some areas of the open space in a project which are private and at the same time have a public use is like a double exposure. There is the private character of the project separated from the surrounding community but onto this is imposed the second frame of the public character of the community which transforms the areas through which it crosses, creating a new hierarchy of open spaces with a transitional character. The transitional character of the open space determines the degree of privacy that clusters, buildings and units have in the project. Consequently, the open space in a project can be categorized according to its character and use into Communal Open Space and Semi-Private Open Space.
This classification of the open space is helpful in determining degrees of privacy and territoriality in a project which becomes important when studying the uses given to the open space.

- **Communal open space:** this refers to the largest areas of the project defined by the space between buildings, creating circulation areas and clusters. Also included in this group are parking areas, playgrounds, green and landscaped areas.

Separating the open spaces in a project recognized as communal from the areas identified as private are semi-private open spaces.

- **Semi-private open spaces:** these are transitional open spaces with a more specific use and character connecting the communal or public spaces in the project to the private character of the units. Corresponding in this group are the access porch to a unit, the front and back yards when the units are located at the ground level. In two and three storey buildings the transitional spaces are the feeding corridors to the units and adopt a double character according to use. First they have a communal character since they are circulation corridors, second, from the use given to the circulation corridor, the open space in front of the units adopt a strong semi-private character which is determined by a sense of territoriality responding to the existence or lack of a transitional space, such as a porch, step or double door.

- **Building's typology of privacy:** the physical characteristics of the building layout in relation to the open space in the project are important factors determining the hierarchy of privacy and territoriality of clusters and units.
The building layout in relation to the open space of the project can be categorized according to the form and type of grouping they follow. The groups are: 1) isolated buildings, 2) composite buildings, and 3) series of small buildings.

- **Isolated buildings**: refer to those buildings that stand by themselves without relating to other buildings in scale or spatial organization, such as towers and highrises over six to eight stories. These isolated buildings generally are not part of a group of buildings defining open space clusters, rather they are landmarks in the open space.

- **Composite buildings**: refer to those buildings that have a layout formed by a composite shape such as a "U", "L" or "T" which maintains a relation to other buildings creating clusters with a defined enclosure.

- **Series of small buildings**: refers to buildings that are part of a cluster or exist in conjunction with other buildings defining spaces. However, they are small in size and maintain a very simple shape.

Following this classification of buildings in relation to the open spaces that help to define the form of their layout and the character of their transitional spaces, the full range of the hierarchy of the project's open spaces is complete.

9. **Mobility and Use of the Open Space**

**Research Phase III**

Once it is defined, the general characteristics of the project's open space and the hierarchical system of open spaces generated by the buildings' enclosures form a pattern. The following aspect to be determined is the use given to places defined in the open space of a project.
The uses given to an open space depend on various conditions. Some of them are physical, such as accessibility and exposure. Other conditions are behavioral and depend exclusively on the way the individual responds to all the physical characteristics of that open space.

The most common uses of the open space in a project are of two types: one continuous and the other static. The mobility of people using circulation routes in the open space of a project corresponds to the type of continuous use, while play areas and resting areas correspond to the second settled type of use.

Mobility through the project is undoubtedly the most common activity. The mobility of people through a project responds to the organization of the open space: one follows the circulation areas throughout the project; two, the direct access into the units; and three, to the location of nodes of activity inside and outside the project.

a) Access to the Project

The determined routes into the project generally are part of the layout. Sometimes they are extensions of the grid pattern, but not always. Vehicular traffic may be continuous through the project paralleled by pedestrian routes, but in some instances it may only be pedestrian. Therefore, it is convenient to determine the kind of mobility taking place through the established routes into the project.

Vehicular mobility, if it exists through the project, tends to divide the layout, but if it is only utilized as feeding connections between peripheral traffic and vehicular access into the project, then the vehicular mobility can be considered as a minor route of mobility into the project.
The access routes into the project utilized by pedestrians constitute the largest load of continuous pedestrian mobility. Some access routes are utilized as bypasses to reach a destination beyond the project. Some access routes lead directly into clusters from which access to the units are accessible. In all these access routes, it is very common to establish shortcuts to reach a desired point into the project. A shortcut occurs when a non-defined circulation route is established crossing over other uses rather than circulation routes. Such is the case when using parking areas as shortcuts to reach a point inside the project or crossing over front yards and landscaped areas.

b) Centres of Activity

Mobility inside the project and out of the project generally responds to behavioral activities of the people using the open space. The main characteristics of both types of mobility is the location of the centre of activity and community nodes either inside or out of the project.

The routes followed by pedestrians out of the project are determined partly by their lifestyle and the proximity of services that satisfy their needs. A workman will follow a route that is close to the transportation services or a route that takes him directly to his place of work. Similarly, a housewife will follow a route out of the project that takes her to the closest store. A child will follow a route that takes him through an exploration tour before reaching the school. Thus, routes out of the project don't have a defined character. The routes that residents take out of the project create a system of open spaces that are not necessarily defined circulation routes, but rather a mixture of shortcuts and communal open spaces.
The routes established inside a project are mostly generated by the defined circulation areas of the project. However, the location of centres of activity, such as playgrounds, community facilities, and open green areas determine alternative routes to follow through the project's open space.

It is in this way that the use given to the open space in a project generates alternate systems of pedestrian and vehicular mobility.

Along with mobility, the open space in a project is continuously used for static activities. They determine a very important characteristic of the use of open space which mixes the effects of residents' activities and individual behavior with the character of open space.

c) **Zones of Influence**

The effects of residents' attitudes and static activities on some places in a project are interpreted as behavioral settings that generate a ratio of influence from the place where the activities take place to the proximate surrounding.

The range of influence of static activities in a project is most commonly found in play areas, front porches or back yards of the units and in some cases is extended beyond the project's boundaries into the surrounding community, such as the playground, or the corner store.

The range of influence of some zones of activities in the project have a physical impact on the open space. The physical impact on the open space takes two negative forms: one interpreted as vandalism and the other, graffiti. These forms of physical impact exhibit aggressive social behavior on the part of the user of the open space. In some cases the same residents of the project are responsible; in others, outsiders.
Regardless of the source of behavior, the impact of vandalism on the open space has the characteristics of a static activity that affects specific areas of the project and extends in multiple directions.

The behavioral pattern of vandalism and graffiti is not exclusively physical but is also a manifestation of a social maladjustment of an individual or group of individuals responding to different economic, racial, cultural, political or psychological pressures in their lifestyles. But its effects are interpreted in the uses of the open space in the project.

d) Sampling of Physical Settings

Mobility throughout the project is a pervasive activity. The mobility of residents and passersby will be used as the determining factor in selecting key areas in the project where conflicts have arisen between predetermined functions for the open spaces and the uses that are given to those open spaces by people. The analysis of these key areas in a project will be developed in the following section entitled Physical Settings.

10. Physical Settings, Research Phase IV

a) Physical Setting Checklist

Once some areas in the project have been identified as zones of conflict due to the discrepancy existing between the function of a place and the use that is given to it, the research focus is narrowed down to the specific physical and social characteristics of those places designated as physical settings.

A physical setting is a determined area of a place, project or larger development in which a series of physical and social characteristics are identified. First, the main physical characteristics of the setting
will be identified and each one evaluated. Secondly, the way in which the setting is used will be reported systematically along with the modifications to which users put the settings. Finally, the physical setting is evaluated and the reasons for its modifications identified.

Summarizing. A physical setting is a very specific area which is analyzed according to its physical and social characteristics and evaluated according to the behavior of its users.

In the following checklist the identification of the most relevant physical and social characteristics of a physical setting have been grouped together to produce an evaluative cross-section of its components.

b) Checklist

The checklist is composed of four parts. The first three sections correspond to the identification and description of the most relevant characteristics of the studied physical setting, while the fourth section of this checklist summarizes the overall concepts.

The first section of the checklist deals with the physical characteristics of the setting:
- site characteristics
- microenvironment
- amenities, facilities and materials
- landscape
- furniture

The second section deals with mobility:
- circulation and mobility
- zones of activity
- intensity of use
- physical setting inner links
The third section deals with visual control and spatial territoriality:
- visual control and definition of groups' spatial territoriality
- open space hierarchy
- physical setting, transitional spaces
- physical setting, units' transitional spaces

Finally, the summary is grouped by area:
- enclosure
- transitional areas
- spaces modified by users

All the information gathered is represented graphically to develop a visual interpretation of the setting and its conflicts. The purpose of this graphic information is to be able to interpret and develop physical design alternatives to improve the function, use and character of the studied physical settings.

i) First section: physical characteristics. The first section of the checklist, Physical Characteristics, is subdivided to fit the physical setting.

Site: is considered in the following aspects:
Cluster - describes the building layout and the type of use given to the open space.
Enclosure - describes in an abstract way, the enclosed open space within the physical setting by contrasting void areas with solid volumes. In this case it contrasts open space and building massing.
Definition-- represents tridimensionally the volumes of the buildings surrounding the core of the physical setting.
Microenvironment: describes the seasonal (winter and summer) sun paths and identifies the shadow cast on the central core of the setting by the surrounding buildings.

Amenities, facilities and materials: In this grouping the subjects to be described are the types of amenities within the physical setting, such as play areas, parks, green and circulation areas. Second, we will determine the qualities of the setting. The checklist helps to describe the materials and qualities of the setting:
- floor
- wall
- color
- texture

Landscape: describes the number and location of the green areas in the setting as main features in the landscape of the setting; for instance, dense green areas, with or without trees, etc.

Furniture: describes the number, type and location of the main furniture within the studied setting; such as, benches, fences, ramps, lighting.

ii) Second section: mobility.

Circulation and mobility: is divided into three groups:
People mobility - describes the main paths, routes and in general the kind of mobility determined by residents and passersby throughout the setting. Access to units - describes the location of the access in the units as well as the location of stairwells in the buildings surrounding the setting. Vehicular mobility - describes the circulation routes followed by vehicles in and out of the setting: bicycle routes, parking areas, general vehicular routes.
Zones of activity: describes the character of different areas in the setting where different types of activities commonly occur. In this group the types of activities taking place and the kinds of users involved in activities are described. The data is collected by classifying the user in general terms by age group and frequency of activity.

Intensity of use: describes the variation of use of the physical setting by recording the mobility of users following a time schedule. The intensity of use is recorded during a cross-section of the weekend and three weekdays in order to chart the intensity of use; i.e., Saturday and Sunday, morning, noon and evening; and Monday, Wednesday and Friday, morning, noon and evening.

Settings - inner links: describes the location of the access routes into the buildings by differentiating their orientation as internal and external, determining whether the access occurs from the inside core of the setting or from the outside. This section also describes the kind of links existing with other settings and buildings by analyzing the mobility flows of the users.

iii) Third section: visual control and spatial territoriality.

Visual control and definition of groups' spatial territoriality: In this group the scope of the research is focussed on the identification of internal zones in the setting where visual control is accessible from the units into the communal areas creating a sense of defensible spaces. The second part of this group corresponds to the definition of groups' spatial territoriality within the setting, by identifying the areas used by different groups and describing their ratio of influence; i.e., areas of graffiti and vandalism.
Open space hierarchy: describes the existing hierarchy of the open space in the setting by determining the communal and public open spaces and identifying the character of transitional spaces from communal areas into private areas.

Setting - transitional spaces: describes graphically the use, function and territoriality of some areas in the setting which have as their function the connection of open spaces from public to communal and from communal to private; i.e., entrance and gates.

Setting - units' transitional spaces: describes graphically the character, definition and territoriality of the units' transitional areas from communal to semi-private and from semi-private to private.

iv) Summary. The checklist concludes with an evaluation of the transitional areas identified in the physical setting by grouping the transitional areas into the following categories:
- public to communal
- communal to private
- semi-private to private

The summary ends with a graphic survey of the Spaces Modified by the Users evaluating their uses and the user groups frequenting the setting.
CHAPTER IV
DIRECT RESEARCH AND ANALYSIS STRATEGIES

Introduction

In this chapter the implementation of the research framework of Chapter III is pursued further.

The sources and material gathered in this research have been selectively organized into four phases. Each phase represents a specific subject in itself. However the grouping of the four phases together supports the ultimate focus of the research which is the detailed understanding of key points at the levels of the urban environment.

The key points are those in the project that represent the interface between the project layout and the community; the arrangement of buildings confining the open space of the project into clusters; and finally, the microscale of the communal open space and the transitional areas into the units.

The research scope is intended to be accumulative and exploratory; the research subject will be a group of three housing projects located in the City of Vancouver.

These three public housing projects are not exclusively representative of public housing in Vancouver. However, they were three of the first public housing projects built during Urban Renewal in the 50's. The most interesting characteristics of the three projects is that over the last 20 years the physical character of the projects has not changed and they still remain the largest public housing projects in Vancouver. The three public housing projects selected as study cases are: McLean Park, Raymur Place and Skeena Terrace.
After a discussion of community attitudes drawn from two separate surveys, descriptive information about the projects and their surroundings is presented and incorporated with the following section. The elements of project organization, mobility and physical settings will be described diagrammatically for the three projects while more detailed information on Raymur Place can be found in the appendix of this thesis. The following diagram illustrates the organization of this chapter.

![Figure 1. Chapter IV Research Organization.](image)

1. **Selection of Study Cases: Criteria**

   The three study cases were selected according to the following criteria:
   
   - public housing projects built during Urban Renewal action in the middle 1950's and early 1960's;
- public housing projects with mixed population, including families with children and seniors;
- public housing projects adjacent to larger population of residents located on the fringes of residential, commercial and industrial land uses;
- public housing projects with physical signs of deterioration, vandalism or social stigma from the surrounding community.

In the fall of 1981, 28 public housing projects existed in the City of Vancouver. Half of these projects were built between 1955 and 1970, and the rest between 1970 and 1980. Fourteen public housing projects were built between 1955 and 1970, providing separate accommodation to three major groups of residents—seniors; families with children; and seniors and families with children. Of the 14, two projects house seniors exclusively; four projects are only for families with children; and eight projects have a mixed population of seniors and families with children.

Among the 14 public housing projects built between 1955 and 1970, six were built under the Urban Renewal Development Plans (1955 and 1967). The remaining eight public housing projects are less massive and more simple, in contrast with those solid and complex housing projects which are products of Urban Renewal.

Of the six projects from the Urban Renewal phase, only three satisfied the criteria established in selecting the study cases. These are Skeena Terrace, McLean Park, Phase I and II, and Raymur Place.

The following table outlines the basic characteristics of the six public housing projects built during the Urban Renewal Development from which the three cases have been selected.
Table 4.1
Population and Proximate Urban Context

<table>
<thead>
<tr>
<th>Public housing project</th>
<th>No. of units</th>
<th>Seniors &amp; pensioners</th>
<th>Families w/children</th>
<th>Total</th>
<th>Surrounding land uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Mountain (1954)</td>
<td>224</td>
<td>48</td>
<td>760</td>
<td>808</td>
<td>Residential</td>
</tr>
<tr>
<td>Orchard Park (1959)</td>
<td>169</td>
<td>44</td>
<td>489</td>
<td>533</td>
<td>Residential</td>
</tr>
<tr>
<td>McLean Park (Phase I: 1963)</td>
<td>177</td>
<td>404</td>
<td>254</td>
<td>658</td>
<td>Industrial, Commercial, Residential</td>
</tr>
<tr>
<td>(Phase II: 1970)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skeena Terrace (1963)</td>
<td>234</td>
<td>117</td>
<td>703</td>
<td>820</td>
<td>Industrial, Commercial, Residential</td>
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<tr>
<td>Killarney Gardens (1966)</td>
<td>188</td>
<td>189</td>
<td>--</td>
<td>189</td>
<td>Residential</td>
</tr>
<tr>
<td>Raymur Place (1967)</td>
<td>376</td>
<td>177</td>
<td>893</td>
<td>1,070</td>
<td>Industrial, Commercial, Residential</td>
</tr>
</tbody>
</table>

Perhaps the strongest common denominator of all three selected projects is the last of the four points of the selection criteria, namely stigma. The stigma associated with the projects' social and physical image as perceived by outsiders and surrounding communities has affected interaction with the adjacent communities.
2. Location of Study Cases: McLean Park, Raymur Place and Skeena Terrace

The three study cases are part of the east side of the City of Vancouver. McLean Park and Raymur Place public housing projects are located where the Strathcona district borders the central business district. Both projects lie within a closely-related ethnic community where their residents succeeded in stopping the bulldozers of Urban Renewal Development. The ethnic character of Strathcona has changed since the late 1800's from Italian, Ukrainian, Portuguese, Japanese and Chinese into a predominantly Chinese community with a small proportion of Caucasians.

McLean Park is unique culturally among Vancouver public housing projects because of its location in the heart of the city's Chinese community and because approximately 60% of the residents are Chinese-speaking.

Raymur Place is less fortunate in not having a strong ethnic population that creates social ties with the surrounding community. Raymur is located on the eastern boundary of the Strathcona district close to industrial parks, warehouses and major east-west arterials.

Skeena Terrace is located in the south-east corner of the Hastings-Sunrise district near the Vancouver-Burnaby boundary line. This housing project is surrounded on two edges (east and south) by highways and rapid arterials with continuous traffic flow, industrial parks and warehouses, as contrasted with the west and north edges of the project which are totally residential with schools and small retail areas.

Historically and currently, the Hastings-Sunrise district has maintained an active and hard-working community since its rapid development
from 1911 to 1940. As the population of the area has grown, an ethnically-mixed community has developed. This ethnic change began around 1961 when the population of people from the British Isles decreased dramatically while residents of Italian, German and Asian backgrounds began to increase. Presently, 40% of the residents of the Hastings-Sunrise district do not speak English as their first language.

Figure 2. Location of Study Cases.
3. **Community Attitudes**

The findings of Community Attitudes Toward Public Housing are summarized according to the type of survey presented. This section is based on two separate studies; one is a formal report (1972) and the second is a series of interviews undertaken by the author (in 1979). In the 1972 report three surveys were analyzed:

- Neighborhood Attitudes Survey
- Professional Attitudes Survey
- Group and Project Attitudinal Survey.

The findings of these three surveys are compared with the 1979 research in the Strathcona district, "Unorganized Observations of Public Housing Projects In The South Sector Of Strathcona."

Each survey is focused on two aspects of community attitudes toward public housing projects:

One is the general attitude of the surveyed neighborhoods and the perceived attitude of professionals in contact with the public housing projects toward the projects and their residents.

The second is the specific attitude identified in the community toward the three public housing projects selected as study cases: McLean Park, Raymur Place and Skeena Terrace.

a) **Community Attitudes Survey: Report on Public Housing (1972)**

From the 1972 report four patterns were identified under neighborhood attitudes toward public housing:
i) **Neighborhood Attitudes Survey.**

- Social contact, when spontaneous, between residents of public housing projects and those living in their proximities tends to diminish the negative perception of the projects and their residents while enforced proximity tends to increase it.

- The low income status of public housing residents and the poor integration of the projects with the surrounding community reinforces negative attitudes and places a stigma on a project and its residents.

- The exposure of the residents' social and economic identity by living in a public housing project increases the stigma placed on them by the surrounding community.

- The negative attitude with which the community reacts in accepting public housing projects in its neighborhood reinforces the stigma against the project and its residents.

From these four patterns of community behavior, it can be determined that the welfare image of public housing in a neighborhood is the central factor influencing the community's attitude of acceptance or rejection. Furthermore, it is not only the image of public housing that impedes social interaction, but the individual attitudes of those living nearby. The acceptance and integration of a different social group in an already socially settled community depends on:

- The degree of exposure that the lifestyle of a group receives when introduced into a settled community (in this study, for example, the exposure of a group living on welfare);

- The physically disrupting character of some "welfare" buildings, when they are poorly integrated into the surrounding community in terms of form, character and image.
ii) Professional Attitudes Survey. In this second group five characteristic attitudes were identified:

- The tendency of professionals in contact with public housing to deal with residents in terms of "social work"—treating them as psychological cases rather than individuals in a particular human condition in need of social help.

- The identification of poverty level and the perceived poverty of the public housing residents.

- The poor leadership and participation of tenants and groups which represent them in dealing with common problems affecting the project.

- The limitations of the respondents. Rather than examining the overall system, they pinpoint problems related to their particular area of work.

- The lack of a social-political system to lead and re-integrate the social groups living in public housing into the existing socio-economic community.

The relevance of these findings to the unresolved social needs of public housing residents reveals the biased attitude of the professionals interviewed toward the kind of social help that the residents need. The findings of this survey clearly show that the attitudes of the professional respondents are primarily influenced by their own biases toward public housing residents rather than any physical impact caused by the project's characteristics.

Two aspects of these findings are closely linked: residents' social needs and professionally biased attitudes.

The residents' social needs: are basic to their living conditions. First, the need for an unbiased attitude from those who can help them not
as counsellors but as resource guides who teach them how to change by not accepting their individual conditions. **Second**, the need for a proper representation of their interests as public housing tenants, together with the motivation to interact with the community. **Third**, the need for the community to understand that their economic status, while low-income, is not poverty-stricken. **Fourth**, the imperative need to create a mechanism for participation. Its function might be to orient and reintegrate public housing residents into the active social, political and economic community at large.

The attitude of the professionals: is biased and limited by the scope of their work towards the nature of residents' needs in public housing projects. The professionals have the tendency to treat the low income status of the tenants as a condition brought about by individual or family failure which is then reflected in their attitudes toward community development.

It is noteworthy to mention that in 1972, when the survey was made, there was an absence of coherent policies toward public housing residents and a severe lack of communication between agencies and individuals.

**iii) Group Attitude Survey.** In this group of interviews the focus of the survey was limited to identifying the respondents' perceptions of the degree to which the public housing residents imposed a stigma on themselves. The responses varied. For those who worked in close daily contact with public housing residents, there was not such self-imposed stigma. Conversely, for those who had less contact with public housing residents, the feeling was that the stigma was self-imposed.
iv) Individual Project Survey. In this group only the findings related to the three public housing projects selected as study cases, McLean Park, Raymur Place and Skeena Terrace, will be discussed.

According to the 1972 report three patterns were identified as influencing the community attitude toward public housing projects:
- physical dissonance with the community,
- lack of facilities and poor image,
- the stigma imposed on the projects and their residents by the community.

However, there is one characteristic that varies with each project:
- In McLean Park the cultural dissonance of the residents and the surrounding community is the variable.
- In Raymur Place the variable is the physical isolation of the project from the surrounding community.
- In Skeena Terrace the variable is in part the physical isolation of the project and in part the community's perception of welfare groups and rent-subsidized housing.

b) Unorganized Observations of Public Housing Projects in the South Sector of Strathcona (1979 Survey)

The summary of the 1979 interviews has been organized according to the groups interviewed. For this purpose four issues have been chosen to determine the respondents' points of view. The four issues are:
1) Community Attitudes Toward Public Housing; 2) Causes of Negative Attitudes Toward Public Housing; 3) Physical Images of Public Housing Projects; and 4) Additional Comments.
i) Views of social workers.

The community attitudes toward public housing are based on:
- the perceived economic difference of public housing residents;
- the perceived social conflicts and family problems of public housing residents.

The causes of negative attitudes toward public housing are:
- relocation and short stay in the project of some residents;
- lack of interest in the community of some residents;
- lack of ethnic adjustment of some residents with the project and the community.

The physical image of public housing projects is:
- different in building type and image;
- deteriorating and unkempt environment.

Additional comments:
- The public housing residents need programs oriented to rehabilitate their social and economic conditions not social counselling. Local authorities should have more participation in determining public housing needs.
- Raymur Place is more disrupting than McLean Park.

ii) Views of community centre directors.

The community attitudes toward public housing are based on:
- the kind of relationships that children and teens from the public housing projects develop with similar groups in the community;
- the perceived social differences in family relations of some residents (alcoholism, rudeness, coarse language, etc.).
The causes of negative attitudes toward public housing:
- public housing parents' aggressive attitudes toward complaints about their children misbehaving in the community;
- social image portrayed by residents' attitudes and outsiders who hang around the project.
- lack of interest in participating in the community.

The physical image of public housing projects:
- There is nothing wrong with the projects' physical image. It is the people who create the image of the place.

Additional comments:
- The fundamental problems in public housing are the lack of strong parent models; lack of discipline in the families; lack of respect and responsibility for the appearance of the project; and groups of residents isolated from other residents and the community.
- The public housing projects consist of homogeneous groups of people located in a transitional heterogeneous community.

iii) Views of public housing managers.

The community attitudes toward public housing are based on:
- the different social and economic backgrounds and life attitudes of public housing residents and other members of the community;
- conflicts among groups sometimes seem to be a result of ethnic differences, but this is not the case.

The causes of negative attitudes toward public housing:
- the instability and continuous relocating of some residents creates an image of community detachment.
- The parent/child relationships, as perceived by the community, are bad;
- The image of some problem people living in the projects.
The physical image of public housing:
- Urban Renewal was a scheme to redevelop the whole area. Because it was not completed, it has left buildings as islands in the community.
- It is hard to maintain the buildings' images.
- The community forms an image of the project from the actions of the residents.
- Residents do not cooperate in taking care of the project.

Additional comments:
- Some families in the public housing projects need a strong parent figure for their children. There is also a lack of feeling of attachment to the project. This is especially true of Raymur. In McLean, the residents show more interest in maintaining the project.

iv) Views of school authorities.

The community attitudes toward public housing are based on:
- Low income groups living in public housing buildings are usually thought of as people with family problems.

The causes of negative attitudes toward public housing:
- Lack of interaction and participation of the residents with the rest of the community.
- Different attitudes of people in the project and the rest of the community.
- Identified problem-people living in the projects.

The physical image of public housing projects:
- a poor image
- the buildings are very different from the rest of the community.
Additional comments:
- There is a lack of a social model in the families and a lack of involvement with the rest of the community.
- Raymur has typical trouble people.

v) Views of police officers in the area.

The community attitudes toward public housing are based on:
- poverty and the stigma attached to residents of public housing projects.
- attitudes of people towards different groups of individuals concentrated in a group of buildings which are also different from the rest of the community.

The causes of negative attitudes toward public housing:
- The knowledge of the existence of "trouble people" living in the project, usually child or teen gangs who disrupt the tranquility of the community. Raymur Place seems to house a lot of "trouble people."
- Strong ethnic groups in the community which are different from those living in the projects; i.e., Raymur Place. McLean Park blends more with the surrounding community.
- The negative experiences with project residents (i.e., children's problems turn into problems between parents).
- Crime and robbery associated with project residents.

The physical image of public housing projects:
- a poor image compared to the houses in the rest of the neighborhood
- large apartment buildings
- low income people.

Additional comments:
- The family structure and the lack of guidance for children in choosing friends is the problem. The community, however, has a positive attitude
regardless of the problems both in the community itself and the housing projects. Racial differences are the same as in the rest of the city.

vi) Views of neighborhood residents.

The community attitudes toward public housing are based on:
- the kinds of personal situations they have experienced with public housing residents, usually children's problems and parents' attitudes.
- friendliness of public housing residents or their avoidance of establishing social contact
- lack of knowledge of who lives in the projects.

The causes of negative attitudes toward public housing:
- problems which arise from children's attitudes create a rejection by the rest of the community; i.e., loud, disrespectful to adults, vandalism.
- the lack of attachment to the projects or interest in participating in community concerns.
- Raymur has a lot of trouble-makers who don't let other children use the Ray-Cam Centre.

The physical image of public housing projects:
- The "horrible looking" image, always with garbage and painting on the walls. Nobody cares.
- "It's nice they have new playgrounds and the place looks new, better than my own house."
- McLean Park is cleaner than Raymur Place.

Additional comments:
- "There are no racial problems in the area. The problems are loud and rude kids. The people in McLean Park keep their front gardens in better shape than the people in Raymur. This is because the kids in Raymur don't respect anything. Their parents should punish them."
c) **Synthesis of the 1972 Survey**

i) **Neighborhood Attitudes Survey.** The negative attitudes of the neighborhood toward public housing are heightened by the degree of exposure that residents receive, both socially and economically, when living in a stigmatized type of building that lacks appropriate physical integration with the surrounding community.

There is an equally negative reaction from the residents of public housing towards the negative attitude of the surrounding community that has placed a stigma on them. The result is a chain reaction of negative attitudes between public housing residents and the rest of the community which creates a distorted image by outsiders of public housing.

Public Housing = Welfare and Decay = People-Problems

ii) **Professional Attitudes Survey.** Professionals working with public housing residents tend to establish their own biases and limit their understanding of how to deal with public housing residents. Usually they deal with the residents more in terms of social and psychological counselling rather than orienting them to become integrated into the rest of the community.

iii) **Group Surveys.** The perception of the stigma associated with public housing was seen in two different ways in this survey: One group (janitors, gardeners, line workers) felt that the community imposes the stigma on the housing residents. The other group (mostly managers, social workers, etc.) agreed that the public housing residents, themselves, rather than the community, imposed the stigma.

iv) **Individual Project Survey.** The dissonance between the projects and the rest of the community varied in the case of each project:
Raymur Place: was identified as the project with the most problems associated with physical image and decay, social and economic differences, and ethnic, social and physical isolation from the rest of the community.

Skeena Terrace: was also found to be isolated from the community, not ethnically or physically like Raymur, but mostly socially due to the residents' low economic level as compared to the rest of the community.

McLean Park: was identified as the project that blends most successfully, socially and ethnically, into the rest of the community, although physically and economically it remains apart from the rest of the community. It is, however, integrated into the community path systems.

The perceived cultural, physical, economic, urban and social dissonance influences the attitudes of the surrounding community and places a stigma on residents and the project. In some cases the community's acceptance of a project is the result of social and ethnic homogeneity between the residents and the surrounding community and the integration of the project's layout with the urban frame of the area. While the perceived differences of the residents' economic levels and the physical image of the project to the proximate community are still apparent, the degree of difference is not as great.
d) Synthesis of the 1979 Survey

i) The Community Attitudes Toward Public Housing Are Based On:
The stigma associated with public housing, the perceived social and economic levels of the residents' life styles, the predominance of one ethnic group, the community's attitude toward different groups and the exposure of residents' family problems, the positive or negative past experience recorded in the community by the residents' actions (usually teens and children) is what determines the community's attitudes toward public housing residents.

ii) The Causes of Negative Attitudes Toward Public Housing Are:
The temporary stays of some residents in the project, the social and ethnic disharmony of others with the community, and the detachment and reluctance to interact within the project and the community paralleled by the community's experiences with the residents, the "trouble people" in the project, and the perceived instability of the families all contribute to create negative feelings.

iii) The Physical Image of Public Housing Is:
The product of Urban Renewal, large buildings, buildings for low-income people, usually with poor images and alienated from the surrounding community. Some think of public housing as horrible places and associate them with garbage, grafitti and decay. For others it is the people and not the buildings which create the image of the projects, and for some they are "nice and look new and better than my home".

iv) Additional Comments. There is need for local political development in creating community development programs oriented to helping the public housing residents to become integrated with the community. This should not be done by counselling them to accept their
social and economic situation, but by helping them change it. Also important is the introduction of a "model" of behavior for the families of public housing. This model may help residents become socially motivated to participate more actively in both the project and the community as a whole.

In conclusion, some of those interviewed thought that if the projects were comprised of the same ethnic group as in the surrounding community, there would be fewer problems, as in McLean Park. Others thought that the problems were not racial or visual (i.e., due to the appearance of the buildings), but the results of trouble created by "problem kids", especially in Raymur Place. Almost all those interviewed felt that McLean Park was much more successfully integrated into the community.

e) Conclusions

Some conclusions on the attitudes of the community toward public housing emerge by comparing the 1972 survey findings with those of the 1979 survey.

The relevance of this comparison depends first on determining the change or permanence of the factors influencing the community attitudes toward public housing; and second on identifying the specific attitudes that the community has maintained towards the three public housing projects under study. From the comparison of the findings of both surveys it is the intention to establish an almost current understanding of the prevailing attitudes the community has towards public housing.

However, there are some limitations in comparing the 1972 and 1979 survey findings. One is the lack of data filling in the
time span between 1972 and 1979 in the community attitudes. This lack of data only allows the comparison of findings without categorizing whether some community attitudes have persisted throughout time with or without change. Another limitation is the contrasting difference between surveys in scope and size of the survey samples. Thus it is not possible to generalize in terms of the community at large, but rather specifically refer them to the three public housing projects (McLean, Raymur and Skeena).

In spite of the existing differences between the 1972 and 1979 surveys, the central focus in both cases was the identification of the attitudes and the causes of those attitudes towards public housing projects. These findings allow us to establish some references for comparison.

The causes of the community attitudes toward public housing as seen in the 1972 findings was found to be determined by the association of a group of people (low income and welfare recipients) with the character of an institution (public housing). In other words, for the community, public housing projects represent assisted housing for low income earners and welfare recipients.

Thus, it is possible to interpret from the 1972 findings that the social and physical characteristics of the institution expose to the community the social and economic status of the public housing residents. This develops into a stigma when residents are reluctant to interact with the community.

The 1979 survey findings reinforced the fact that the community attitudes associated low income and welfare recipients with the identifiable character of the institution in which they live. Surprisingly
the 1979 findings widened this conclusion by introducing the perception of ethnic differences between community and project, the accounting of past experiences between community and public housing residents, and finally establishing that: the stigma imposed on public housing residents was the community's response toward the perceived social, economic, and ethnic maladjustment of the residents of public housing and their past and present attitudes toward the community. Also reinforcing the stigma on public housing was the finding that the identification of "trouble people" in the community and the places where they lived or hung around were directly associated with public housing projects in the area. Furthermore, supporting these community observations, the causes of the deteriorated and unkempt image of the projects was blamed on the "trouble people" living in them.

However, the 1972 findings questioned the cause and effect relationship. The question is whether the community's perception of public housing projects is influenced by the character of the buildings, or the interaction and contact with their residents. The effect of this interaction between community and public housing residents has a reciprocal effect that influences both the community attitude toward the residents of public housing and attitude of the residents of public housing toward the community. Thus a chain reaction is triggered between what the community perceives as the residents' attitudes and what the residents perceive as the community's attitudes.

In the 1972 survey findings the source of the community attitude toward public housing was their perceived social differences with the groups of individuals identified by the stereotyped welfare institutions
in which they lived. Six years later, the 1979 survey findings identified the same situation in the community except that the community recognized several other social factors influencing its attitude toward public housing, such as the different ethnic groups, the awareness of the residents' social problems, the residents' lack of participation in the community, and the community's past experiences with the residents. Finally, it was also found that the public housing's physical image reinforced the stigma on the residents.

In both the 1972 and 1979 surveys the perceived attitude of the community toward public housing seems to be the imposition of a stigma on residents and projects. Though the causes of the stigma are similar in both surveys, the 1979 findings of the causes of the community attitude are more extensive and very specific to the surveyed area. However, it is obvious from both surveys that the stigma on public housing exists, whether it is imposed by the community, or self-imposed by the residents.

Thus regardless of which of the two arguments one supports, the actions and attitudes of both community and public housing residents are influenced by the way in which people interact; the perception of each other's attitudes; and the association of these attitudes with the physical and social character of the place where they live. This led to conclude that in both surveys the sources of the community attitude toward public housing have a two-fold characteristic - one social and the other physical. The social characteristics are attached to the kind of actions and attitudes that the community and public housing residents attribute to each other. The physical characteristics
are defined by the institution's image, character, and the integration of the project with the surrounding community.

Yet, it is the conjunction of both social and physical characteristics that creates the perceived images of public housing in the community. Consequently, if the perceived difference in social and economic status of an individual or group of individuals is exposed to the community by simply associating their status with the function and character of the place where they live, then it could be said that by depriving one person or group of people of their social and economic privacy and exposing them to the community in a building stigmatized in its character and function, you are creating the cause of the stigma on public housing residents.

Thus it should be taken into consideration that the social and economic privacy of an individual or group of individuals in the community is one of the fundamental factors favoring community interaction. This needs to be paralleled by a similar anonymity of the place where they live by means of producing buildings with a function and character compatible with, if not similar to, the rest of the community.

However, the scope of this thesis is not focused on the specifics of the community and public housing residents' social attitudes. It is important to recognize, however, the definite implications that the social aspects of this research have on the perception of public housing in the community.

The conclusions derived from the attitudinal surveys will be applied within the framework of the physical characteristics that influence the community's perception and attitudes toward public housing projects.
4. Research Phase I: Local Level (Community).

a) Proximate Community Environment and Its Open Space Relationship with the Study Cases.

The research gathered in the following section corresponds to Phase I of the research framework which deals with the description of the proximate environments to McLean Park, Raymur Place and Skeena Terrace which have been divided into two groups:

In the first group, McLean Park and Raymur Place have been grouped together due to their location within the south sector of Strathcona, leaving, in the second group, Skeena Terrace in the Hastings-Sunrise district. Both groups will describe separately the community fabric and physical frame of the sector where the projects are located.

The following three phases: Project Organization; Mobility; and Physical Settings will be presented in a graphic sequence for each one of the study cases.

b) Community Fabric

The following section presents a demographic profile of the district in which the study cases are located.

i) Group I: McLean Park and Raymur Place Projects.

Location: McLean Park and Raymur Place public housing projects are part of Vancouver's east side. Both projects are located in the south sector of the Strathcona District. Each one defines opposite edges of this sector. McLean defines the south-west edge while Raymur Place the south-east edge.
Figure 3. Strathcona District.

The south sector of Strathcona consists of approximately 460.8 acres and is bounded on the north by Hastings Street, on the south by Prior Street, on the west by Gore Avenue, and on the east by Clark Drive. This community is very insular. It is bounded by four major arterials and surrounded by residential, commercial and light industrial uses on the north (the north sector of Strathcona), industrial development and commercial uses on the east and south, and commercial and shopping areas adjacent to the central business district and Chinatown on the west.
Population: There are approximately 7,634 people living in the south sector of Strathcona; 53% of them are Chinese. 33% of the population is over 55 years of age and 29% are between 0 and 19 years of age, of which 14% are children between 10 and 19. The smallest groups are young adults between 20 and 24 (6%) and possibly young couples between 25 and 34 years of age (8%).

Income: In 1976 31% of the population had an income of less than $7,000 per year, and 99.95% of the population had an income of less than $15,000, whereas in the city as a whole, only 18% had an income of less than $6,000 per year and a total of 64% had an income of less than $16,000 per year. Among the 2,625 households in the area there are 555 one-car families and 90 two-car families.

Housing Stock: The area contains some of the oldest homes in the city (late 1880's). A few of these houses are beyond repair but, in general, the existing stock is in good condition. This district was a pilot for redevelopment under urban renewal policies in the late 50's and early 60's which resulted in vacant blocks and two main public housing complexes, McLean Park and Raymur Place. Recently several infill housing projects and senior citizen housing complexes have been added to the housing stock. In this area there are 480 single detached units and 1,240 apartment units.

Occupied Dwellings: At present the south sector of Strathcona contains about 2,030 occupied dwellings (565 residential buildings), 19% of which are owner occupied. The rest of the dwellings are mainly apartments which provide low rental accommodation (1,240 units).
This is due in part by the fact that many properties are being held for development.

Land Division: The land has been subdivided into narrow but deep lots (25' x 122'). In this sector there exists two blocks of undeveloped land adjacent to the Strathcona school (east and west), as well as several vacant lots, all of which are city-owned.

Schools: Strathcona and Seymour schools, both built in the early 1900's, are among the oldest in the City. They are located at opposite ends of the district. Enrolment at the schools has declined by almost 40% over the past 10 years. However, it is expected that the population of the schools will remain steady.

Institutions: Strathcona contains a large number of clubs and churches. Most of them provide programs which are available to people with different cultural backgrounds (Italians, Ukrainians, Russians, Chinese, etc.).

Industry: The industry in the sector is small-scale two-storey warehousing and light manufacturing.

Commercial: Several small-scale stores and restaurants serve the primary needs of the surrounding community, while the adjacent shopping area of Chinatown provides major facilities and services to the local community.

Zoning: The south sector of Strathcona is largely zoned RM-3 which means Multiple Dwelling District (medium density). However, there are some areas where vacant land was left after the urban renewal demolitions zoned CD-1, Comprehensive Development District.
east edge of the sector there is a string of M-1 land uses (light industrial) which was merged into this sector after the integration of the small community of Kiwassa in the far east corner of the district. Integrating Kiwassa into the south sector of Strathcona in 1978 extended the old boundaries of this sector from Raymur Drive to Clark Avenue.

Residential Density (Net):

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<th>Date</th>
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<th>Gross Area</th>
<th>Gross Density</th>
<th>Units P/Acre</th>
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<td>7,634</td>
<td>460 acres</td>
<td>16.5 people p/acre</td>
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Residential Land Area
184 acres

Net Residential Density
41.5 people per acre

ii) Group II: Skeena Terrace Project.

Location: Skeena Terrace is located in the east end of the City of Vancouver. Part of it forms the border between Burnaby and Vancouver. Another part is located in the Thunderbird area on the southern edge of the Hastings-Sunrise District.
The Thunderbird area in the Hastings-Sunrise District consists of approximately 72 acres. Its boundaries are, First Avenue in the north, Broadway and Lougheed Highway to the south, Rupert Street to the west, and Boundary Road to the east. Due to its proximity to major traffic arterials, and the heavy industrial land uses bordering the south and east edges of the area the Thunderbird area is somewhat isolated. It is a totally single family residential neighborhood serviced by one school, a community centre and a small park.

Population: There are approximately 1,617 people living in this area, of which almost 60% are from the British Isles, followed by Italians and Chinese. 22% of the population is over 55 years of age.
and 31.6% are 19 years of age and under, of which 22.1% are children between 0-14 years and 9.5% are of high school age. The largest group is the 20 - 54 age group which represents 46.4% of the total population.

Income: In 1976 the income level of the residents in the Hastings-Sunrise District was remarkably similar to the City average. 40% of the residents in both Hastings-Sunrise and Vancouver reported an income between $10,000 and $16,000.

Housing Stock: The information available indicates that the number of dwelling units increased substantially between 1971 and 1976 in the Hastings-Sunrise District. 72% of these units are single detached and 70% are owner occupied. More than 36% of the residents have lived in this community for more than 10 years. In the Thunderbird area there is a high concentration of pre-1930 single-detached housing which need repairs. In 1962, as part of Renewal, the Skeena Terrace Housing Project was built as a low-income housing project to provide housing for a few senior residents as well as low-income families.

Occupied Dwellings: Although the percentage of single detached houses in the Hastings-Sunrise district remains high, and there has been an increase, since 1961, in absolute numbers, single detached units have decreased as a percentage since 1961 and have been replaced by other types of housing, mostly townhouses, rowhouses, duplexes, etc.

In the Thunderbird area within Hastings-Sunrise approximately 70% of the occupied dwelling units (200 units) are detached and owner occupied (140). The rest are apartments and townhouses concentrated in Skeena Terrace and Beulah Gardens senior citizens' housing.
Land Division: The land has been subdivided in standard sized lots (33' x 120'). The value of the land in this area has remained the lowest in the City in spite of the fact that its value has increased six-fold in the last decade.

Schools: Thunderbird Elementary School was built to serve the Skeena Terrace Housing Project which is reported in the Community Profile of the Sunrise District as "having a relatively high proportion of children from single parent families and families receiving social assistance". The Thunderbird School is located close to the southern edge of this area's boundary. As with Vancouver schools generally, enrolment has been declining. However, the rate of decrease has been slow; from 398 children in 1976 to 342 children in 1980. The situation in Hastings-Sunrise differs from the rest of the City due perhaps to the influx of young families and new immigrant families into the neighbourhood as well as the relatively low housing costs.

Institutions: The Hastings-Sunrise district contains many churches of different denominations: Baptist, United Episcopal, Catholic, etc. Some of them have reported a congregation of over 1000 people as well as a large number of ethnic populations. In the Thunderbird area of this district there is only one institution, the Thunderbird Neighborhood Centre, bordering the Trans Canada and Lougheed Highways. However, there are several other social and religious institutions nearby.

Industry: The Thunderbird area is bounded by one of the two pockets of industrial land uses in this district. The Boundary and Lougheed Industrial Zone provide excellent connections to the local, regional and national market due to proximity to the Trans Canada
Highway. Wholesale and warehousing are the dominant activities, followed closely by manufacturing, with metal and food industries being the primary tenants. This zone represents the single most extensive industrial location in the city that is not water-oriented.

Commercial: The Hastings-Sunrise District has a number of local shopping districts, at least one within seven blocks of every household. The only area that appears to be lacking in commercial facilities is the area in the northeast where steep slopes do not encourage pedestrian traffic. In the Thunderbird area there are two small pockets of corner stores, one concentrated at Broadway and Rupert Street, and the other on Cassiar Street and 2nd Avenue. The major commercial area of this district runs along the East Hastings corridor and extends beyond Boundary Road into Burnaby City and provides major facilities and services for the local community.

Zoning: The Thunderbird area has a general RS-1 zoning (single family dwelling) that defines the primary character of the neighborhood. However, the entire district of Hastings-Sunrise where the Thunderbird area is located currently is going through a period of change towards more intensive land use for manufacturing and wholesaling. As a result of new changes in zoning, land use in the Hastings-Sunrise District are zoned primarily CD-1 (Comprehensive Development); RT-2 (Two-family Dwellings) and C-1 (Commercial).

Residential Density (Net):

<table>
<thead>
<tr>
<th>Date</th>
<th>Population</th>
<th>Gross Area</th>
<th>Gross Density</th>
<th>Units Per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>1,617</td>
<td>1.12 acres</td>
<td>15 p/acre</td>
<td>3.5/acre</td>
</tr>
</tbody>
</table>

Residential Land Area: 50 acres
Net Residential Density: 32.3/acre
c) **Physical Frame.**  
The following section presents the physical characteristics of the urban area where the study cases are located. It defines the character of the community's open space, centres of activity and the main routes of pedestrian mobility.  

i) **Group I: McLean Park and Raymur Place Projects.**  
A quantitative analysis of the current land use in the south sector of Stratcona produces the following figures:

A) Residential 39.0%  
   Public Housing 1.3%  
B) Industrial Offices 7.5%  
   Retail Offices 0.5%  
C) Schools & Community Centres 4.0%  
D) Park & Public Open Space 3.0%  
E) Vacant Lots & Blocks 4.2%  
F) Parking & Streets 40.0%  

![Figure 5. Land Use.](image-url)
Morphology of the Grid and Block Typology:

During the last 80 years the physical characteristics of the urban frame (grid, block and buildings) in the south sector of Strathcona have been shaped by different physical conditions and social-political events affecting its urban morphology and building typology. In this sector the morphological changes which have occurred in its urban frame have affected the continuity of the grid and the division of some blocks. Parallel to these changes, the building typology has been affected by the introduction of a different building fabric into this sector.

The morphology of the south sector of Strathcona can be traced from its origins in 1850 with the first land divisions, followed later on by other subdivisions and re-assemblings of parcels of land. But it was not until the early 1900's that the south sector of Strathcona became integrated into the city's grid and its urban frame defined.

What gave the south sector of Strathcona its basic physical characteristics was the introduction of a 66-foot wide grid pattern which overlapped onto the irregular and sloped topography of this sector. Second, the blocks were subdivided into narrow but deep lots (22' x 122') and grouped into blocks of 17 to 20 lots (374 to 440 feet long).

The definition of the grid by mechanical means such as cutting and leveling to grade the streets was paralleled by the piling up of excess volumes of earth onto the adjacent lots on both sides of the street. This movement of earth has created lots 10 to 20 feet above the street level.
The social characteristics of the area, given its proximity to industrial wharfs and railways systems, made the south sector of Strathcona a transitory working-class residential development without any future for settlement as a community. Thus, small lots and few amenities were planned for this area. However, due to the rich ethnic mix, numerous religious and ethnic-cultural facilities were developed which strengthened the area's character as a community.

The social policy of Urban Renewal in the 1950's had a strong impact on this community, socially and physically, which affected the original morphology of the grid, the typology of the buildings and the residents' awareness of unity. In the late 1950's and early 1960's the area become the target for Urban Renewal. The demolition of entire blocks of delapidated residential dwellings, followed by the reassembling of land from various adjacent blocks into one, transformed some sections of the grid into dead-end streets. A similar transformation occurred with the new typology of the buildings erected where old ones had existed, i.e., Raymur Place and McLean Park. The materials, form, colors, configuration and single identity of the dwellings became over shadowed by the massive and hard texture of the new towers and buildings. The basic original typology of the buildings was exposed to major change as was the identity of the social community in this sector.

In the mid-1950's through hard work, unity and perseverance, the social community in the south sector of Strathcona won the fight against Urban Renewal Development. What was created was a strong community with large parcels of vacant land and two housing projects
(Raymur Place and McLean Park). The vacant land in this sector comprised of two empty blocks of assembled land is located on the west side between Gore and Jackson Avenues. It is bordered on the south side by McLean Park, which was built on the assembly of four blocks, including streets and lanes. Adjacent to Jackson Avenue to the east, the Strathcona school, community centre and play field were integrated into one block by the assembly of two blocks and one street (Princess Avenue).

On the east side, the largest assembly of land in a continuous block is the Raymur Place public housing project. It occupies four blocks from north to south, including streets and lanes.

There are also various pockets of empty lots spread along the blocks located on the east and south sides of this sector. In 1975 the south sector of Strathcona underwent a new change in its building typology. The subsidized N.I.P. Program for housing favored this sector and some of the empty lots were used for infill housing. The new building typology has varied from the single detached dwelling to multiple dwelling, but has maintained the scale, character and visual density of the original typology of the buildings in this sector.

Similar changes occurred to the typology of the buildings which affected the morphology of the grid. In 1974 the grid was once again modified. A couple of streets were closed to through traffic from west to east, Georgia and Union Streets, and north to south, Hawk and Keefer Streets, near McLean Park with the intention of assembling a linear park. The vehicular traffic was diverted from Keefer, Georgia and Union to the edges, Pender, Prior and Hastings, thus reinforcing
Group I: McLean Park and Raymur Place

Figure 6. Undeveloped Sites of McLean Park and Raymur Place (1954).
Figure 7. McLean Park (First Phase) and Raymur Place (Site Preparation), 1963.
Group I: McLean Park and Raymur Place

Figure 8. Developed Projects of McLean Park and Raymur Place (1976)
Keefer and Georgia Streets as pedestrian streets. Union was left as a secondary pedestrian street with a low vehicular flow.

Other factors have influenced the changes which occurred in the morphology of the south sector of Strathcona such as the Prior Viaduct (1968) in the south-west corner of this sector and the rezoning of Kiwassa from industrial to residential (1977). These changes are the direct result of continuous community and political pressure on this sector. Presently, the south sector of Strathcona is going through the pressures of a new cycle of social and political forces. They include, first, the effects of the 1982 building of Expo and sports facilities on the north side of False Creek; second, the continuous demand for affordable housing in the proximities of the C.B.D.; and third, the internal needs for revitalization and redevelopment of the vacant land in this sector. These forces, creating pressure upon the south sector of Strathcona, make it a zone in transition in which future changes might modify or re-establish the existing morphology and typology of its grid, blocks and buildings.

Public Open Space: The public open space has four functions: one as an open public amenity, the second as a controlled public facility, the third as a public visual connector of places and buildings, and the fourth as a pedestrian connector. The public open space in the south sector of Strathcona is characterized by the grid, block and usage relationship. The grid establishes the systems of pedestrian mobility. The block contains the public or private facilities, and the user is the human element responding to the grid and block organization.
The only central public open space with facilities and amenities for the community is the block where McLean Park is located and its adjoining linear park. The type of facilities provided in McLean Park are children's play area, wading pool, one large grassed area for any sport, and some amenities such as trees and shrubs on the east and west edges of the park. The adjoining linear park comprises the side-walks of two blocks along Hawks Street and the intersection of Georgia and Union Streets which are cut off to traffic. The amenities provided in this linear park are clusters of shrubs and trees with a few benches and a child's play area.

The Strathcona Community Centre and both the Strathcona and Seymour schools represent the second function of the open space as a controlled public facility. The block adjoining the community centre to the east is used as a sports facility. At the schools the controlled public facility in the open space is the playgrounds. Both the community centre and the school grounds have a controlled character but their open definition and continuous accessibility make them both controlled and
public at the same time.

For each of the above areas a predominant group of users can be identified. In McLean Park there are mostly mixed age groups; in the Strathcona Community Centre Sports Facility, young and middle-aged groups; and in the school yards, exclusively children and teenagers.

The third function of the public open space as a visual corridor linkingspaces and buildings is established by the grid, the massing of the buildings, and the topography of the area. From the highest points in the area the open visual corridors are located along Jackson Street, between Pender and Keefer Streets looking north at a 90° angle towards the Twin Lions mountain range and looking west at a 180° angle towards the downtown core of Vancouver.

These functions of the public open space, as a public amenity, public controlled facility, and visual corridor support the fourth function of the public open space, that of a pedestrian connector. Together these four functions of the public open space establish a system of links and connectors through the area and beyond. They also
reinforce the major pedestrian networks and define the connecting points of the public housing projects of Raymur Place and McLean Park with the grid.

A parallel system to the public open space interacting with the grid, block and user is the semi-private open space of residential ownership. This semi-private open space is defined by the building's setback facing the street and/or the lane which supports the character of the street. It also refines the quality of the visual corridor and provides amenity to the streetscape by way of front gardens, colorful fences, trees and steps and terraces. The public character of the semi-private open space is defined in terms of visual freedom, as perceived by the pedestrian walking on the street, by the open range of the visual corridor as defined by the facade of the buildings, not by their property lines. However, in the south sector of Strathcona the strongest variant of the semi-private open space as a visual extension of the street is the controlled character of communal-private open space in McLean Park and Raymur Place public housing projects. The
communal private open space of these projects functions as a controlled connector of spaces whose physical relation with the community and surrounding grid are alienated. This communal private open space at some points functions as a link between two points outside the project.

First, Pender Street in Raymur Place and Georgia Street in McLean Park function as controlled pedestrian thoroughfares in one direction, second, Georgia Street in Raymur Place is a visual frame without pedestrian connections, third, in a very few instances, Keefer Street in Raymur Place and Dunley Street in McLean Park are pedestrian links with limited visual connections.

In the internal organization of the public housing projects of McLean Park and Raymur Place, the function of the communal-private open space is defined by the building layouts and massing relationships to pedestrian paths. The immediate relationship between building wall and pedestrian path constrains the possibilities of a pleasant visual corridor. Similarly, the projects' layouts and the building massing in relation to
the surrounding grid limits the number of pedestrian links between project and community.

Centres and Nodes of Community Activities: The south sector of Strathcona has a continuous interrelation of activities taking place within its own borders and beyond these borders into the secondary districts. The centres of activity that determine the continuous interaction between the south sector of Strathcona and the surrounding districts follow two ranges of influence. Located in the north-west range are Chinatown, Gastown, Oppenheimer Park and the waterfront. On the south-east range, are False Creek Flats and Britannia Community Centre. Both places are strong magnets of activity for area residents.

On the other hand the internal centre of activity is divided into two nodes with accentuated polarities. The one on the east comprises the Strathcona School community centre and the public housing project of McLean Park. On the west the second node of activity is defined by the neighborhood of Kiwassa, Seymour School, Ray-Can Centre and Raymur Place public housing project. On a secondary level at an intermediate location
between the east and west nodes, the public park of McLean and the area's corner stores, institutions and repair shops define an intermediate centre of activity completely independent and open to both east and west extremes. The interaction of residents is not strongly interrelated, however, but rather polarized toward the extreme nodes. The polarity on the west is strongly supported by the major concentration of residents with a common ethnic background (Chinese) and their social, religious and cultural institutions (McLean Park Public Housing, cultural and religious centres). On the east the activity nodes are not homogeneous in terms of cultural or ethnic characteristics, but rather tied by the physical borders of their neighborhoods, such as Kiwassa and Raymur Place.

It is important to note that in the east the nodes of activity flow from, first, the decision of some residents who settled in this area to group together with other residents regardless of ethnic background or social status and to actively support neighborhood centres of activity, fostering the growth and rebirth of the Kiwassa neighborhood. Second, for some residents the choice of a place to live is limited and thus their
neighborhood or community centre is predetermined. Raymur Place exemplifies this limited alternative.

Nevertheless, Raymur Place residents recognize the Ray-Cam Centre as their node of community activities. Their affinity is partially associated with the kind of services provided by the centre (nursery, workshops, counselling programs); the location of the tenants' association food co-op in the same building; and the Ray-Cam Centre location on the north edge of Raymur Place.

Pedestrian Mobility: The scale of the south sector of Strathcona is convenient and suitable to pedestrians given the proportion of its area, approximately 5 blocks by 10 blocks, and the fact that heavily used vehicular arterials abut its perimeters creating an inner pedestrian realm.

In the south sector of Strathcona the streets with major pedestrian flows are oriented to follow either an east-west or north-south axis. On the east-west axis there are three major pedestrian routes, Keefer, Pender and Union, but only one, Keefer Street, has open continuity reaching the eastern edge of the sector. The continuity of Pender and Union Streets beyond Raymur Place is broken, by the building layout of Raymur Place and by the fence bordering the Burlington Northern right-of-way.

There are two advantages that Keefer Street has over Pender and Union Streets. First, the relation between the street axis and the building layout at Raymur Place allows Keefer Street to continue through the project. Second, the street connects with the existing bridge where the axis of Keefer Street is interrupted by the Burlington Northern right-of-way. Hence Keefer Street becomes the only pedestrian link in the south sector of Strathcona that connects the west side, with Chinatown and McLean Park to the east side, and the Kiwassa neighborhood, Seymour School
and Raymur Place. Keefer Street's character as a pedestrian spine is reinforced by connecting the Strathcona School and Community Centre, McLean Park and its linear extensions along Hawks and Prior, and several other small social, ethnic and religious community institutions.

On the north-south axis there are four pedestrian routes, Jackson, Gore, one block of Dunley Street, and Campbell Avenue. Jackson, Gore and Dunley Streets are the main links to the northern sector of Strathcona, crossing over the Hastings Street corridor to Oppenheimer Park. These three streets, however, do not connect on the south end of their axis to any of the industrial parks located in this area.

Campbell Avenue has a secondary function. It serves as an internal pedestrian collector directing flow to Hastings Street on the north and to the sports field located across the Prior Street corridor at False Creek Flats on the southern end.

The most relevant characteristic of both axial systems, north-south and east-west, is that they function as main physical links to the sur-
rounding community which are used continuously by residents of the south sector of Strathcona as well as by outsiders because of their convenience and pedestrian accessibility.

Traffic Circulation and Bus Stops: The south sector of Strathcona is bounded by streets with some of the heaviest vehicular traffic in Vancouver. On the north is Hastings Street, on the south Prior Street connects with the Georgia Viaduct, and on the west is Main Street, all of which form the primary routes used to enter downtown Vancouver from the East side. Gore Street on the west is part of this primary network as is Campbell Street on the east, but these two streets are secondary routes compared to the volume of traffic carried by the major streets. Except for the Strathcona residents' driving patterns in and out of their residences, the internal street systems do not carry much traffic. The proximity of the area to Chinatown shopping areas increases the number of vehicles and congested parking.
The physical frame defined in the south sector of Strathcona by those arterial and secondary collectors of the City's major traffic networks produces two situations. First, it forces pedestrian mobility on an east-west axis since the north and south traffic thoroughfares create barriers for pedestrian mobility in those directions. Second, the same north-south thoroughfares provide the residents direct access to the community network of bus systems. Several bus stops are located along Hastings, Prior, Gore and Main creating connecting channels with the Greater Vancouver Regional District.

ii) Group II: Skeena Terrace Public Housing Project.

The physical characteristics of the area where the Skeena Terrace Project is located are given by the current land uses of this district (Hastings-Sunrise). The immediate physical frame of land uses surrounding Skeena Terrace defines the character of this area (Thunderbird).

The following relation of land use in terms of percentages of the total land in the Thunderbird area produces the following figures:

A) Residential Public Housing 45%  D) Parks & Public Open Space 3%
B) Industrial Offices 10.4%  E) Vacant Lots & Blocks 2.5%
C) Schools & Community Centres 2.7%  F) Parking & Streets 26.8%
Morphology of the Grid and Block Typology: The original grid traced on the Hastings townsite in 1863 has remained as the main organizing land pattern, with only a few changes in the form of the assembling blocks to create parks, or, in the 60's to create public housing projects. The morphology of the Hastings-Sunrise district traces back to its original settlement in 1863 as a community independent from Vancouver City. It was the first permanent settlement on the Burrard Inlet designated in 1869 as the Hastings Townsite. As the neighborhood began to grow,
in comparison to Vancouver, it had the first road, the first hotel, the first subdivision, and the first ferry between Burrard Inlet and Victoria. In 1888, 160 acres were donated by the provincial government to the City where the Pacific National Exhibition is now located. In 1911, the town-site was amalgamated with the rest of Vancouver.

Rapid subdivisions followed and Hastings-Sunrise developed into a major residential community. As the population and the area increased with new blocks and houses and a varied ethnic mix of Europeans the business strip along Hastings Street grew outward from Vancouver, and today stretches beyond Boundary Road into Burnaby City.

There are two basic width patterns of the grid in the Hastings-Sunrise District, that of the original settlement at the edges of the Inlet, 99 feet wide, and with the expansion of the settlement southward, 66 feet wide. The topography of the district is strongly accentuated by two promotories north and south, and two depressed ridges, one located between the two elevations and the other bordering the east side of both elevations. The subdivision of lots on the block are regularly sized, 33' x 120' and 33' x 125', which is typical for east Vancouver. The blocks are 370 - 400 feet long and their orientation is mostly east-west in order to gain advantage of the slope and the views over the Burrard Inlet and the northern mountains beyond the Inlet. The whole Hastings-Sunrise district has a very rigid grid pattern of subdivision. The P.N.E. Tower represents the only focal point for orientation.

In general the land rises gradually from the waterfront towards the south with several rises in the height of the land near the southern boundary. The steepest slopes are toward the north-east.
Although homogeneous in its built form, the Hastings-Sunrise District is not a uniform neighborhood. The district is dominated by several major traffic arterials that have contributed to the creation of island communities in the district. These sub-areas are separated from each other both physically and socially. As such the Hastings-Sunrise district comprises a community with 8 sub-neighborhoods.

Among the various land assemblies in this district, the most relevant is the seven and one-half blocks joined together to create Rupert Park on the south-east corner of the central area of Hastings-Sunrise. The other major land assembly occurred in the early 1960's with Urban Renewal. Three and one-half blocks located in the Thunderbird area were joined to build up a public housing project (Skeena Terrace), and in close proximity to it, two more blocks were assembled to build up an elementary school for the area. The common characteristics of these major land assemblies were the steep slopes that characterized these north-south and south-east areas. At that
time (1960) there was not much housing built in these areas because of the slopes.

Today there exist various pockets of empty land and City-owned property. The City property is mostly located in the Adanac area (central-east) near Adanac and Rupert Parks. The other pocket is located at the south-east corner of the Thunderbird area and adjacent to the TransCanada Highway and consists of approximately 2.5 blocks of privately-owned vacant land.

The building typology of the Hastings-Sunrise district has not changed dramatically. However, Urban Renewal introduced the first variant in housing form and type of home ownership which today exists isolated from the prevailing housing typology. Current trends of change in the Hastings-Sunrise district show that single detached housing has not been replaced by apartment units, but more often by other types of buildings which are more compatible with the overall community housing typology, such as row-houses and duplexes.

One factor has influenced the present morphology of the Hastings-Sunrise district. The branching of Cassiar Street eastward into the TransCanada Highway has limited the possible development of residential accommodation adjacent to the Highway.

As of 1980, the Hastings-Sunrise District is a neighborhood going through a period of change, as indicated by the alteration of land uses over the past few years. Most of the changes are related to the replacement of housing typology. There has been a number of land subdivisions and assemblies, as well as the construction of retail and office buildings, gas stations, day-care centres and warehouses. It must be noted that, in spite of these changes in land use, the number of single-family dwelling units
built to replace the older ones has increased 26.5%, resulting in a more intensive use of land and new housing typologies introduced into this district.

The building typologies affected by changes in the use of land are located mostly in the north-western and south-eastern corners, the first from single-family to multiple-family development and the second from light industrial to retail and warehousing.

The future development of the Hastings-Sunrise district will apparently reinforce the commercial spine along Hastings Street and the central area with retail and commercial land uses. Meanwhile, housing development is strongly oriented toward the northern edges of this district. The current information on housing indicates that new intensified development in the area is expected as the land value escalates and the family housing accommodation situation becomes more of a problem. The Hastings-Sunrise district has potential for housing accommodation since it has a low density of single detached homes which may eventually change its original building typology to consolidated forms.
Figure 10. Undeveloped Site of Skeena Terrace Project (1955)
GROUP II: SKEENA TERRACE

Figure 11. Developed Project of Skeena Terrace (1963)
Group II: Skeena Terrace

Figure 12. Skeena Terrace Project (1976)
Public Open Space: Public open space in the Hastings-Sunrise district is characterized by the random location of parks, community facilities and the centralized regional facility of the P.N.E.

Circulation arterials creating eight contained sub-areas divide the district physically. Each one of these sub-areas has developed its own open space facility, either a park or a community centre outdoor area.

In the Thunderbird area the open space facilities used as public amenities are located outside its boundaries at the edges of this sub-area. On the west, as part of the central area of this district, Sunrise Park provides outdoor, recreational facilities to the neighbors of the central and Thunderbird areas.

Similarly, on the northern boundary with the Adanac area, is Thunderbird Park, a small park comprised of two half blocks facing First Avenue. In addition, the largely developed Rupert Park is located in the Adanac area on the south side of 2nd Avenue, east of the Trans Canada Highway.
Thunderbird Park has some landscaping and a small play area for children, but no benches or special arrangements to create community interaction. The neighboring parks provide large numbers of outdoor facilities for teenagers, adults and children. The only inconvenience is the hazardous traffic arterials that have to be crossed before reaching these facilities. In the west, Sunrise Park is separated by the continuous traffic on Rupert Street. In the north Adanac Park is separated by the heavy traffic flow on 1st Avenue which leaves Thunderbird Park as the only immediate resource of open space with a character of public amenity within the Thunderbird area.

Open space with the character of controlled public facility does exist in the Thunderbird area. For instance, sports playground areas, such as the one on the Thunderbird School grounds, allow for a limited number of sports activities at any time of the day. This playground area is defined by the adjoining block on the north side of the Thunderbird Elementary School. It provides an extra facility for the Skeena Terrace public housing project located across the street on the east side. It also defines a focal amenity to the Thunderbird area.
Another characteristic of the public open space in this area is the linking of spaces and buildings by means of visual corridors. In the Thunderbird area, the open visual corridors are oriented north-east toward the magnificent view over the Inlet and the northern mountains. These visual corridors are highly favored by the topography of this area which creates a north-east escalating configuration of the blocks and allows full views from almost any angle, street or lot.

The highest points in this area are located almost at the site of the Thunderbird School and Skeena Terrace project. There are no framed visual corridors due to the escalating organization of the blocks.

There are few landmarks in the Thunderbird area. The 10-storey building in the Skeena Terrace public housing project is the most prominent, followed by the dense massing of buildings of the Beulah Gardens Seniors' housing project on Rupert Street and 5th Avenue. A possible third landmark, because of its different typology of buildings, is the Thunderbird School, although it can't be seen from a distance as can the other two landmarks.

The relationship of the characteristics of the open space as public amenity, public controlled facility, and visual corridor establishes the school's sports field as the most dominant open space in the Thunderbird area. From this location the connection with Sunrise Park on the west and Adanac Park on the north, it is organized with different types of facilities for different age groups. Visual links or connectors between these two parks are null. The topography and the traffic makes it difficult for seniors and children to reach them, which turns Cassiar Street into the internal south-north physical connector in the Thunderbird area.
There is a direct link from the school to Skeena Terrace Project. There are also three more links from the school sports ground to: Broadway Street, two blocks south; to 1st Avenue, 6 blocks downhill to the north; and to Rupert Street on the west.

Cassiar Street and the by-passing route through the sports facility generate the two main pedestrian accesses to Skeena Terrace housing project.

Finally, the relationship existing between public open space and semi-private open space has an important function in defining the street character. In the Thunderbird area the street character of front setbacks with a fence and garden is almost continuous. However, there are two variants. One occurs where the character of the single dwelling has been modified into multiple dwellings such as in Skeena Terrace and Beulah Gardens housing projects. The second occurs at the edges of this area where educational, retail or commercial services, corner stores, and the elementary school exist.

In Skeena Terrace the relationship between semi-private open space and public open space (front yard to street) is reinforced by the character of the housing project, along with the internal vehicular road dividing the project in two. While this relationship exists peripherally, the housing arrangement creates a very tight and secluded communal-private open space without a direct relationship to the surrounding street.

The access into the inner cluster of the project has a private character that discourages outsiders from using it as a thoroughfare, nor does it permit visual corridors through.

The Beulah Gardens housing project does contain setbacks to the street. However the group of dwellings takes the configuration of one
building without inner spaces. The commercial and retail places are few and their zero lot lines, which are characteristic of this type of land use, function to accentuate the nodes of activity of the community.

The major discrepancy between Skeena Terrace and the rest of the community's public open space is the lack of lane service and the lack of accessibility from the surrounding streets to the inner clusters of communal-private open space.

Centres and Nodes of Community Activities: The Thunderbird area's interrelating activities within the community are determined by the influence of some nodes and centres of activity. There are three zones of influence that affect and polarize the interaction of activities from the Thunderbird area into the surrounding community. First, the furthest zones of influence are located north and east. On the north are the various elementary schools, the major commercial zone of this district along Hastings Street and the P.N.E. On the east are the Burnaby City
commercial strip on Lougheed Highway and McDonald's on 1st Avenue and Boundary Road.

On the south-west, the second zone of influence comprises the Vancouver Technical School on East Broadway, the group of commercial and retail facilities at this location, and the elementary school, Maquinna Annex. On the west are a major commercial centre at the intersection of Rupert Street, Cassiar Street and 1st Avenue, as well as the Sunrise Park facilities. The east, north and west zones of influence are the predominant nodes of attraction to the Thunderbird area residents.

The internal centres of activity in the Thunderbird area are divided into three centres, two of them being polarized to the south-west and north-east edges, the third acting as the central unifying activity centre for the other two. The south-west centre of activity comprises a small group of retail and commercial facilities at the corner of Rupert Street and Broadway. The north-east centre of activity is defined by a small commercial area on 2nd Avenue and Cassiar Street and the two parks,
Thunderbird and Adanac at the edges of 1st Avenue.

Finally, the third centre is defined by the Thunderbird Elementary School and the playground facility attached to the school ground which establishes the central character of the Thunderbird area.

The interactions of residents with the three nodes of activity in the peripheries of this area are polarized first toward the commercial facilities on the north and east sides, and second toward the high school and small elementary schools on the south-west. These internal centres of activity are almost totally supported by the Skeena Terrace public housing residents, school, corner stores, and the small Thunderbird Park. These are not ethnic or resident majority group preferences reinforcing a given node of activity.

Since the confinement of this area is a result of the surrounding traffic arterials, the internal centres of activity function at their best since they become the first choice and nearest centres to the residents of this area.
Pedestrian Mobility: The scale of the Thunderbird area is defined by the encircling traffic and its sizeable pedestrian length, approximately eight blocks by three blocks. Although the character of this area is not pedestrian oriented, the internal character of the neighborhood has a compatible low traffic flow with mobility oriented towards pedestrians.

The major internal pedestrian flows in the Thunderbird area follow along a north-south axis or exclusively towards the west. On the north-south axis the main pedestrian flow takes place along Cassiar Street and reaches both bordering edges north and south (1st Avenue and Broadway Avenue).

The same central north-south axis branches out toward the west defining a secondary axis in this area. The main secondary axes to the west are 3rd, 5th and 8th Avenues, followed by any of the lanes and avenues in between them. The major limitation of these secondary axes
oriented west is the truncation of their continuity on the east by the Trans Canada Highway and partially by the building layout of Skeena Terrace.

Therefore, pedestrian mobility in the Thunderbird area is compacted into one central north-south axis, and a number of small branches from this central axis oriented west.

Pedestrian mobility occurs over the whole area. However, the main spines of pedestrian flow create a fixed system of pedestrian mobility.

Traffic Circulation and Bus Stops: The periphery of the Thunderbird Area is physically framed by intense traffic flow: 1st Avenue on the north; Rupert Street on the west; and the Trans Canada Highway on the east. All these arterials are key traffic connectors linking the City of Vancouver with its eastern boundaries and the municipality of Burnaby.

The intensity of these traffic arterials around the Thunderbird area confines the function of the internal streets as service routes feeding into the area or connecting the community vehicular traffic out
of the area and into the city traffic system. However there is one internal route, Cassiar Street, that functions as the main central distributor and connector with the surrounding traffic. Cassiar Street connects the north edge with the south edge, functioning as the internal vehicular spine of this area. Cassiar Street sprawls towards the west creating a soft vehicular network of internal circulation. These networks connect the core of the Thunderbird area with the traffic arterials of Rupert Street on the west.

Parallel to Cassiar Street towards the east, Skeena Street reinforces the internal north-south vehicular corridor by its connecting with Herman Drive on the south edge of this area. Herman Drive is one block long and connects Cassiar Street at a 45° angle with Skeena Street. It crosses right through the public housing project of Skeena Terrace and divides it into two well defined blocks.

The confined character of the Thunderbird area defines a three-edged precinct with an internal north-south pedestrian and vehicular axis that maintains links with the western edge. The eastern edge of this precinct is totally blocked by the Trans Canada Highway. Pedestrian mobility is necessarily affected by the traffic frame. Thus the three edges of this area with access to public transportation facilities (bus stops) become the focus of pedestrian mobility in and out of this community.

The main location of the bus stops at the edges of the Thunderbird area are: 1st Avenue and Cassiar Street on the north; Broadway and Cassiar and Skeena Streets on the south; and Rupert Street, Broadway, 7th, 5th and 2nd Avenues on the west. On the east there is no access to any kind of transportation.
5: Research Phase II: Project

Study Cases

McLean Park:
Phase One: 1963
Phase Two: 1970
No. of Units: 455
(seniors: 282)
(families: 173)
Population: 1,062 (Max.)
(seniors: 404)
(families: 658)

Raymur Place:
Built: 1967
No. of Units: 375
(seniors: 135)
(families: 241)
Population: 1,117 (Max.)
(seniors: 177)
(families: 940)
Skeena Terrace:
Built: 1963
No. of Units: 234
(seniors: 69)  
(families: 165)
Population: 758 (Max.)
(seniors: 96)
(families: includes single parents 662)

Cross-Section of Sites of Study Cases

- McLean Park
- Raymur Place
- Skeena Terrace
5. Research Phase II: Project

a) Open Space Organization

McLean Park

Site

[Diagram of McLean Park with labels for various areas such as parking, playground, seniors' tower, and row houses.]
McLean Park

Pedestrian Cluster & Playground

Pedestrian & Vehicular Cluster with Play Facility

Pedestrian Cluster & Play Area

Pedestrian & Vehicular Cluster

Circulation
Raymur Place

Clustering

Pedestrian Cluster  
C.1

Circulation & Play Areas  
C.2

Pedestrian & Vehicular Cluster  
C.3

Pedestrian Cluster & Play Area  
C.4

Circulation  
C.5

Pedestrian Cluster: Playground
Skeena Terrace

Clustering

Pedestrian Cluster: Circulation & Play Areas

Random Grouping

Pedestrian Cluster & Play Facility

Open Clusters: Circulation & Playground
6. Research Phase III: Mobility

a) Mobility and Use of the Open Space in the Study Cases

McLean Park

Pedestrian Flow

Centres of Activity and Zones of Influence
Zones of Conflict and Selection of Settings

C.2. PEDESTRIAN & VEHICULAR CLUSTER

- Access to cluster
- Short-cuts through parking and cluster areas
- Direct access to seniors' tower
- Main pedestrian circulation route
- Secondary circulation routes into cluster

C.4. PEDESTRIAN & VEHICULAR CLUSTER

- Main circulation route
- Parking area below circulation area due to slope of the site (4 feet difference)
- Access to project, # to central circulation route
- Access to senior # & pedestrians' tower
- Cul-de-sac & service lane

Problems:
1. Pedestrian & vehicular traffic interference
2. Location of main entrance to seniors tower directly facing service lane
Zones of Conflict and Selection of Settings

C.1 PEDESTRIAN CLUSTER

- Main Entrance to Project Seldom Used
- Children Play Area and Teen Hang-Out Place
- Central Circulation (Main) Area Without Pedestrian Circulation to a Point Outside of Project, Overcrossed by Direct Thoroughfare with Defined Direction (Continuation of)
- Central Mall Used by Children and Teenagers (Extraneous Impact)

Conflict:
- Conflict: Unplanned Route in Out of Project Crossing Over Parking Area (Short-Cut)
- Problem: Children & Pedestrians Taking Over Vehicular Area

C.2 CIRCULATION

- Garage Bins
- Central Mall Circulation Entry
- Senior's Entrance Main Access
- Short-Cut Back Access to Senior's Entrance

C.5 PEDESTRIAN CLUSTER: PLAYGROUND

- Pedestrian Short-Cut Over Play Ground Area
- Direct Access to Project Seldom Used
- Parking & Garbage Bins
Skeena Terrace

Zones of Conflict and Selection of Settings

C.1 Pedestrian Cluster: Circulation & Play Areas

Conflict:
- Main pedestrian thoroughfare in direct proximity to dwellings
- Problem: Lack of privacy and protection in front of main entrance to units
- Conflict: Pedestrian route (children's play area)
- Problem: Undefined play area

C.5 Pedestrian Cluster: Play Facilities

Conflict:
- Pedestrian route crossing over centralized play area
- Problem: Children's extended zone of activities and undefined pedestrian routes.

Internalized access to units
Slope on site planted with dense vegetation
Parking area (10 feet) above cluster's level
Garbage bins
Bridged access to building
Slope on site
7. Research Phase IV: Physical Settings

a) Summary of Settings with Conflicts in the Study Cases

McLean Park

Open Space Clustering

Circulation Routes

Mobility and Static Activities (Conflicts)

Selected Settings

Pedestrian & Vehicular Clusters.
Raymur Place

Open Space Clustering

Circulation Routes

Mobility and Static Activities (Conflicts)

Selected Settings

Pedestrian Cluster  Circulation  Pedestrian-Vehicular Cluster  Playground
Skeena Terrace

Open Space Clustering

Circulation Routes

Mobility and Static Activities (Conflicts)

Selected Settings

Pedestrian Clusters.

Play area.
CHAPTER V

METHODOLOGY FOR IDENTIFICATION OF MISFITS

Introduction

The previous chapters have focussed on the discussion, analysis and direct research of the factors affecting open space that tend to hinder or maintain continuity and relatedness between residential development and its surrounding context.

Within the residential environment the particular conditions under which the social and physical isolation of some public housing projects produce discontinuity and unrelatedness have been examined. Their use as study cases has been fruitful in producing references on the causes of misfit between a project and its surrounding context, as well as producing relevant insights into the internal organization of the project. These insights can be of help to architects and planners in the design and planning or reintegration of residential environments.

The purpose of this chapter is to place both the research method and the findings derived from the study cases in the perspective of an overall urban design process which emphasizes key points in the integration of a project with its surrounding context. Secondly, using key points as design aids connecting the surrounding context with the internal organization of the project layout, introduces continuity and relatedness within the project organization.

Finally, the chapter points out where and how the architect and planner can incorporate the concepts of continuity and relatedness in the
integration or design of urban residential environments. A strategy to introduce continuity and relatedness in residential environments is developed and a framework for research and identification of the causes of misfit between a project and its surroundings are outlined.

1. Urban Design: Overall Framework

The urban design process represents the overall framework in which the implementation of a strategy to create continuity and relatedness can be totally achieved. The urban design process is used in implementing the strategy because of the comprehensiveness of its approach and its ability to deal with determinate phases of the process while the rest is maintained integrated as a whole.

In the urban design process the strategy or approach to solve a problem is carefully developed before preparing a design solution. It is necessary to define the problem to be solved. For this reason the process of defining the problem becomes essential and influential to the solution that will be proposed.

For the purposes of this study, however, there is no intention to develop any model to implement that process. Rather, the goal is to take the preliminary step of identifying and defining the levels of the problem from which recommendations can be developed to reach a solution.

The following models of the Urban Design Process are presented in order to clarify the various levels at which the Design Strategy is relevant.
In the first illustration (Figure 1), an over simplified concept of the urban design process\(^1\) is seen as a model for environmental change.

Figure 1. Urban Design Process Model: For Environmental Change (simplified interpretation by Author).

In this model, the function of urban design is to manage the effects of environmental change over time. It suggests that designing for continuity requires identifying how some qualities of the environment will change and how that change can be managed through design within a theoretical framework.

Figures 2 and 3 present the Urban Design Implementation Process from two parallel points of view.

In both processes the stages of implementation emphasize the decision-making process of city management, providing feedback to reformulate their scope and action plans.

\(^1\)Dennis Michael Ryan, "The Urban Design of Continuity," Ph.D. dissertation in Architecture; faculty of the Graduate School of Arts and Sciences, Univ. of Pennsylvania, 1976, p. 245.
Also in each diagram the phase or stage in which the strategy for integration is formulated is made clear.

The diagram in Figure 2 was developed in a modified form by M.R. Wolfe and R.D. Shim in "Urban Design Within the Comprehensive Planning Process," April 1970, as presented by the University of Hawaii in Urban Design Primer Hawaii.²

The diagram in Figure 3 was developed by Laurence S. Cutler and Sherrie S. Cutler in Recycling Cities for People.³

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2. The Nature of the Problem

Contextual discontinuity and social isolation in urban residential environments are the two most common factors affecting the integration of some projects with the spatial and social community of the city. Ideally, if the form and character of a building is designed to fit compatibly with its surroundings, the physical relation needed to maintain continuity will flow from that design. Although this is the most common approach to continuity in many residential environments, its contribution in enriching and strengthening the character of the urban context and its integration with residential environments can be limited and may be reduced to a mismatch of geometric forms. While this approach can lead to the social approval of the community, approval is granted mostly on the appeal and logic of the visual relation between the aesthetics and built form of the project with the surrounding community's character.
However, this approach can fall short in fostering spatial relatedness with the urban context and social interaction among people. Thus, the missing spatial and social counterparts of physical continuity in the urban residential environment can be the most important factors in creating the sense of neighborhood, community and urbanity in cities.

Both the literature search and direct research described in previous chapters suggest that the failure and difficulty to coordinate physical continuity with spatial and social relatedness in the integration of a project are due to two main factors:

One - the social nature of people's character, represented by their compatibility or incompatibility in the residential environment; and

Two - the physical response of densification to social issues of privacy and territoriality which enforce the separation of the public from the private realms.

Although both factors are legitimate in their essence, their individual characteristics must be understood and coordinated with those of physical continuity in order to develop a contextual and social integration of the project.

With the first factor, homogeneity and heterogeneity are the determining characteristics of interaction and social relatedness. Both are the products of exposure and social contact among people. On one hand, homogeneity is scarce. It occurs randomly and by choice. It tends to bring together people with similar interests and creates relatedness. On the other hand, heterogeneity is more common and tends to enforce individuality and separation among people. Thus, in order to promote social relatedness, a project has to respond to the social character of the
community as determined by the people on two levels of interpretation. One, the physical image of the community is influenced by homogeneity in terms of socio-economic or cultural/ethnic characteristics, or by the heterogeneity of people and ordinariness of their community image. The second occurs at the level of individual interaction. The integration of a project's physical form with the social character of the community can be achieved by responding to the physical image of the community, regardless of the social characteristics of the project residents. However, the problem rests on the particular differences between homogeneity and heterogeneity of the project and community residents. As both social poles exist within the project and community, it makes their social interaction difficult to forecast.

With the second factor, spatial relatedness is the most common missing link between the social and physical contexts of the project and community. While the character of spatial relatedness is physical and responds to both project and surrounding context, its function is social and responds to the socio-spatial domains of the city.

Spatial relatedness in the project and community represents the interface between public and private realms, that of the semi-private realm. Usually spatial relatedness is focussed within the project rather than extending its function and character into the surrounding context. This is due to the changing patterns of the residential block which are affected by densification and the need to intensify, in these types of projects, individual's privacy and the project's territoriality. The resulting condition of the project is an emphasis on the particular needs of a group, while the social needs of the group as part of the community
are left aside by emphasizing the social heterogeneity of the project with the community. Thus the spatial relatedness within a project can be developed into project-community relatedness by emphasizing the physical-spatial relatedness of the project with the community to create contextual continuity. Regardless of social heterogeneity, the probabilities of developing social interaction between project and community residents become enhanced by emphasizing contextual continuity.

From this exposition of the social and spatial relatedness characteristics which support the integration of a project with its surrounding context, it can be established that neither one can achieve such a task alone. They are inter-dependent with the physical continuity of form. Together, they create a system which relates the project with the community's social and physical character to promote interaction. Although their relationship can be successful at integrating the project in physical and spatial terms within the community, the successful interaction of people can only be expected to happen by choice and as a response to the opportunity that the project presents for spontaneous social interaction.

Furthermore, the integration of the project can develop contrasting variations with the community depending on the compatibility or incompatibility of the three components that make up continuity and relatedness--social character, physical form, and socio-spatial relatedness. In some cases, socio-economic characteristics between project and community overemphasize the differences. The range of these variations can be represented in the following diagram.
Figure 4. Project - Community Relatedness.

In all these relationships between project and community, how people respond to the project—as observers, active performers, or individuals—is the determining factor of its social integration with the community.

While people's perception of the project and its residents influence the degree of social relatedness in the community, their activities and mobility patterns contribute to enforce or weaken the spatial relatedness between project and community. In both circumstances the effects of people's perception and activity are interdependent and contribute to sustain the socio-spatial relatedness of the project with the community.

Therefore, even though the project's built form might blend with the image of the community's social character and interaction, it is possible that an inadequate physical treatment of the socio-spatial realm of the project may negatively influence people's perception and activity between community and project, contributing to a poor integration of the project.

Furthermore, if this situation is coupled with a contrasting socio-economic resident mix, the integration between project and community will
never occur.

Thus, the integration of project in the community depends upon the perceived character and experienced order of the socio-spatial realm, creating social and physical propinquity between the urban environment and the project's private realms.

3. Project Integration Strategy

The socio-spatial realm functions as a filtering system into the project and as a linking system with the surrounding context. While its filtering characteristics are determined by physical interventions which shape their perceived and experienced character, its linking characteristics are physically bounded. Thus, open space is the common area where use and function affect the socio-spatial realm.

The focus on the use of the open space as the essential physical characteristic to introduce continuity and relatedness presents three advantages:

One, the open space is a multiple function setting which is adaptable to the needs of those using it and also able to encourage relatedness;

Two, the open space is a natural connector of places, people and objects and has the advantage of being able to link social and urban physical domains;

Three, the system of open space provides the physical framework where continuity and relatedness can be built upon to support the project's integration.

The use of the open space system to develop a strategy to integrate a project with its surrounding context allows for expansion of the range of
integration from local to contextual. In pursuing this type of integration an Urban Fit Strategy will be employed.

Using an urban fit strategy to integrate a project with its context has three advantages:

First, by identifying the effects of urban issues and the influence of centres of activity shaping the urban context, the project gains an awareness of the forces influencing its integration in a broader way. It becomes related with local issues and forces that are part of the urban level of continuity and relatedness. Thus, the project's integration ceases to be isolated and serves to enhance the urban context.

Second, by establishing the contextual level of the city as the foremost influence on the project, the filtering of those influences through lower contextual levels to the project helps to narrow down priorities in the structuring of continuity and relatedness; it reveals areas of social and physical contact between people, places and the context.

Third, by identifying the connecting points of the context and establishing priorities, the project's layout gains direction in its integration with the context, and, equally, can be influenced to respond with continuity and relatedness within its internal organization.

Thus, the use of the open space system becomes the essence of the project's urban fit strategy and also of the organization of its internal layout. This double purpose of the open space in the Urban Design Process facilitates, by correlation, the identification of the physical characteristics of continuity and relatedness. It supplies information for design criteria in the project's layout.
Further, on the theoretical level, the fit strategy establishes the urban open space system as the setting of the environmental qualities affected by stability and change; as well, it is the ultimate zone of impact receiving the effects of the environmental qualities. In other words, the open space system is both a container and recipient of those environmental qualities within. This is illustrated in Figure 5.

![Diagram of Forces to Produce Change and Stability](image)

**Figure 5.** Location of the Urban Fit Strategy in the Model of Environmental Change.

### a) Project's Urban Fit Strategy

The project's Urban Fit Strategy takes as a point of departure the basic assumption that if there is to be an Urban Fit between site and context, there must first be a spatial connection between them. Thus, the main thrust of this strategy is the use of open space as a constant factor in the urban context creating spatial continuity and relatedness.

However, the Urban Fit of a project depends on many particular factors related to the location of the site, such as community character, zoning ordinances, lifestyle of future residents, rather than just physical connections with the surrounding context. This situation tends to modify the initial assumption of the strategy and broadens its scope to include the
implications of social, community, environmental and political factors influencing design decisions in the character of the open space, notwithstanding the participation of people, which affect the implementation of the Urban Fit.

Thus, restating the premise on which the Urban Fit Strategy is based: If there is to be an Urban Fit between site and context, there must be first a spatial connection between them that is capable of maintaining physical continuity and creating community relatedness, while fostering social interrelatedness among people.

While this premise focusses on the aims of the strategy, it also defines the meaning of the Urban Fit and introduces the duality of its concept. The Urban Fit, on one hand, physically promotes the linkages of spaces, places and buildings within a frame of continuity, while on the other, socially aims to relate people on a personal level and through social issues of community interest.

Thus, analyzing the character of the social fit, it is clear that at the personal level the difficulty in designing or identifying the conditions of a social fit in our pluralistic and heterogeneous society is utopian. This means that the aim of the community is the possible social fit of the group rather than the individual. Moreover, this level of the social fit reinforces the social character of the physical context as the unifying point for both social and physical fit, and restates the basic premises of this urban fit strategy, that physical continuity can develop relatedness and foster social interrelatedness.

The use of the terms Fit, Misfit and Good Fit are used to refer to a particular type of open space connection in the urban context. Fit refers to the potential connection of the project with the context. When
the integration or connection between project and context has been achieved, it is referred to as a Good Fit. When there is no connection at all between them, this lack of continuity and relatedness is called a Misfit.

The most common circumstances under which a Good Fit or a Misfit occurs is at the zones of interface between a project and its local context.

While the development of the project's Urban Fit depends on the effects and influences derived from the surrounding context, there are two levels at which those effects and influences have to be identified before determining any type of Fit between them. One generally relates to the urban context (the city); and the other particularly relates to the project's local context (neighborhood, community, district, or simply a well-defined sector of those three).

It should be pointed out that the development of a total (environmental, physical, social and political) Fit between a project and surrounding context is a very complex task which can only be dealt with in the overall framework of the Urban Design Process. Therefore, the urban fit strategy of the project comprises only the most essential socio-spatial characteristics that are helpful in determining the project's integration with the surrounding context (local and urban). Its aim is to respond to the present concerns and develop a partial fit between project and its local context which in time can be the basis for a total fit.

For this reason the implementation of the urban fit requires an organizing framework which can combine both the Open Space's physical system maintaining continuity, and the Social System of interaction creating relatedness. Furthermore, it should incorporate people's
behavior and activities as the sources of relatedness and determining
factor in achieving the Urban Fit between project and context.

Thus, from the Urban Fit Strategy, the physical characteristics
of the urban open space that maintain continuity between project and
overall context are of two types: One, as connector of buildings and
places, and the other, as a setting of activities, facilities and
services (node). Furthermore, they are related to the urban context at
three levels: Overall (Urban), Local and Project.

<table>
<thead>
<tr>
<th>Context Levels</th>
<th>Overall (Urban)</th>
<th>Local</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectors</td>
<td>Grid</td>
<td>Street</td>
<td>Mall</td>
</tr>
<tr>
<td>Nodes</td>
<td>Facilities &amp; Activity Centres</td>
<td>Facilities &amp; Activity Centres</td>
<td>Cluster Character</td>
</tr>
</tbody>
</table>

Figure 6. Physical Characteristics of the Open Space (Maintaining Continuity).

Similarly the social system of interaction in the Open Space
creating relatedness can be determined as being dependent on the social
and political issues requiring the participation of people. These issues
also respond to the same three contextual levels of the Fit-Overall
(Urban), Local and Project.
Incorporating people's activities and behavior becomes essential in determining the main connections to centres of activity, facilities and services from within the project to any of the other contextual levels established above, Overall (Urban) and Local. The participation of people as motivating and defining forces of social relatedness (Figure 8) helps to establish the degree of interaction occurring in the context.

The strategy implementation framework can be developed from the three components discussed above: Open Space, Social-Political Issues and Man's Activity.
4. Project's Urban Fit Framework

The purpose in developing a framework to be used for the integration of a project with its surrounding context is to produce a practical research tool for planners and architects that facilitates the diagnosis and treatment of a misfit. The same framework should be flexible enough to be implemented at different levels of the project's integration, such as at the urban level, the project level and within clusters.

Thus, the identification process of a Misfit develops a telescopic sequence of links between the macroscale of the context and the microscale within the project in order to obtain continuity and relatedness with the whole.

In order to develop such a versatile framework that can be used as a research tool for diagnosis as well as a prescriptive device in the integration of a project (urban fit), the framework uses the organization of a two-phase process; the first seeks to identify the location of a misfit in the project; and the second seeks to develop a detailed analysis of such a misfit in order to produce recommendations for a good fit (Figure 8).

The first phase of the framework, the identification of the misfit, takes the three components of the urban fit strategy (open space, socio-political issues and man's activity) and places them into a small framework supported by two interdependent systems and one analytical factor, people's activity. The second phase of the framework, the detailed analysis of the misfit, uses a checklist, developed in the direct research of this thesis, for the analysis of physical settings and combines it with people's activity.
The first phase of the Urban Fit Framework is defined by three components: Contextual Frame (i), Feedback System (ii) and People's Activities, as the analytical factor identifying the misfit location.

The first component describes the spatial links of the site with the local context or within the project. The second component is an informative reference of the issues in the community affecting design decisions. The variable factor in this case is people's activity (mobility) and it is applied directly on the frame to assess open space design performance and integration criteria (Figure 9).

The first component forms the spatial framework of the local or project's context: For example, it considers the grid system as a contextual frame maintaining interrelated connections between the site and any point located within the grid framework. Thus, any possible connection that supports and maintains continuity in the open space can be traced graphically onto the grid frame.
The second component functions as an information source for design criteria on the type of connections to be developed in the project or in the community's open space. For example, this feedback system is intended to provide information on the issues related to the community context in which the project is located. It is up to the designer to build up this reference file. Four major categories should be investigated: 1) Community issues, 2) Social-political issues, 3) Form giving issues and 4) Environmental impact issues.

Their specific hierarchy and areas of emphasis cannot be prejudged since the categories depend on the direct implementation of the Urban Design Process and require the participation and feedback of participating groups. They are particularly relevant in determining the Built Form of the project.

Thus, it is up to the designer or planner to define his own criteria and collect the required feedback information while relying on these recommendations to improve analysis and design strategies to achieve continuity and relatedness in the urban context.

Finally, people's activity patterns (mobility) are considered the most important and decisive factors in the implementation of the framework. Specific activities such as mobility and static activities, if applied directly on the spatial framework, can be used to identify particular characteristics in the spatial performance of the Fit. Behavioral responses and attitudes learned from the feedback reference system can be used to identify the perceived social response of community groups to the fit. However, these behavioral responses are not intended to be dealt with in the implementation of this framework. The use of behavioral research in
this framework is focussed exclusively on activities rather than perceptions and attitudes. Although both activities and perception are complementary in the integration of a project, perception responds to the effects of the form of the building. Activities respond to people's interaction with the open space and are the source of spatial continuity and social relatedness.

For this purpose the implementation of the Urban Fit framework (Phase One) focusses on the function of the open space as a connector and gives particular attention to its transitional character at the places where the interface of two different domains meet, i.e., local context and project or cluster, and circulation routes within the project.

Thus, the use of people's activities, as testing or analyzing devices in the urban fit framework, are meant to be guidelines and references in identifying the location of the misfit.

1) Diagramatic interpretation of components.

- Contextual Frame: It is a reference framework of spatial systems defining a local and an overall context in relation to the site, or the project's open space organization.

- In the contextual frame the identification of the Fit requires first the focus on a particular location to be analyzed. Then enlarge the physical plan (setting) of the area where the type of fit is to be identified. In this case the information required in the plan may range
from the location of services and utilities, and street furniture to the outline of the built form's edges.

- Feedback System: It is a reference of issues to influence the character of the Urban Fit on the desired location.

The feedback system must be filled in with information pertaining to the social-political and physical issues in the community or with the project's tenant and managerial issues that may affect the location and identification of the fit. On this matter modify the order or number of issues to suit your needs.

- Analytical Factor - People: Represents the participation of people's activities and behavior in determining the characteristics of the open space to support a fit or identify a misfit.
ii) Use of the framework.

Step 1: Identify physical components and develop Contextual Frame at the level on which the identification of the misfit is needed. For example, identify:

At the Urban Level:
- Grid system (hierarchy)
- Urban Context (physical and social fabric)
- Nodes of activities, services and facilities
- Local level to project

At the Local Level:
- Grid system
- Local and overall context domains
- Nodes of activity and zones of influence
- Project's location

At the Project Level:
- Circulation
- Open space organization (clustering)
- Cluster types
At the Cluster Level:
- Paths and circulation routes
- Open space organization
- Unit's relation to cluster

Step 2: Identify social issues and develop Feedback System related to the level on which the misfit is to be identified.

<table>
<thead>
<tr>
<th>Levels of Context</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>Social</td>
</tr>
<tr>
<td></td>
<td>Political</td>
</tr>
<tr>
<td></td>
<td>Economic</td>
</tr>
<tr>
<td>Local</td>
<td>Form Giving</td>
</tr>
<tr>
<td></td>
<td>Environment</td>
</tr>
<tr>
<td>Project</td>
<td>Managerial, etc.</td>
</tr>
<tr>
<td></td>
<td>Tenant's Association</td>
</tr>
<tr>
<td>Cluster</td>
<td>Specific Concerns of</td>
</tr>
<tr>
<td></td>
<td>Cluster Residents</td>
</tr>
</tbody>
</table>

Step 3: In Contextual Frame,

Identify:
- Open space connections between selected setting and its proximate context;
- Mobility flow from setting to proximate context as it is influenced by centres of activity and services.

Determine:
- The discrepancies between setting layout and open space network in the proximate context at the points where they meet and their connection is interrupted;
- The differences between mobility routes as defined by people and mobility routes as determined by the setting's physical layout.

Conclude:
- By establishing the location of the misfit(s) between the setting's layout and its proximate community as determined by: the lack of open space continuity; and, the diverted mobility of people from the existing routes "in and out" of the setting.

Step 4: In Feedback Systems,
Identify:
- Issues relevant to the character, location and use of the place where the misfit(s) has been identified in order to develop (community) recommendations for its improvement.

Determine:
- The type of fit to be implemented.

b) Phase Two: Detailed Analysis of Misfit

The second phase of the Urban Fit Framework uses a physical setting checklist in conjunction with people's activity patterns to analyze the specific uses and misuses of the setting, where the misfit was identified in the first phase of this framework.

The Checklist is a series of physical, environmental and symbolic characteristics defining the setting's socio-spatial character. People's activities, defined as mobility and static activities, most commonly determine the uses of the setting. They are incorporated into the checklist.

In this second phase, the particular location of a misfit is separated from the whole system and becomes analyzed as an isolated setting.
Although it is analyzed separately, all the characteristics identified in the first phase are maintained and used to define criteria in relation with the whole, either community or neighboring cluster.

The checklist used to analyze the setting (or the location of the misfit) is divided into four categories:
- Physical Characteristics
- Mobility
- Defensible Space
- Graphic Summary of Qualities to Enhance and Develop a Good Fit.

The first category, Physical Characteristics, represents the physical, environmental and street furniture characteristics of the setting. Its purpose is to develop a concise profile and a reference plan of the setting in which the characteristics of the other categories can be related in order to develop a graphic summary of their influences on the setting.

The second category, Mobility, deals with the identification and analysis of the use and impact of mobility and static activities on the setting. It focusses on the direction and intensity of pedestrian mobility routes, in, out, or within the setting. It also looks at the setting's seasonal uses and concentrated zones of activity by particular age groups.

The third category, Defensible Space, focusses on the physical-symbolic characteristics of public and private domains within the setting. Its purpose is to define zones of transition which provide access to the project or to other clusters, or into units. Similarly, it identifies zones of deterioration and blight caused by lack of surveillance or control.
Fourth, a graphic summary of the above information, is developed to illustrate specific physical recommendations to achieve a good fit. From this graphic summary the physical as well as the behavioral causes of a setting's failure at producing a good fit can be determined.

The second phase concludes with the development of physical recommendations to enhance the open space function of a setting, or in this case, the misfit, and develop spatial continuity. The final aim of this second phase is to develop physical recommendations for a setting (or misfit location) to improve its character by creating spatial continuity and achieving a good fit (or integration). From the premises of the Urban Fit Strategy, the framework shows how to create physical continuity that facilitates social interaction and fosters relatedness of people and places.

i) Checklist.

I. PHYSICAL CHARACTERISTICS

1. Site Characteristics
   - Definition
   - Enclosure
   - Enclave

2. Microenvironment
   - Sunpath in Winter and Summer

3. Amenities, Facilities and Materials
   - Description and Number
   - Materials: floor, wall, color texture

4. Landscape
   - Location and Description
5. Street Furniture
   - Location and Description

II. SPATIAL MOBILITY

1. Circulation and Mobility
   - People's Mobility
   - Access to Units
   - Vehicular Mobility

2. Zones of Activity
   - Description and Identification of Areas in the Setting
   - Classification of User by Age Group

3. Intensity of Use
   - Description of Variation in Use of the Setting in a Seasonal Survey

4. Physical Setting's Inner Links
   - Description of Relationship Existing with Other Settings in the Project

III. DEFENSIBLE SPACE

1. Visual Control and Territoriality
   - Identification of Areas in the Setting where Visual Control is possible and where Vandalism and Graffiti prevail

2. Open Space Hierarchy
   - Identification of Open Space Character from Public to Communal; and from Communal to Semi-Private; and from Semi-Private to Private

3. Physical Setting - Transitional Spaces (Project - Cluster)
   - Description in Graphic Detail of the Setting's Function and Territoriality, focussed mostly on Entrances and Gates into the Setting
4. Physical Setting - Transitional Spaces
(Cluster - Units)

- Description in Graphic Detail of the Units' Transitional Areas into the Communal Open Space of the Setting

5. Summary

- Grouping of Transitional Areas Identified in the Setting under Three Categories:
  
a) Public to Communal
b) Communal to Semi-Private
c) Semi-Private to Private

---

Figure 10. Checklist.

ii) **Use of the checklist.** Components:

<table>
<thead>
<tr>
<th>Misfit Location</th>
<th>Checklist</th>
<th>People</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="Setting" alt="Diagram" /></td>
<td><img src="Checklist" alt="Diagram" /></td>
<td><img src="People" alt="Diagram" /></td>
</tr>
</tbody>
</table>

Step 1: Determine, graphically on an enlarged section, the layout of the setting; its physical characteristics and domains; following Points I and III of the Checklist.

Step 2: Determine the impact of people's activity (mobility and static) on the layout of the setting, following the Checklist's Point II. Identify the causes of conflict between people's activity and the existing layout of the Setting (Point IV).
Step 3: Derive recommendations for the physical treatment of the setting's character that requires design intervention in order to improve its function and use (to achieve a Fit).

The design recommendations should be looked at as parts of a whole being improved, rather than an isolated setting.

c) People's Activities

Although the participation of people's activities, particularly mobility and static activities, are included in the identification and analysis of the misfit as part of the framework, in this section their participation will be emphasized and some of the most helpful techniques in researching people's activities in a defined setting will be suggested.

The participation of people's activities play very important roles in both phases of the framework. In Phase One, the identification of the misfit is determined by studying free and casual mobility out of the project in contrast with those routes physically predetermined by the layout. In Phase Two, people's mobility and static activities help to identify those physical characteristics in the setting which conflict with the casual and determined uses given to them by people.

Four direct research techniques are employed to identify mobility routes and static activities:
- Mobility Count
- Mapping Behavior
- Identification of Traces
- Interview Surveys

Their focus is to determine how people use the open space and how their activities and mobility flow influence the character of the setting.
i) **Mobility count.** This research technique consists of counting mobility flow and the direction of its flow, through the setting on an hourly basis. Its purpose is to distinguish constant from casual activities on the setting and establish the physical interaction that may exist between the project and the local context.

ii) **Mapping behavior.** Activities in different areas of the setting with different types of users and at different hours of the day and week are mapped. If possible, the area should be mapped on a seasonal basis, although this type of research is costly and requires time and energy. In some cases, however, seasonal mapping may be necessary, particularly when the range of users is constant and the first impressions of the setting seem to be affected by deterioration and disorder. For instance, gangs may be hanging out in parks or play areas located at access points into the project, or activities may extend into the local context such as the corner store located across the street. A similar case could be the access points of the project where seniors and children seem to compete for the turf and outsiders continuously use this same space as a thoroughfare.

iii) **Identification traces.** The observer must familiarize himself with the setting. He should record his first impressions and collect a list of his assumptions. Parallel to this a daily record will provide information on the type of activities that take place at night or at the various hours not included in his research schedule.

iv) **Interview surveys.** The fourth and last research technique recommended is an interviewing survey of residents and neighbors living near the setting in order to identify their impressions and concerns.
This research technique also may be helpful in identifying community attitudes and responses to their context. However, the development of formal questionnaires or interview techniques imply time, cost and specialized interviews. Thus, for an architect or planner to pursue this task may not be essential when the approach to pursue is the creation of spatial continuity and relatedness in the open space to foster social interrelatedness.

The implementation of this framework in identifying the potential good fit or misfit of a project with its surrounding context relies upon the information that is obtained from identifying—in physical, social and behavioral terms—what is working and what is not working, particularly at those zones of transition between the project and its local context. The physical characteristics of those zones of transition in their function and perceived character become determining factors in creating a good fit.

5. Project's Urban Fit: Implementation of Framework

  a) Introduction

  The procedure to implement the framework starts with the preliminary steps of the urban fit strategy, that of defining in the urban context the physical characteristics of an overall (urban) and a local context to the site. Three steps must be followed:

  First: Identification of places, objects and buildings (Nodes) commanding the existing geometry of the open space.

  Second: Identification of transportation and mobility patterns linking the site with the overall context.
Third: Definition of the local context from the overall (urban) context and its main connections to the site.

The first two steps are analytical and deal with the overall physical context of the city which may influence the site. The relevance of identifying the location of places, objects and buildings depends upon establishing for WHOM they are important and for WHAT they are to be used. After this one would proceed to establish the related physical link between site and context, based on user needs and facility location.

The second step focusses on determining the hierarchy of the overall context of the transportation frame and outlines the arterials that may have an impact on the site by their proximity and intensity of use.

The third step is an extension of the second. It involves the procedure of determining the physical boundaries of the local context to the site. Thus the local context refers to a portion of the urban fabric defined by the densest traffic arterials in the vicinity. The borders will be unique to this particular area.

The relevance of the local context on the site is the congregation of a well-defined area of the urban context influencing the future development of the site, while reinforcing direct links with the overall context.
by means of its residents' social relatedness to the community and the networks of mobility connecting them.

Whether the subject of study is an existing project which requires identifying the relationship and affinity with the surrounding urban context, or a new project, the same procedure should be followed.

i) Particular considerations. The implementation of the Urban Fit in a project depends primarily on the scale of that project. In the case of a new development comprising less than one block or in the assembly of a few urban lots, the second step related to the identification of the overall context is not relevant. The characteristics of Urban Fit will be determined exclusively by the local context. However, if the new development involves the redevelopment of more than one entire block, the urban fit stage should be implemented. The urban fit stage applies when the new project involves the design or realignment of streets within the block, or when it is essential to identify strategic merging points from the project into the urban pedestrian and transit systems.

The redevelopment of an urban conglomerate of several blocks involves extending the concept of urban fit on a larger scale. In this case there is no local context except for the overall (urban) context and,
as such, special consideration must be given to the character of the urban fit. Using the three preliminary steps to implement the urban fit remains effective, however, and will be helpful in identifying connections and relationships between the new development and the city fabric. Moreover, the identification of connections and relationships between the two urban tissues help to redefine a more appropriate contextual level to implement the urban fit strategies.
b) Framework Structure

The implementation of the framework to achieve continuity and relatedness by integrating a project with its surrounding context faces the dual task of responding at the urban context level as well as at the internal organization level of the project.

Thus, it is appropriate to establish that the framework incorporates a versatile and repetitive process using the same model to identify and analyze a Misfit at every level of implementation. Within the fixed structure of the framework issues and contextual characteristics specific to each level are filled in. This process leads to a series of findings that share the same focus on how to achieve a good fit and can be easily linked together to create a unifying system of continuity and relatedness.

In this section a general description of the implementation of the framework is outlined with suggestions and recommendations on its use. Due to the repetitive character of the framework process, only the urban level of implementation will be explained, with the understanding that while the mechanism itself is constant, the information to be filled in varies with the level. The resulting recommendations from each level are meant to be congruent in order to achieve a socio-spatial fit of the project with its surrounding context.

The following diagrams represent the structure of the framework and its two phases of identification and analysis; and the levels of implementation and general process to develop design recommendations.
PHASE ONE:

Steps:
-1  -3
-2  -4

A) Evaluation of Existing Physical and Social Characteristics

Steps:
1 - Development of Contextual Frame
2 - Development of Feedback System

B) Identification of Misfit

Steps:
3 - Identification of Discontinuity between Levels of Interaction
4 - Relation of Social Issues to Location of Discontinuity

PHASE TWO:

Steps:
-1  -3
-2

C) Analysis of Misfit

Steps:
1 - Use of Checklist on Physical Detailed Setting of the Misfit
2 - Determine Mobility Impact on Setting
3 - Develop Recommendations to Achieve a Good Fit Between

Figure 13. Urban Fit: Framework Structure
URBAN FIT STRATEGY

1. Levels of Implementation

2. Framework Implementation

Urban Level

Project Level

Cluster Level

Figure 14. Framework Levels of Implementation of Identification of Misfit.
i) **Framework phase one: identification of misfit.** The identification of the Misfit follows five steps and its results are analyzed in detail following the second phase of this framework.

The procedure is simple. **First,** identify access points into the project used by pedestrians or vehicles. Mark them on the site plan of the contextual frame.

**Second,** identify the patterns of the surrounding context and determine what kind of community issues related to the open space could be relevant to this location. In this step the feedback system can be valuable if the information required has already been gathered and assembled as part of an overall strategy. If it has not been previously assembled, it is important that the architect or planner identify the areas where the feedback system could inform as to what the community aims, the municipality allows, the environment influences, and the built form determines for the local context. With this in mind and the feedback system integrated, the socio-physical profile of the local context provides a scenario of issues influencing the selected setting in identifying its fit with the local context and the project.

**Third,** focus on people's mobility from the project into the surrounding context, either the proximate neighborhood or the rest of the city. The actual routes people take may not follow the established physical paths.

**Fourth** step also charts people's activities, but in this case the focus shifts to static activities that take place at the corner of the block, the play area, or the gateway into the project. These static activities are considered to be an extension of the project into the
surrounding community.

The fifth step is the graphic comparison of the routes identified as random and casual out of the project with those determined as main access routes into the project. Their discrepancies point to the location of the physical misfits that require attention. Some of them may be potential settings for social interaction if they become integrated with both the community and project. This identification of the misfits in the project at its access points ends Phase One. Phase Two is concerned with a detailed analysis of the Misfit.

ii) Framework phase two: analysis of misfit. The detailed analysis of the Misfit follows the identification of the Misfit at those points where discrepancies exist between mobility patterns and the definition of the project's laid out paths.

The analysis follows three steps and its final conclusions produce physical recommendations in obtaining a good fit. The first and third steps deal with the description in physical and symbolic terms of the setting's character and provide the elements in identifying its physical and territorial connection with the surrounding community.

The second step is the most important, since it combines the effects of people's mobility and static activities with the setting's physical and symbolic character. It also produces the information required to identify the causes of a Misfit and the potential areas that can be enhanced by design to foster interaction among people.

The implementation of Phases One and Two, in summary, produces the location of Misfits between project and surrounding context, and the mechanism for identifying their causes. Furthermore, they produce design recommendations for the integration of the project at an Urban level.
c) Implementation of Framework

i) Phase one: identification of misfit. Two frames of reference and an analytical factor are employed to identify the existing type of fit or the fit to be achieved in the open space between project and local context. The interaction among the three components of the framework is then explained. The two systems are:

The Contextual Frame: is defined by the local context grid using the same information as established in the preliminary steps of the urban fit.

The Feedback System: is a reference file compiled from information pertaining to four suggested issues: 1) community issues; 2) social/political issues; 3) form saving issues; 4) environmental impact issues.

The Architectural Factor: People's Activity: are used in this framework as an analytical factor in identifying the characteristics of the fit in a particular setting.

![Diagram of Contextual Frame, Feedback System, and People's Activity](image)
Contextual Frame: Firstly, the graphic identification of the project and its surrounding connections within the grid pattern must be clearly established in physical terms as well as in planning terms of land use and utilities. Equally important is to identify the location of community amenities and facilities; i.e., library, public park, community centres, schools, bus stops, LRT, etc., or any other centre of attraction to the community such as commercial zones in the local context and regional facilities in the overall; i.e., shopping centres. This forms the contextual frame.

Secondly, the presupposed or existing mobility patterns of the project's residents are mapped on the matrix to establish destinations and routes most frequently used from the project to the local and overall contexts. This investigation requires the help of research techniques, such as questionnaires, interviews, direct observation, or a mixture of all of these.

Some of these routes can be identified from the land use plans, from a windshield survey or by walks on different days of the week at various times, such as when people are going to work, shopping or to school. The goal is to identify the cross-section of the lifestyle of the project's residents and the community blending. Other methods for identifying the cross-section of the community are the status census of the area, the planning profile of the area in the city and references from schools and community centres, as well as information gathered from the administrator or manager of the project.
In the case of a proposed project the best approach is to develop a potential cross-section of the future users and try to relate them to the existing facilities and services in the community. The goal is to identify possible networks of mobility as well as the merging points of those networks into the project in the local context.

Diagram of Networks.

Similarly, mobility should be related to the contextual frame. The influence of the C.B.D., industrial or other land uses that might not be compatible with residential use or that might create a flux of mobility in the urban context, i.e., sports facilities, auditoriums, parks, should be indicated.

After this information is mapped, the focus of the framework is narrowed down to the specific points where the streets reach the project and the main networks of mobility are identified to branch from the project into the local and overall contexts.

Thirdly, from the information mapped on the contextual frame it is necessary to specify the hierarchy of streets in relation to the project in order to determine which of those streets will become the main connector/s into the project or its servicing accesses. Similarly, the relation of other paths that have a function linking the project to amenities and
services such as to local play areas in a neighborhood if located in proximity to the project, will influence the surrounding neighborhoods to take shortcuts through the layout of the project. Therefore, unmarked paths or routes in the neighborhood will require special attention as to their location and destination and how they may be affected by the new layout. This information sets out the options to which the layout will have to respond. For this purpose it will be necessary to blow up the graphic scale of the matrix and proceed to identify the character of the connectors into the project and determine the hierarchy of their transitions.

Fourthly, the hierarchy of the transition will depend on the character of the connectors distinguishing between pedestrian and vehicular connection into the project. A double pedestrian system of networks influence the connector's character. The overall networks to general and specialized facilities and services in the urban context, such as commercial entertainment, educational zones, parks, regional markets, must be considered, as well as that of other pedestrian systems of the local networks to primary necessities of the community, such as corner stores, small service shops, nurseries, neighborhood parks, schools or other facilities and services located within the local context.
Local Networks

While the transportation network will determine major vehicular mobility in the area, it will also suggest possible vehicular access into the project in order to avoid overloads and conflicts with vehicles on the main streets. Service lanes will also have to be related in character or function to the project in order to maintain physical or visual continuity.

Vehicular Flow

Fifthly, the summary of all this analysis will provide in physical terms a diagramatic reference of the main transitional zones on the periphery of the project that require direct analysis and specific considerations. Similarly important in this diagram are the references of the character of the bordering streets indicating the pattern of land use,
buildings, landscapes, utilities and in general all types of references that contribute to defining the edges of the built form in and around the project.

This diagramatic reference will be the framework which focusses direct research on the function, character and potential use of the open space by project residents and by neighbors in the local context. At this stage research is mostly related to local data which can be collected on site by direct observation, inventory and mapping of corner stores, bus stops, and other services and facilities in the area. This data can also be obtained from land use maps of the area. However, the direct identification of those places on site will increase the awareness of the area and alert the architect and planner to sense the character of the streets.

In the next stage the framework deals with the specific identification of the character, function and use of the transitions. If a new layout is to be developed on the site, the previous information obtained in the contextual matrix is relevant in identifying access points into the project for pedestrians and vehicular traffic, as well as to identify the character of the surrounding edges of the project in terms of land use and land form patterns.
Moreover, neighborhood concerns should be carefully examined and a research of the major community concerns regarding not only the open space function of the street, but its social and built form image should be assessed for the reference file. This reference file or Feedback System is built parallel to the contextual frame.

Feedback System: Since the implementation of the fit in the case of a new project layout is mostly prescriptive and cannot be tested until (the project) is built, in the next chapter a series of recommendations will be offered in the form of guidelines to introduce or re-interpret continuity and relatedness in the design of the open space function in existing or in newly planned residential environments.

In the case of an existing project the use of direct research is required to identify the possible misfits of the project with the local context. In this case, the use of the Feedback System as outlined in the design strategy suggests four general topics in which information related to issues of the community concerns, to socio-political issues, form giving issues and the essential environmental issues contribute to develop with the contextual matrix a socio-physical profile of the local context. In this socio-physical profile the participation of people's activities can follow the proper scenario in identifying the type of fit of a particular location.

ii) Phase two: analysis of misfit. A checklist is used to narrow down the focus of the analysis of a Misfit. The implementation of the checklist follows a systematic process of identification of items pre-organized under categories in order to develop a full description of a
setting (or cluster) in which there is an interest in obtaining detailed information for design recommendations. For a full description of the checklist's implementation, see Chapter III, Phase IV, and Phase two: Detailed Analysis of the Misfit in this Chapter V.
CHAPTER VI
GUIDELINES FOR DESIGN

Introduction

The use of the framework at various levels of a project's integration has great advantages, particularly in the case of an existing project where it serves as an evaluating system of the project's integration and at the same time produces design recommendations for a good fit (integration). In the case of a new project, which exists only as a proposal, the framework's use is limited to identifying the potential connections of the project with the urban context in achieving a good fit (integration).

In this chapter, a series of recommendations in the form of guidelines are suggested. Their use is intended to complement the framework process in developing design recommendations in the case of an existing project and pre-design recommendations in the case of a proposed project.

The guidelines are organized following the levels of implementation outlined in the Framework--Urban, Project (local), and Project and Cluster. Each level deals with specific conditions that require attention and depend, to a great extent, on the particular conditions and characteristics of the project or proposal. Thus the guideline's format is more suggestive than normative, although the concepts discussed are important and should be observed and followed in the design alternative. The character of those alternatives will depend on the designer's or planner's approach.
Guidelines' Organizational Framework

<table>
<thead>
<tr>
<th>Key Diagram</th>
<th>Context Level</th>
<th>Guideline Topic</th>
<th>Focus: Project Layout</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="Overall" alt="Urban Grid" /></td>
<td>Urban Grid (Overall)</td>
<td>Fit with urban context</td>
<td></td>
</tr>
<tr>
<td><img src="Local" alt="Neighborhood Edges &amp; Gates" /></td>
<td>Neighborhood Edges &amp; Gates (Local)</td>
<td>Fit with Character of the surrounding neighborhood</td>
<td></td>
</tr>
<tr>
<td>![Project Circulation Continuity](Internal Clustering &amp; Organization)</td>
<td>Project Circulation Continuity (Internal Clustering &amp; Organization)</td>
<td>Fit with the organizing systems of the open space within the project</td>
<td></td>
</tr>
<tr>
<td><img src="City" alt="Cluster Typology" /></td>
<td>Cluster Typology</td>
<td>1 - Circulation Routes</td>
<td>Fit between smaller* parts of the project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Pedestrians Only</td>
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<tr>
<td></td>
<td></td>
<td>3 - Pedestrians &amp; Vehicles</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 - Pedestrians &amp; Circulation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 - Playground</td>
<td></td>
</tr>
</tbody>
</table>

*It requires specific analysis, thus only an outline of the most common locations of misfits are indicated.
1. **Urban Level**

The urban open space is defined by two systems. One, planar, the other, tridimensional. Their interaction in the urban context determines the Grid, Block and the Node. They are the physical patterns of the Urban Form that organize the uses and functions of the open space.

![Diagram showing Grid, Block, and Nodes](image)

a) **Grid**

The Grid is the main organizing system of the open space. It determines the planar shape of the urban growth, the edges of the built form contained in the urban Block and gives the sense of direction to the mobility flow.

The term grid is used indiscriminately as referring to the street or lane in spite of their particular functions in the urban context. However, when the intention is to create a perfect fit in the grid, the pattern should follow function and use, i.e., street fits with street and lane with another lane.
i) Conflicts: Project site grid. The most common problems in the interface are variations of the following:
   - lack of recognition of the continuity of the grid's axes;
   - lack of recognition of the implications that rapid transportation systems have on the grid and particularly on the site's proximities;
   - lack of ingenuity in recognizing the potential effects that modifying the grid's axes may have on both project and overall context.

   ii) Misfit: Project site grid - lack of recognition of the continuity of the grid's axes.

Discussion: the continuity of the grid in the urban context is in some cases essential. It works as a thread among districts and neighborhoods maintaining urban unity. It retains the character of neighborhoods and connects different points or places physically and visually.

Failing to recognize the importance of the grid's axes in the development of a new project can be detrimental to the neighborhood or the district where it is located. But most damaging is the self-alienation that the project imposes upon itself by ignoring the positive values of continuity and relatedness that a convenient fit between project and grid can produce.

Urban Renewal Projects are exemplary cases of the missing continuity of the grid, in many cases creating negative effects on the community's social and physical unity.
Recommendation 1:

Fit with the grid:
- New development should use the grid's axes to reinforce the character of its project by creating unity in the district and urban fabric; by linking the project to distant centres of activity; by identifying the major thoroughfare routes in the city and their intersecting points with the project.
- Existing development should evaluate the performance of its present links by identifying the degree of continuity both physically and visually that exists with the overall context as well as with the local context of the site.
- Existing development should evaluate current links with the context by determining the effectiveness of vehicular and pedestrian accessibility in and out of the project to distant and close centres of activity in the community.
- Existing development should follow the same principles as outlined for
new development and utilize, as a weighing measure, its successful or unsuccessful fit with the context by the feedback of community and resident appraisal of such integration.

Recommendation 2:

**Project Site Grid**

Fit with the grid:
- New development should utilize to its maximum benefit the proximity to rapid transportation systems as well as to heavy transit flow arterials to introduce diversity and mix of functions and uses to the site while reinforcing the character of the urban context.
- New development should approach the planning and design of zones of interface between rapid transportation systems and the site almost as if they were small integrations to the urban open space context; or as if they were filtering areas to the residential development. This may be achieved by introducing commercial, office or community facility uses in these areas.
- Existing development should develop a brief impact analysis of physical conditions of their interface with the rapid transportation system and develop an area analysis of land use and community facilities. It should
then proceed to assess the needs of the area and existing conditions, followed by a possible design option which could include recommendations for new development.

iii) Misfit: Project site grid - lack of recognition of the implications that the rapid transportation systems have on the grid and particularly on the site's proximities (when they abut with the site).

Discussion: the major change in the urban context that has affected the grid system in the last twenty years is the introduction of rapid arterial of mobility superimposed on the old grid, either as an engrossing of the old grid section or as an elevated system from the ground. In both cases, the visual, physical and environmental impact that these transportation systems have on the character of the grid have contributed in many cases to negative results on the residential community.

The urban residential neighborhoods are perhaps among the most adversely affected environments. They have to deal with the dense concurrence of the grid system, due to their proximity to the core of the city. Conversely, there are advantages to having a transportation system close to home that can be used to increase mobility to locations beyond the
inner core of the city.

Undoubtedly, the impact of rapid transportation systems have a dual effect on the way the grid system is perceived from the point of view of the neighborhood environment. On one hand they intensify use and clutter the environment, and on the other hand, for the urban dweller they facilitate mobility and branch options for all sorts of activities.

When dealing with this type of interface between project and transportation systems the most common fault in residential environments is the avoidance of facing this issue. Producing massive landscaped "buffer zones", or parking lots under the highway, or undefined edges of the project are options which turn their backs on the problem.

Thus it is vital to recognize early the effects of rapid transportation systems as part of the grid system on the site because an early understanding of their advantages or disadvantages can determine the kind of interface which can be achieved between the site and the transportation system.

iv) Misfit: Project site grid - lack of ingenuity in recognizing the potential effects that modifying the grid's axes may have on both project and overall context.

Discussion: the rigid axiality of the grid has become the seminal principle generating the urban form of North American cities. It's character is associated with a strong, economic and social culture, producing the image of a mass consumer society.

The grid system in North America does not provide the same kind of picturesque townscape as can be found in European cities where change, rhythm and surprise are the major attributes of the cities. The grid in
North America with its monotonous and regular pattern, caused by its uses and functions which support the infrastructure of the urban context, offers no comparison to its European counterpart. At the same time, it opens the possibility for exploration of possible alternatives to introduce amenities as pauses on the grid.

Perhaps the best opportunity to enhance the fixed axially of the grid is found in the residential environments located in proximity to the core of the city where a deflection or an interruption of the grid allows the creation of urban amenities which can be used to focus or unify neighborhood or district character, and introduce a sense of urbanity. However, this exploration into the grid should be made with a solid feedback analysis of transportation impact, community participation and city management support. It should avoid blocking major arterials or local traffic streets which may be important on the neighborhood scale.

Recommendation 3:

![Project Site Grid](image)

Fit with the grid:
- New development should be cautious about the kinds of implications that blocking the grid may cause in the community context. It should assess mobility flow and centres of activity that may depend on its continuity.
- New development could explore the deflection of the grid by maintaining continuity in a non-regular axis or by diffracting its axially into sub-axes or by closing the open pattern of the grid to vehicular traffic, while allowing pedestrian and visual continuity to maintain the open parallel grid axes. Underground or aerial experimentation implies a different approach which depends on its use and purpose. It also implies a different type of development, i.e., the megastructure.

- Existing development should evaluate these possibilities and in some cases open the access to the axially of the grid throughout the project as an envigorating strategy. The manipulation of the grid in the residential environment can be a unifying force or an isolating one. Its use should always depend on the particular conditions of the site and its surrounding social and physical fabric. Furthermore, the continuity of the grid should not be suppressed more than by two ordinary square urban blocks in order to allow peripheral mobility in every direction.

![Grid Diagrams](attachment:grid-diagrams.png)

NOT THIS BUT THIS OR THIS...
2. **Local Level**

On the local level, or neighborhood context of the project, there are two essential concepts that contribute to maintain the physical continuity of the project with the community. The first concept corresponds to the access points into the project and their particular characters (gates). The second concept relates to the character and treatment of the periphery (edges) of the project. Both concepts are interdependent and together create the envelope of the project that integrates the local context with or separates it from the project. In the following guidelines particular circumstances of their use are emphasized and some of their relevant characteristics promoted to achieve the integration of the project.

**Gates and Edges.** The character of the envelope of the project is determined by the treatment given to its gates and edges in relation to the surrounding context. These gates and edges have individual characteristics which must be dealt with separately. Thus, the first set of guidelines will focus on ways of developing and defining the characteristics of the gates or access.
a) Gates.

- The Gate or Access into the project should be hierarchically organized in relation to its character; either as main access, secondary access, or pedestrian or vehicular traffic.

- Main access points should have clear definition as to their character and use as the project's gates.

- Main access points should be clearly related to the central circulation system of the project either as thoroughfares or as organizing systems of the project.

- The main access into a project should be considered a point of transitional character for a circulation route whose main function remains constant, that of facilitating mobility and connecting places, while its character is temporarily modified within certain boundaries. Thus access should be considered as being part of the circulation routes, not isolated points in a project. This concept will be discussed further in the section dealing with circulation routes into the project.

- Secondary access should be related to particular zones of the project and have no further development. The ultimate purpose is to become linked indirectly to the main circulation system.

- Any access into the project should be the result of planning, rather than a casual or accidental product of the building layout. Even when unforeseen circumstances create open-ended areas in the layout which may be used as access points into the project, these areas should be treated with the same concern as a planned access. It should provide a clear definition and visual control from the units, and a direct connection
into a determined zone of the project or into the main circulation system of the project.

If any of the above conditions cannot be completely achieved, those particular areas of the project should be eliminated or physical gates created which can be used during certain hours only, where uncontrolled access creates security and privacy problems.

i) Pedestrian gates.

Off the street's axis: main accesses should have or develop a relationship with the street's axis which they intercept in order to maintain visual continuity through the project or define the intersection of the street's axis. These intersecting points of the grid should be established as clear and memorable places in the neighborhood that function as reference points for both the project's and street's character.
On the street's axis: main accesses should have a clear definition of their transitional character from the public domain into the private or semi-private realm of the project. The transitional character of the access can be of two kinds, depending on the emphasis in relating the project to the street's axis. One emphasis can be on the continuation of the street as a thoroughfare in the project; the other, as a controlled continuation of the street's pedestrian mobility through the project. In both cases, the character of the access depends on the circulation that is emphasized, either public or semi-private.

If the character of the circulation is public, then the access should be emphasized as a pedestrian thoroughfare. If the character is to be private, but there are provisions that will allow casual public circulation through the project, the access should emphasize this controlled use.

In some circumstances a public thoroughfare should be clearly discouraged in small projects, due to problems of privacy and security for the project's units.

Public thoroughfare's access into the project: thoroughfare circulation access should indicate the pedestrian character while discouraging vehicular traffic, except for special emergency vehicles. The access should have enough physical components to be related to the street and to the project's internal organization, while differentiating their character (i.e., change in pavement treatment; narrowing of the street; improvement of the landscape, etc.).
- The access should avoid leaving green areas at its lateral sides undefined or with a poor character which may encourage shortcuts or vandalism.
- The access should be physically defined by elements that create the sense of a gate into the project, while maintaining continuity with the street's character.

Modified thoroughfare's access into the project: thoroughfare access points require special consideration in order to emphasize the hierarchy of the domains between the street and the project's circulation route.
- The access should create a pause in the continuity of the street's axis and the beginning of a semi-private use.
- The access should also be clearly defined by landscaping, floor treatments, physical elements, and a well-planned gate.
- The access should avoid weak or loosely treated landscaping that adds bulk to the area, but that can be easily crossed over or dug up. Thus the use of landscaping should be reinforced with the treatment of earth forms and masonry in order to give it definition and protection.
The definition of the access should also avoid rigid solutions that create dead areas in the project and characterless images to the street. Thus, a mixture of public and semi-private uses could be related in these access types.

The access could also be treated as a hard surface area with a semi-public character while emphasizing the gate's character.

- The access could also combine changes in level in order to accentuate the character and definition of the gate. However, it should avoid the treatment of poor landscaping that can be easily climbed up or scaled down and destroyed.
Secondary access:
- This type of access is also very common. It is due to the massing of a project that in some circumstances requires a particular connection to the street, or the direct connection to a building, or may simply be the result of an unplanned separation between buildings which becomes a means of access into a cluster or the main circulation route of the project.
- This type of access should not compete in character or function with a main access. If its function becomes strongly emphasized as an access route into the project, it should be upgraded to a main access and given the appropriate treatment. If the intention is to discourage this kind of emphasis, the access should be relocated where its secondary function can be enforced.
- The secondary axis should have the character and function of a private gate into a particular cluster of buildings, enforcing privacy and territoriality, rather than public or semi-private uses.

- The use of a secondary access should be avoided in circumstances where its circulation route may disturb the function of a cluster of buildings, or add confusion to the main circulation routes of the project, either pedestrian or vehicular.

ii) Vehicular gates. With the vehicular access there is no need to have its location related to the main street's axis, since its function is secondary and as such its best reference could be the service lane. However, the vehicular access into a project should be conveniently related to the main traffic arterials connecting the project with the community at large.
The function and use of vehicular access should not conflict with the pedestrian domain of the project.

Thus, vehicular access should be separated from the main pedestrian access to the project, unless both accesses have to be related in their location. They should be developed to avoid overlapping in their uses and functions.

- The vehicular access should be restricted to a double access lane into the parking area and a clear definition of its location should be maintained.
- It is advisable to avoid creating a break in the sidewalk treatment and visual buffers should be developed to reduce its physical impact on the streetscape and project units in its proximity.
b) **Edges**

The treatment of the project's edges in relation to the surrounding context is the most common problem faced by any new project. While, on one hand, the project has to respond to the regulations of easements and setbacks, on the other hand, the implications determined by the image and character of the neighborhood context become essential in finalizing the treatment of the project's edges.

In many cases the resulting character of the project's edges becomes either a dense buffer zone or a poorly developed landscaped area which retains little or no relationship with the street and neighborhood character. Thus, the treatment of the project's edges should be carefully developed within the constraints of the by-laws, to respond to the image and character of the neighborhood form, and to the street characteristics that establish the sense of continuity and relatedness.

**Edges: general considerations.**

- The edges of a project should reinforce the street character and provide amenity and continuity in their treatment.
- The edges of a project should be the physical and visual elements that create community relatedness and promote continuity of the neighborhood character.

- The edges of a project should be seen as being defined by a floor pattern in relation to the street and by the tridimensional form of the neighborhood character.

In the following guidelines the treatment of the edges will focus on ways of responding to the proximity of different land uses and to developing patterns for their integration.

The land uses are:
- Residential Use
- Commercial and Mixed Residential Use
- Industrial Use
- Recreational and Community Facilities
- Mixed Use

i) Residential use.

- The project's edges should maintain the same setback pattern as well as the same rhythm existing at the accesses to the neighborhood units.
The project's edges should avoid leaving the project's units facing the street at ground level without direct contact to a front yard. This is essential in maintaining the street pattern and the neighborhood character.

Also to avoid is the leaving of setbacks with landscaping that has no other function than filling in empty spaces. This not only destroys the neighborhood continuity, it provides no advantage for the project or the neighborhood. Instead, it becomes a maintenance cost to project residents and a public dog walk for the neighborhood.

Therefore, the project's edges should carefully balance the conditions which have to be dealt with and avoid extremes. It should be kept in mind that the character of a front yard in a neighborhood pattern is in many instances a transitional space which has a semi-public use, not a private one as is the character of the back yard. The front yard is often used for ornamentation purposes while the back yard has multiple private uses such as sunbathing, work area, play area, outdoor cooking and eating.
ii) Commercial and mixed residential use.

- The project's edges should maintain the same setback pattern and rhythm that exists in the neighborhood.

- The project's edges should try to develop a balanced mix of residential and commercial uses that enhance the character of the commercial street.

- The project's edges should avoid developing landscaped areas or front yard patterns which are unrelated to that of the existing commercial character of the street.

NOTE:
- \( \text{C} \) refers to commercial use
- \( \text{R} \) refers to residential use
The project's edges should create transitional areas which separate the commercial uses from the residential by creating access setbacks or changes at the edges at determined places where a pause in the sidewalk can be introduced to produce an amenity.

In the development of the project's edges in responding to a commercial character in the street pattern, it should be kept in mind that the commercial street maintains a very active vehicular and pedestrian flow.

Thus, the street level of the project should limit or control access into the project from the commercial street and avoid direct open transitions into the internal organization of the project.

iii) Industrial use.

The project edges in this particular situation face different alternatives depending directly on the character and intensity of use of the industrial development. However, there are two general considerations. One is related to the environmental impact of the industrial uses and the other to the particular environmental and regulatory characteristics of the site in the urban context. The environmental issues that are basically important for a preliminary understanding of the problem are listed below. They are part of an environmental impact analysis that could be expanded further into a more comprehensive analysis of the industrial use impact on the residential context.

Similarly, the environmental and regulatory characteristics of the site in the urban context that are considered basically important in determining the appropriate treatment of the project edges in this particular situation (residential development bounded by industrial uses) are
list below.

A - INDUSTRIAL IMPACT

1 - Moderate Environmental Pollution
   a) Noise
   b) Smell and Fumes
   c) Visual Litter

2 - Intensity Of Vehicular Movement
   a) Truck Routes
   b) Vehicular Traffic

B - SITE CONSIDERATION

1 - Microclimate
   a) Orientation

2 - Street Characteristics
   a) Setback
   b) Width
   c) Landscape
   d) Use; Arterial; Secondary; Other

Since the relationship between industrial and residential uses requires a special set of trade-offs on the residential environment's edges, criteria based on the site's most favorable and least favorable conditions are outlined below.

Constant Factors

A - INDUSTRY'S IMPACT

1 - Moderate Environmental Pollution

2 - Intensity of Vehicular Movement

Variable Factors

B - SITE CONSIDERATIONS

1 - Orientation

2 - Street Characteristics
Industry's impact on:

1 - Site Conditions Most Favorable
a) South-west exposure
b) Setback not less than 22 feet
c) Street width not less than 66 feet
d) Street landscape with mature trees
e) Street use as a secondary arterial

Favoring Following Uses
1) Playground
2) Front yard access
3) Back yard
4) Parking areas

2 - Site Conditions Lease Favorable
a) North-east exposure
b) Setback less than 22 feet
c) Street width less than 66 feet
d) Street landscape without trees
e) Street use as major arterial

Favoring Following Uses
1) Parking areas
2) Back yard access
3) Accesses and vertical circulation systems

- In any case the uses most recommended for the project's edges facing industrial development are parking areas, accesses and vertical circulation systems, a combination of front or back yards with service areas for the units at ground level, and feeding corridors and services at other levels.

- It is advisable to avoid a double wing of units with a central feeding corridor since one wing of the units may end up with direct exposure to the industrial uses.

- The treatment and use of the front and back yards in relation to the layout of the units requires particular attention.
- For better results in the treatment of the project's edges, the unit layout relationship to the street as well as the impact of the industrial uses should be analyzed in parallel patterns to develop a viable solution.

**Appropriate Use of Edges**

- The project should avoid edges with large back yards without access to the street.

- The project edges should encourage access to the buildings from the street and strengthen the relationship between parking area and back yard access to units, without creating conflict between pedestrian and vehicular traffic. These edges form buffer zones with the industrial uses.

- The project edges should create buffer zones to the project, both under the least and most favorable site conditions, using landscaping.
(trees, hedges, etc.) first, along the edge of the sidewalk, and second, at the front or back yard zone of the units, facing the street and industrial uses.

iv) Recreational and community facilities.

Recreational (park) edge:
- The project edges should help to build up the enclosure of the park by relating the massing of the building and the character of the setbacks to the neighborhood character surrounding the park.
Recreational and community facilities bordering project edges:

- The project edges should differentiate between the termination of the project grounds and the park, while utilizing the proximity of the park to its own advantage by an amenity and desired privacy for the units, encouraging the use of their front yards and balconies facing the park.

- The project edges should contribute to creating a moderate enclosure around the park which relates to the surrounding neighborhood.

- The project edges should have direct contact with the park while retaining their privacy and control at access points and circulation routes.

v) Mixed uses.

This situation commonly occurs at the periphery of a project where each independent edge has to respond to different land uses. However, there are particular occasions in which the project must respond to different patterns on the same edge. Such is the case of mixed commercial-residential and retail uses near the project. In these circumstances the project edges could be used to unify the neighborhood character by employing a similar
mixed use pattern or promoting a particular one.

However, no matter what emphasis is followed in developing the project edges, the treatment of these edges should help maintain the streetscape, character, scale, image and, most important, the clear definition of the residential realm from the other mixed uses.

- The project edges should create a sense of relatedness and continuity in the enclosure of the street, while acknowledging the mixed use pattern and distinguishing the public realm from the private one.
3. **Project Level**

On the project level there are three systems which contribute to the project's fit with its surrounding context, while maintaining continuity and relatedness with its internal organization. The function of each one of these three systems is related to specific organizational tasks within the project, such as interconnecting, enclosing and unifying the environmental qualities of its open space characteristics and uses.

**Circulation, Clustering and Continuity.** The first system is defined by the circulation networks; the second system by the clustering types; and the third by the continuity of the predominant environmental qualities in the neighborhood context and the project's internal organization. While the compatible interrelatedness of these three systems is the key factor in the integration of the project's layout with the neighborhood and urban contexts, their internal relatedness with the project's open space is a key factor in achieving a functional project layout.

The internal organization of the project requires that each one of these systems function individually as well as a whole. For the purpose
of these guidelines, however, each system is discussed separately, although their main task is to work together in the design of the project's open space.

a) Circulation

General considerations:

- The circulation system in a project is basically a series of transitions and connectors which help to determine the character and function of the open space as emphasized by pedestrian and vehicular flow through the project. Thus, particular attention should be given to the treatment, definition and character of the transitional zones and their connecting channels. This section of the guidelines will focus exclusively on pedestrian circulation systems.

- The circulation system is determined by two types of functions, the thoroughfare and the internal mall. While each function has a different character and spatial location, both are interdependent and create the project's circulation system.

- The circulation system should be defined by a main set of transitional points with the dual character of access and exit in the project and as a main connector of the project's linking system to places.

- The circulation system should encourage pedestrian movement by leading people to determined places within the project or beyond it.

- The circulation system should be continuous, while connecting places in a hierarchical order.

- The circulation system requires careful development to create
harmony and avoid conflict in the privacy and territoriality of the residential realm with the public and common character of the pedestrian routes through the project.

i) Project's thoroughfare routes.
   - The character of the thoroughfare routes should be direct, short and self-evident in their layout, detailing and enclosure.
   - The project thoroughfare should also acknowledge the internal links of the project by defining those transitional zones off the main circulation system into the project's internal organization.
   - The character of the thoroughfare should avoid interfering with the clustering system and the continuity of the neighborhood character as it extends through the project.
ii) Project's internal routes.

- The transitional zones where the project's internal routes and those of the main thoroughfare system meet should be clearly marked in order to differentiate between them.

- The project's internal routes should enhance the project while providing privacy and territoriality to the organization of clusters and units.

- The project's internal routes should be designed to avoid interfering with play areas and the semi-private spaces of the buildings and units by developing a physical and graphic orienting system that is clear and enforced on the pedestrian routes.
b) Clustering

General considerations:
- The clustering of a project could be considered as the system of places which give character to a project's general organization and, to residents, a recognizable location within the project. The clustering of the open space should also be a means of achieving privacy and controlled territoriality in a determined place. However, clustering should not be considered as an ultimate solution in achieving these goals, rather consider it an alternative to be explored within these guidelines.

- The clustering of the project's open space should provide a sense of place to its users by determining its location and identity. Second, it should define the function of that place by identifying its use and its relation to those who inhabit it. Third, it should be designed to provide security, privacy and territoriality to the units and their residents, while differentiating, in a hierarchical order, the territoriality of the dwelling groups from the dwellings themselves.

- Thus, the clustering of the project's open space should determine territorial realms within the project, physically and symbolically distinguishing which should be shared and used by a specific group of dwellings and their residents. This character of territoriality and privacy should contribute in increasing the control and surveillance of the cluster's open space from the intrusion of outsiders, and reinforce confidence and security on the project's grounds.

- The clustering of the project's open space depends on the circu-
lation and continuity systems in achieving a functional design layout. Thus, the degree of interrelations among different types of clusters depends on the appropriate use of the circulation system in connecting them, and on the elements of continuity that help to maintain their unity.

- The clustering of the project's open space should be scaled down to its function and intended use, avoiding the creation of characterless areas of claustrophobic enclosures.

For purposes of clarity, the clustering of the open space in a project's layout will be divided according to use:

- Parking and Disposal Facilities
- Play Facilities
- Dwelling Grouping

i) Clustering: Parking and disposal facilities.

General considerations:

- The location of parking and disposal facilities are commonly grouped together for reasons of convenience. However, in this section they will be discussed separately in order to emphasize their individual concerns.

- While the allocation of parking areas in a project can be developed in various ways: underground, in built-up structures, or simply as surface parking, the use of any one of these options depends on particular conditions related to the nature of the project as determined by cost and programatic requirements. In these guidelines the use of surface parking will be discussed in regard to its advantages and disadvantages.
in the general organization of the project and its clustering characteristics and facilities within.

- In general terms, the clustering of surface parking in a project could be considered either as a Mass Parking Area concentrated in one location, or the Fragmentation of Parking Areas throughout the project. While the use of a Mass Parking Area has the advantage of freeing the rest of the site for residential and pedestrian uses, it also has the disadvantage of being separated from the dwelling units, thus without any direct control from the residents.

- Therefore, these guidelines will emphasize the use of fragmented parking and the advantages it provides in terms of proximity and direct access from the dwelling units.

Parking:
- The clustering of parking and the location of disposal facilities within have a direct relationship with the organization of the units' access, either as front or back yard, and the character of the cluster as defined by the dwelling units.

- The clustering of parking areas and the location of their disposal facilities within should be designed to avoid unpleasant views, noise and smell.

- The clustering of parking areas in a project depends on the accessibility to and connection with secondary roads or service lanes. Yet their direct connection with heavy traffic arterials should be discouraged, while access located in alignment with service lanes should be encouraged.
- The clustering of parking areas in a project should be located off the main pedestrian routes, avoiding direct exposure to the surrounding neighborhood and maintaining a functional proximity to the dwelling units.

- The clustering of parking areas should be used to reinforce the street pattern of the neighborhood, on secondary arterials, by internalizing their location off the street into the project and orienting the dwelling units towards the street. Similarly, the clustering of parking areas should be used as buffer zones to protect the residential environment from the impact of noise, pollution and heavy traffic when facing major arterials, paralleled with the internalizing of the dwelling units off the street into the project.

- The clustering of parking areas should encourage direct access into the units' back yards, rather than their front yards. In some cases both front and back yards lack a defined transitional zone.

- The clustering of parking areas should avoid, first, leaving landscaped areas without use; second, accesses into the clusters without definition or character; third, direct access without transitional zones to units' front or back yards; and four, parking areas without a defined cluster.

- The clustering of a parking area should limit pedestrian access or pedestrian routes in such a way as to avoid the use of the parking
area as a short-cut to other locations, which conflicts with vehicular movement.

- The parking area should maintain a clear relationship with the dwelling units defining its enclosure. It should also provide identifiable parking stalls assigned to the units. When there are provisions made to include "visitors parking" within the cluster's parking, it should be identified as such and separated from the residents' parking.

**Disposal Facilities:**

- The location of disposal facilities is commonly treated as a casual, and sometimes, last minute functional decision to provide the project
with disposal service facilities. These facilities are mostly planned and located to ease the maneuvering and accessibility for collection vehicles, rather than for their integration with the project's layout and the residents' convenience. Thus, their most logical location is in the parking area. Although this location within the parking area has a functional and practical purpose, the design, placement and functioning of the disposal facility is essential and should be taken into consideration in the design of a residential environment.

- The location of the disposal facilities within a project should respond to the layout organization. While the most favorable location is related to the parking area, this is only practical if the design of the project is based on clusters of dwelling units around well-defined parking areas which service them.

- Thus, the location of the disposal facilities within a project should be carefully planned following the guidelines and emphasizing a careful control of their appearance and safety. They should be located near the units; and accessible to users. There should be a clear definition of their separation from pedestrian movement.

- The location of disposal facilities (garbage containers) within the parking area should be designed to avoid interfering with the organization of the parking stalls and the vehicular movement, and there should be a safe and simple means of access for any user, whether senior citizen, handicapped or child. Thus, the location of garbage containers should be directly accessible to both disposal collecting vehicles and users, while providing safety, functionality and direct control from the surrounding dwelling units.
When disposal facilities (garbage containers) are located at any place other than the parking areas, the location should be designed to avoid interfering with street traffic, pedestrian routes and play areas. Primarily, placement near very active places for children, such as playgrounds, parks or pedestrian courts, where the facilities present safety and health problems, should be avoided.

**AVOID ALL THIS : OPTIONS**

- Centralized
- Front
- Back Corner
- Front Corner
- Random

**AVOID THIS**

- Maneuvering

**DO THIS**

- Direct

**AVOID THIS**

- Garbage Disposal Option
- Accessibility to Disposal

**DO THIS**

- Steps
- Ramp

**OR**

- Exposed Container
- Door-Screen
- Angled Location
- Back Location w/ Side Steps
- Front Location w/ Lateral Ramps

The location of disposal facilities should be designed to improve the character of the cluster where they are located. It should be remembered that these locations are frequently casual settings for brief social encounters and of common concern to the residents sharing the disposal
facilities. If these locations are not carefully planned, they can be sources of decay, vandalism, graffiti and unsanitary conditions in the cluster.

The locations of disposal facilities and the handling of their equipment requires particular attention from both users and collecting services. The collecting services should be requested to follow careful handling procedures in the treatment of the containers and in returning them to their specific locations. Since many of the problems of maintenance and visual decay in a project originate with the careless handling of communal facilities, it is important that the area assigned for disposal facilities be kept in good order.

ii) Clustering: play facilities.

General Considerations:

- Play facilities in a project can generally be grouped into two types: Play Areas and Playground
Facilities. The difference between them is a matter of scale and relatedness, either for the use of a particular cluster or for the project as a whole.

- In some cases play areas seem to be treated as part of the landscape rather than as centres of activity for a particular cluster of dwellings. In other cases the playground of a project becomes the neighborhood sports field, to the disadvantage of the project's privacy and control. In both cases the project's territorial characteristics are set in conflict either because of the undefined character of the play facilities, or the over-emphasized open (public) character given to the playground area.

- Often these are sources of complicated interrelationships between project and surrounding neighborhood. This is due either to the project residents' perceived sense of invasion by the neighborhood, or the neighborhood residents' perception of a self-contained project with no relationship to the community.

- It is clear that the character given to the recreational facilities in a project can contribute to strengthen social networks of spontaneous interaction between project and community, or can contribute to alienation. Therefore, proper planning of these facilities is very important.

- Thus the preliminary decisions made in planning play facilities in a project should include their size based on the project's needs and the available facilities located within the surrounding community. Next, their character, either as a public, semipublic or private facility should be determined. And, finally, their most functional location can be selected.

- Another consideration in the preliminary planning decisions is the interrelationship of the play facilities' design with the project's general organization.
- The play facilities can be organized in either one of the following forms of grouping: Random; Hierarchical or Centralized. While these are functional options, their implementation depends on the characteristics of the project and most of all on the nature of their users.

- Without elaborating further on the location of the play facilities, the relevance of understanding the characteristics of their users, whose activities contribute to a large extent in determining the design, location and character of the project, should be pointed out. While the main users of these facilities are children, teenagers frequently tend to establish their "turf" in these areas of the project which often results in conflicts. Compatibility between children and teenagers sharing play areas is rare, and the planning of their activity areas should be considered individually and located apart from each other.

- The planning and locating of teenage outdoor facilities in the project may not seem practical since teens have a tendency to stay away from the project. However, it is important that the teens have a place within the project that is considered their own "turf." Furthermore, the character of this facility should not be similar to the kind of environment that may be found in a community centre. Rather, it should be more open and detached from a controlled facility, but not isolated in the project; i.e., club house, tennis or basketball courts.

- Thus, the planning of facilities for teenagers should consider the availability of sports facilities within the surrounding community in order to determine what type of facility would be appropriate in the project.
- The planning of play facilities for children should consider the tendency for their activities to spill over into other areas. This "spill-over," if not controlled, can create conflict in other areas, such as circulation routes, resting and landscaped areas. This extension of their activities tends to lead them into the parking areas of the project, away from the surveillance of their homes, and consequently away from the facilities planned for them.

- Thus, the planning of children's play facilities in a project should be considered from two aspects: The play facility should be designed and located so that the play area is physically defined and circumscribed, with an entrance and exit. Second, other areas in the project which become victimized by children's activities because of the undefined character and territoriality of those areas should be analyzed and modified. In these areas of the project a "defensible design approach" should be encouraged which clearly defines the territoriality and recognizable functions of the open space.

- In conclusion, the organization of the play facilities in a project should be established with the characteristics of the users in mind. The "random grouping" of play facilities servicing a cluster of dwellings or the "centralized grouping" of play facilities servicing a whole project should be encouraged, but not in the same project. The organizing of play facilities into individual clusters or into a hierarchical system leading to a large play facility (playground) in the project should be discouraged as this causes duplication of facilities and the possibility of losing control of the children's activities.
Play Facilities:

The following general guidelines have been developed to apply to any type of play facility.

The design of play facilities should be creatively incorporated into the clusters' open space, and their layout should be planned to accommodate different activities for children of different ages.

The design of play facilities should clearly define the play area by the use of different pavement materials, changes in levels, hedges, fences or other elements that help to determine their boundaries and ratio of activities.

The design of play facilities should provide partial enclosure on at least three edges.

The design of play facilities should avoid location in direct proximity to the units' main accesses or in direct contact with the street traffic or project's parking facilities.
The design of play facilities should avoid proximity to circulation routes. There should be clearly defined physical buffer zones that separate the play facilities from the circulation routes, while visually, if possible, still maintaining contact with the rest of the project.

The design of play facilities should avoid location in narrow and tight spaces. A south-west exposure is favored, thus avoiding shadow during the early months of spring and late months of fall. If circumstances allow, the play area should be located in the cluster in such a way that it will become partially shaded in the summer months.
Play Facilities.- Random Grouping:

The random grouping of play facilities encourages the organization of the project into a series of internalized clusters with independent unifying activities separated from the circulation routes. It emphasizes privacy and distinct territoriality.

The random grouping of play facilities should contribute to establishing activity centres that strengthen the project's general organization by limiting their locations to specific areas of the project that prevent them from becoming connected with or expanding into the main circulation routes.
The random grouping of play facilities should avoid the creation of isolated clusters or overcrowded facilities that either accentuate severe enclosures and alienate their users or overemphasize an open accessibility that threatens the privacy of the dwellings and the territoriality of the clusters.

The random grouping of play facilities should be designed to avoid interfering with the privacy and territoriality of the dwelling units defining their enclosure. At the same time they should encourage activities and maintain relatedness with the rest of the project.

The random grouping of play facilities should be selective without overemphasizing their size in relation to the clusters, or their importance in relation to the other facilities in the project. The play facilities should be planned to serve an equal number of potential users within the ratio of dwelling units defining their clusters.
Play Facilities - Hierarchical Grouping:

The Hierarchical grouping of play facilities favours open-endedness in play areas and its intention is to maintain an ongoing sequence of activities throughout the project. If this sequence is developed throughout the project, its implications for open space as well as for the privacy and territoriality of the dwelling units can be devastating. Consequently, hierarchical grouping should be discouraged. However, if the sequence of play activities is confined to a particular area in the project which allows for the progression of activities without interfering with circulation routes or the cluster's internal organization, then the hierarchical grouping of play facilities in the project could be considered as an alternative. The following guidelines apply for this particular situation.

The play facilities should be physically contained within a clear, determined area of the project. Their location and development could encompass various clusters or a section across the project.

The play facilities should be planned to avoid cross traffic from thoroughfares and internal routes in the project.

The play facilities' location should facilitate visual contact and control from the surrounding units.

The play facilities could be part of a central core of facilities and relaxation areas in the project, but they should otherwise be maintained strictly separately from other types of outdoor facilities.
Play Facilities - Centralized Grouping:

The centralized grouping of play facilities should be considered when a facility which services a particular cluster of buildings (i.e., Random Grouping) needs to be enlarged to service all the project's clusters. It could also be considered as a compacted form of the Hierarchical Grouping of facilities in a project.

The Centralized Grouping of play facilities has the same constraints as any other type of play facilities. They must have well-defined physical boundaries in order to avoid interfering with circulation routes, and visual proximity to the units should be maintained to ensure some kind of...
control and safety for the user.

The advantage of a Centralized Facility over Random and Hierarchical Groupings is that it is capable of becoming a strong focal point in the open space organization of the project, or becoming part of the Urban Open Space system in the community, due to its spatial relatedness to the project and the surrounding neighborhood.

The Centralized Grouping of play facilities can increase the levels of social interaction and relatedness between project residents and the surrounding neighborhood, as well as between project residents themselves.

There are two major disadvantages which a Central Facility poses. One is its limited range in servicing only a particular size, density and clustering type of project. The second is its centrality in the project which inhibits its accessibility to residents far from the centre. Or, the spill over of users' activities into the rest of the project may lead to conflicts.

Thus, in selecting the appropriate type of play facility for a project, the selection of a Centralized Facility should take into consideration the implications of a controlled open space by a number of dwellings, versus public open space that can change the whole character of the project's organization.
iii) **Clustering: Dwelling grouping.**

**General considerations:**

Residential clusters can be the result of combining, or variations of, either one of the two traditional forms of organizing dwelling units to enclose an area and create a shared common open space. The two traditional forms are the courtyard and the mew.

The basic form of the courtyard requires the total definition of the four edges determining the enclosure of the open space. While the mew also depends on the enclosure of an internalized open space, three of its edges are buildings and the fourth is partially open, functioning as a gate.

Both courtyard and mew can be used to emphasize pedestrian areas, although the mew traditionally incorporates vehicular transit within. However, in these guidelines the scope for residential clustering will be limited to the enforcement of territoriality in pedestrian clusters and the definition of territoriality in the open space of the dwelling units.
Residential clustering should maintain unity and relatedness while it contributes to diversity in the project. It should increase the residents' awareness of their space by emphasizing the privacy and territoriality of the clusters, as well as that of the individual units.

Residential clustering should emphasize the semi-private character of the clusters by defining transitional zones that create a hierarchical order from outside the cluster, within the cluster, and into the dwelling units.

It should enhance visual privacy into the units; define territoriality of the front and back yards; and enforce the communal character of the cluster in order to develop a defensible space.

Residential Clustering can encourage two different types of internalized spaces in a cluster. One enforces the units' main access from a central communal area. The other promotes the location of back yards and service areas. In the first case the residential clustering encourages
the development of a focal point either in the form of a passive landscape area for relaxation, or the active character of a play facility. In the second case the central area can be utilized either as a play facility or parking area. In either case, the character of the residential clusters should be consistent with the units' main accesses, avoiding the combining of parking areas and the main access to front yards, or the characterless green or paved areas with the units' front or back yards.

Residential clustering should avoid the use of main thoroughfares or the intrusion of vehicular traffic.

Residential clustering should avoid mixing play and rest areas in one facility. They should be separated and their uses clearly defined.

Residential clustering should not be located too closely together. The central area should not become claustrophobically enclosed but should enjoy good sun penetration.

Avoid this and this and this too.

Do this...
c) **Continuity**

General considerations:

- Continuity in the internal organization of the project's open space is concerned with the unity and relatedness of places (clusters) and their interconnecting systems (circulation systems) that contribute to creating a setting for social interaction. However, continuity should not be understood as a particular condition to observe in the project's open space organization. Rather it should be seen as part of an overall unifying system whose aims are to interrelate **Places**, **Open Space**, and **Territorial Domains** in order to give a coherent character and form to the urban environment.

- Thus, continuity as a unifying system between the surrounding community and the project's internal organization serves to coordinate the clustering and circulation systems in the project; and defines the physical and visual characteristics of the open space which maintain a relationship between places within the project and its boundaries with those of the surrounding community.

- Since the previous sections of these guidelines have dealt with the relationship between Clustering and Circulation Systems in the project's open space organization, this section of the guidelines will focus on the physical and visual characteristics of the open space that contribute to maintaining relatedness and unity in the project and the surrounding community. For this purpose, Continuity will be considered first, as an overall system composed of **Places**, **Open Space**, and **Territorial Domains**, and second, as a series of physical and visual conditions to be maintained within the overall system.
i) Continuity as a system. Continuity as a system should emphasize the quality of the open space as a connector of places that are able to develop physical and social relatedness in the urban environment and unity between old and new buildings. It should help develop a related physical and visual sequence of the built environment, emphasizing a hierarchical order of domains.

Continuity as a system should make use of both the physical and visual characteristics of the open space to introduce unity and relatedness. Supplementing the design of a project's layout, continuity as a system can be interwoven with the project's open space organization to introduce unity and relatedness between building form and character; and compatibility and interrelatedness between people, buildings and places within the project and the surrounding community.

The implementation of continuity as a system in the internal organization of the project requires that the three following considerations be employed in the definition, character and function of the open space. **First:** Open space should be hierarchically organized into places with a clearly defined character and function by promoting the location of these places in the project as centres of activity and spatial relatedness between project and community, and within the project's clustering layout. **Second:** By determining the character of the open space in the project and defining physically and symbolically the transitional points where the changes in character occur from the public realm to the communal and into the private realms, the character of the open space should be organized hierarchically.
First consideration:

Second consideration:
Third: The physical and visual characteristics of the surrounding community's open space should be introduced into the project by interpreting the patterns of the street and extending over the visual corridors of the surrounding neighborhood.

- Continuity as a system in the project should maintain the physical and visual character of the streetscape as determined by:
  - Street patterns: set-back; landscape; topographic characteristics
  - Building type: proportions; height; roof shape; roof lines; projection; texture; color; materials; etc.
  - Open space enclosure: street width; building height; projection lines; skyline; roof lines

Third consideration:

DO THIS

BUILT FORM
SHOULD MAINTAIN
A SIMILAR PROFILE
TO STREET PATTERNS
SUCH AS VARIATIONS IN
STREET SCALE & BUILDING
HEIGHT

AVOID THIS

CONTRASTING FORMS
CONTINUITY AS A SYSTEM

C CLUSTER PATTERNS

A STREET PATTERNS

B PROJECT PATTERNS
- Continuity as a system in the project should make use of the existing spatial relatedness between project and community by promoting the sequence of open space enclosures, defining the skyline, and determining visual corridors throughout the community context.

There are general considerations in terms of continuity that visual corridors can enhance:
- Visual corridors should be maintained over and through the project organization to link landmarks or points of orientation in the community.
- Visual corridors should be carefully developed through the project to enrich the street scape and the internal amenity of the project's open space.
- Visual corridors should be considered as predesign determinants in the layout of the project.
- Visual corridors should be encouraged as free channels of public character, without intruding into the private areas of the dwelling units.
- Visual corridors should have definition, character, relatedness, and should contribute to enrich both the unity of the project with the community, and the project's internal organization.
- Visual corridors should convey directness and clarity in the open space design in order to integrate the physical character of the project's organization with the perceptual relatedness of building form, scale, proportions, color, textures, rhythm of solids and voids, etc.

The characteristics of the visual corridors basically follow the alignment of streets, lanes and open areas (parks) in the community context. Thus, their particular characteristics depend on the types of enclosures defining their sequence through or into the project, and can be grouped into three categories:
- Open Corridors
- Layered Corridors
- Framed Corridors

**Open Corridors** such as the main accesses or gates to thoroughfares into the project should be developed to create a sense of relatedness and unity with the street scape to which they ajoin or which they extend. Open corridors should avoid the feeling of emptiness, over-exposure, or confusion. They should be developed to create a sense of scale, direction and amenity.

**Layered Corridors** forming secondary access into the project, or gates that are not related to main thoroughfares, should maintain visual links with the surrounding community as orientation points or as recognizable territorial definitions of privacy and territoriality with the community.
Layered corridors should avoid ending at a building or main plane of reference, or at a characterless sequence of planes leading to a building in the background. They should appear to be continuous corridors. By using the blocking building as a frame or as a gate, the corridors can create visual sequences in one direction.

**Framed Corridors** correspond to any of the above types of access, but in this case there exists a main frame of reference that sets a foreground extending to a middle ground and ending with a back ground. These kinds of visual corridors are important because they help enrich the street character by determining transitional points between the project and community, while defining a change in territorial domain from the public to semi-public or private realms of the project.

Framed corridors should avoid being directly blocked by buildings that end the sequence or create a sense of emptiness. They should encourage direct mobility from one place to another, or create a determined path or sequence to be followed.

Finally, Visual Corridors in general should not be related to zones in the project which could become easily deteriorated or develop a negative image (i.e., parking lots or service areas). They should avoid being developed over vehicular circulation areas or back entrances to buildings.

Thus, Visual Corridors should avoid being directly related to visual chaos or vehicular traffic zones by creating buffer zones to ameliorate the negative visual impact and developing framed sequences to a defined point within or beyond the project.
VISUAL CORRIDORS:

A - OPEN CORRIDOR

B - LAYERED CORRIDOR

C - FRAMED CORRIDOR

AVOID THIS:

1a

1b

1c

DO THIS:

1a

1b

1c

2a

2b

2c

3a

3b

3c
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APPENDIX A-1
RAYMUR PLACE
PHASE II: PROJECT LEVEL

1. General Characteristics

Raymur Place was built in 1967. It is located in the depressed residential area known as Strathcona in the core of the city of Vancouver. It was part of an extensive Urban Renewal Plan which was later frozen by the actions of local residents.

Raymur Place, including its lanes, takes up the equivalent of four urban blocks. It is located adjacent to an east-west city artery, Hastings Street, and to the Burlington Northern Railway right-of-way. This area lacks commercial services and has very few community facilities.

Raymur Place, housing 1000 residents, is the largest public housing project in Vancouver. The project houses pensioners and families, but families predominate.

The project has two eleven-storey high-rise towers and various row house buildings. One of the high rises houses pensioners (seniors), the other families. The row houses vary in height. There are 11 four-storey buildings; 5 three-storey buildings; and 3 two-storey buildings with cellar included.

The buildings of Raymur Place exude an image of austerity and coldness which is accentuated by the concrete and brick finishings. Large areas of pavement and asphalt surrounding the building's clusters give the project a "concrete jungle" atmosphere. Raymur Place stands in stark contrast to the old wooden dwellings in the surrounding neighbourhood to the west and the rundown industrial area to the east.
The project has only two common indoor spaces, located on the ground floor of the high-rises. The family high-rise common space provides a large meeting room with a kitchen and a couple of small rooms what are used for preschoolers and services such as meetings, and birthdays. The second common indoor space in the seniors' tower provides a lounge with a kitchen, television, piano and portable furniture. There is also access to a woodworking shop with tools.

There is a community centre, Ray-Cam, located at the northern corner of the project, which provides indoor facilities to Raymur Place residents.

Raymur Place's outdoor spaces are mostly finished in concrete with the exception of a good-sized playing field in the southern corner of the project and small clusters of play facilities throughout the project. New landscaping of the project has taken place during the last few years (1979-81) with the additions of trees, benches and play areas.
2. **Resident Profile - 1980**

1980 Population of Raymur Place: 1,000 People, Maximum Capacity 1,817

Number of Units: 375

<table>
<thead>
<tr>
<th></th>
<th>Bachelor</th>
<th>1 Bdrm.</th>
<th>2 Bdrm.</th>
<th>3 Bdrm.</th>
<th>4 Bdrm.</th>
<th>5 Bdrm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>82</td>
<td>0</td>
<td>154</td>
<td>117</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Family Units: 241  
Senior Units: 134  
Caretaker Units: 2

**Resident Groups**

Family Population: 850

<table>
<thead>
<tr>
<th>Family Count (with children)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Single Parent Families: 118</td>
</tr>
<tr>
<td>Number of Two-Parent Families: 88</td>
</tr>
</tbody>
</table>

**Age Groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>Total</th>
<th>Number Employed:</th>
<th>Number on Social Assistance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td></td>
<td>492</td>
<td>112</td>
<td>215</td>
</tr>
<tr>
<td>Children</td>
<td>0-5</td>
<td>67</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6-12</td>
<td>134</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13-14</td>
<td>48</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15-18</td>
<td>109</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seniors-over 55</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Rent (Oct. 1980)**

<table>
<thead>
<tr>
<th></th>
<th>Bachelor Unit</th>
<th>1 Bdrm.</th>
<th>2 Bdrm.</th>
<th>3 Bdrm.</th>
<th>4 Bdrm.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$108</td>
<td>$235</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Rent increases conform to those of the City - 10% per annum).

**Income**

<table>
<thead>
<tr>
<th></th>
<th>Average Family Monthly Income: $583</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Senior Monthly Income: $433</td>
</tr>
</tbody>
</table>
The following table shows the changes in the resident profile of Raymur Place between 1972 and 1980:

### Resident Profile

<table>
<thead>
<tr>
<th>Date</th>
<th>Population</th>
<th>Age Groups</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1972</td>
<td>1980</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>1,209</td>
<td>0-9 278</td>
<td>0-12 201</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>1,000</td>
<td>10-14 205</td>
<td>13-14 48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15-19 144</td>
<td>15-18 109</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adults 421</td>
<td>Adults 492</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Family Structure

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Parent Families</td>
<td>118</td>
<td>118</td>
</tr>
<tr>
<td>Two-Parent Families</td>
<td>114</td>
<td>88</td>
</tr>
<tr>
<td>Seniors</td>
<td>161</td>
<td>150</td>
</tr>
</tbody>
</table>

### Average Family Size

(excluding pensioners) 4.3 persons 4.0 persons

It can be seen that the resident profile of Raymur Place has undergone only subtle changes over the past eight years as far as the number of people are concerned. There are, however, noticeable differences in the age groups. Today (1980) the age group 0-10 remains the second largest group after the adult group even though there has been a 28% decrease in the number of children between 1-10 and a 17% increase in the number of adults.

Children between 0 and 10 years of age represent 20% of the total population; children 13 to 18 years of age 16%; and adults 49%.

On the other hand, the number of single-parent families has remained constant while the number of two-parent families has decreased by 23% and the seniors by 6%.
Two-parent families make up only 36% of the family population while single-parent families make up 48% of the total number of families. 16% of the family population has no children.

94% of the population of Raymur Place consists of families while only 6% are senior citizens.

22% of the total population are either unemployed or on social assistance while 97% of the families have an income of less than $13,000 per year.

Raymur Place is a housing project consisting of a majority of single-parent families with one or two children, living on social assistance or unemployment. Adults between 19 and 55 years of age make up the largest group (49.5%), followed by children and teenagers (36%). Senior citizens make up a minority group (14.5%).

3. Site Analysis

Two strong characteristics influence the setting and definition of Raymur Place. First are the boundaries established by the street grids framing the site and, second, the topography.

a) Boundaries

There are four well defined boundaries surrounding the site: on the north is the Hastings Street Viaduct, on the south is Union Street, on the east is Raymur Drive, and on the west, Campbell Street.

The grid pattern of this district is intersected in an east-west direction by Campbell Street where the grid meets Raymur Place, confining vehicular mobility to the north and south edges of the project on Hastings and Union Street. Consequently, Raymur Place Project becomes a loop circumscribed by vehicular traffic.

The social and physical characteristics of the land uses
bordering Raymur Place are sustained by the street patterns. The northern boundary is accentuated by the commercial activity of Hastings Street, Ray-Cam Community Centre, and the Viaduct bridge. The Hastings Viaduct is the strongest feature defining this edge of the project, located almost 40 feet above the central mall of Raymur Place. Between the retaining wall of the Hastings Viaduct and the edge of the project, a lane connects Campbell Street on the west to Raymur Drive on the east and maintains an open circuit in and around the project.

On the south, Union Street functions as a secondary channel for traffic east and west in this area. Two senior citizen's housing projects bordering Union Street define the southern edge.

Raymur Drive borders the east side of Raymur Place. Adjacent to it is a narrow strip of industrial land crossed by the railway tracks of the Burlington Northern right-of-way which defines this boundary.

Finally, Campbell Street and the residential land uses of the community of Strathcona define the west side of this boundary.

b) **Topography**

The site is an elongated rectangle with a wide side on the north and a narrow one on the south. The summit of the land is at the north-west corner. From this point the land slopes quickly toward the east meeting Raymur Drive. The slope becomes more gradual
towards the south along Campbell Street. The project has been built on three terraces which slope from west to east.

The central terrace maintains a uniform level from north to south. While the other two terraces follow the slope of the street, they each run parallel to Campbell Street on the west, and Raymur Drive on the east.

Similarly, the changes in topography can be noted along the pedestrian thoroughfare (west-east), as illustrated, along Pender, Keefer and Georgia Streets. These variations in topography determine the characteristics of the buildings' clusters.

c) Layout

Raymur Place Project has been developed along a central north-south pedestrian mall, so that a parking lot connects the north end with a playground at the south. The project is organized into groups of buildings creating diverse types of clusters from framed courts to single buildings. Some of the single buildings frame one or two sides of parking areas. There are 6 major parking areas in the project, the largest one located at the north end of the project. The other 5 parking areas are dispersed throughout the project, two facing the access from Raymur Drive in the east, and three on the west with access from Campbell Street.
Four small play areas function as the unifying core of their clusters. One play area is almost lost at the edge of a building and Raymur Drive. Finally a good-sized playground on the far south-east corner of the project functions as a community facility for the project.

There are only three major accesses from Pender, Keefer and Georgia Streets on the west into Raymur. The continuation of adjacent lanes into the project provide the access to some of the parking lots in the project.

Keefer Street provides the only extended continuity through Raymur from east to west. The other accesses from Georgia and Pender are blocked by a protecting fence of the Burlington Northern Railway right-of-way. Therefore, the only thoroughfare intersecting the central mall in Raymur is on Keefer Street, while Pender and Georgia Streets become linked together at either end of the mall.
d) Building Types

The buildings in Raymur can be categorized as: isolated buildings (Towers No. 1 and 2), framed by composite "L"-shaped buildings and small groups of 1, 2, or 3 separated buildings organized to define a cluster.

i) The isolated buildings

The isolated buildings are two towers 10 and 12 floors high. The 12-storey building is located in the center of a large square and divides this square into two separate clusters. It acts as the central focus and beginning or ending of the central mall.

Function: This building houses families and couples as well as the administrative center for the project.

The 10-floor isolated building is separated from the surrounding buildings by means of an elevated platform (retaining wall) which dominates a corner of the central mall area. This corner is created by the pedestrian network from Keefer Street and the central mall framing the tower on two sides. The third side is a parking area and the fourth is the edge of the project bordering Campbell Street. The tower has no relation to any of the
surrounding buildings and clusters.

Function: This building provides 4 units of senior housing with ground level access and small gardens while all the other units have a balcony.

ii) Composite "L"-shaped Buildings

This group of buildings is small, but is second in height after the towers. The buildings are 4 stories high and are located in two opposite zones of the project. The north zone contains a half-framed cluster which is formed by two of these buildings. One of these two buildings is double "L"-shaped and one of its arms extends along the central mall area. The other building defines the north-east edge of the project. The third building, located in the south zone, is isolated. It frames one edge of the playground area and bounds two sides of a parking area.

North Zone: The two buildings frame an irregular rectangle which is open in the middle. The separation between both of them and their irregular alignment define three sides of this cluster. The fourth side is blocked by the mass of Tower No. 1 which leaves open areas at the corners where the tower abuts with the other two buildings.
Function: These buildings house families. There are two stories per unit. The ground floor units have backyards and a small front porch.

South Zone: There is only one "L"-shaped building at this end of the project. It is not part of a cluster but its shape defines two open areas, the playground on the east side and a parking area on the west. As a result, the building is completely isolated.

Function: This building houses families. There are 2 stories per unit with a backyard for the units on the ground level. Only one wing of the building has small front porches.

iii) Small Group of Buildings

This group consists of buildings with 4 stories and with 3 stories. The first group has individual buildings with a long body and duplex-type units. The second group is made up of short individual buildings with no more than five single units per building.
Small Group of Buildings, 4 Stories High: these buildings are part of clusters or exist in conjunction with other buildings defining spaces (i.e., part of the central mall and right wing of the playground area). All of them have ground level units with backyards and only one out of the four has a small porch at the front of the ground level units (building in playground area).

Function: These buildings provide family housing. Each unit has 2 stories with backyard at ground level, or a balcony at the third level.

Small Group of Buildings, 3 Stories High: These buildings are key elements in supporting the enclosure of some clusters and channeling the interaction of the open space in Raymur. They are short and low compared with the other buildings in the project. Four of them have front yards only. The other three have a small porch and a backyard.

Function: These buildings provide family housing, 3 stories high, with a good sized front porch.

4. Project Open Space Analysis

The open space used by residents and transients throughout Raymur is primarily defined by several clusters connected by an internal pedestrian mall. The internal mall is crossed east-west by pedestrian routes defined by the interrupted vehicular circulation of three bordering streets on the west and east sides of the project. Only one of these three pedestrian routes (Keefer Street) has extended continuity beyond the project. The other streets (Pender and Georgia) become dead-ends in the project (Pender) or at the edge of the bordering street (Georgia).
The Open Space in Raymur can be divided by its use and physical definition as Contained Open Space and Dispersed Open Space. Both can be divided into two sub-categories as follows:

**Contained Open Space:** defined clusters
- circulation areas

**Dispersed Open Space:** semi-defined clusters
- open areas

---

a) Open Space: Typology

i) Contained Open Space

In this group only three areas of the project can be considered as defined clusters. The first area is located on the north side of the project. It is clearly defined by the several buildings bordering it. There is a building in the middle which divides this cluster into two sections east and west. The topography of the site also creates a strong delimitation in two escalating platforms. The cluster has four direct accesses as defined by the space between buildings. One of
them is a gate framed by a building on the west side (Campbell Street) and it becomes the continuation of the pedestrian route on Pender Street into the project. On the north side an unmarked access to Raymur is created by the space between two buildings. At this same place a third building divides this access into two separate directions east and west.

On the east side a clear span between two buildings opens the third access from Raymur Drive into this cluster. The fourth access is the transition of the central mall area into the cluster from the south. In this cluster there are four secondary links from inside the project into the east and west zones in which the cluster is divided by the middle tower. From the south side feeding into the west zone there are two links while in the east zone there is only one. From the north side there is only one secondary link into the east zone of the cluster.

Defined Cluster: the second area of the project with a defined cluster is located in about the middle portion of the project and has a well defined enclosure (surrounded by four buildings).
This enclosure helps to define another cluster in the adjacent area towards the south by sharing one of its lateral buildings. There are 4 accesses, one at each corner. Three of them are pedestrian routes, the fourth one is a vehicular access which also is used very frequently by pedestrians as an in and out route. The vehicular-pedestrian access is located on the west side bordering Campbell Street and is almost in line with the lane easement across the street.

Another pedestrian access from Campbell Street into this cluster is located at the intersection of Keefer Street with the project, the south-west corner of this cluster. On the north side a double access is created by steps and stairwells connecting the central mall with this cluster. This occurs similarly on the south side.

There is only one secondary access into this cluster from the adjacent cluster on the south-west corner.
**Defined Cluster:** The third area is located adjacent to the preceding cluster. Both areas share a building defining their cluster. This third cluster has four accesses. Two are indirect from Campbell Street and the other two are a mixture of internal circulation and cluster access. The two indirect accesses on the west side, Campbell Street, are part of another cluster or are circulation routes. The access in the north-east provides access from the central mall into this cluster and maintains in a tangential way continuity with the mall and throughout the project. On the opposite side (south-east) the access is almost undefined and is more of a circulation pattern than an access into a cluster. There is a secondary access link into this cluster. It runs parallel to the mall's narrow passages (north-east) and it is also narrow as it runs between two buildings. The only difference is the access point, one story high above the cluster and mall level, connected by stairs to the cluster cove and into the circulation flow. Both
the mall's access and this one cut in a tangential way the east side of the whole cluster.

**Circulation Areas:** The first circulation area is defined by the pedestrian thoroughfare of Keefer Street crossing Raymur from west to east. This circulation area is intersected by the internal pedestrian mall in a north-south direction creating a circulation node at the intersection. The circulation on the Keefer Street route from Campbell Street on the west to Raymur Drive on the east side of the project is mostly narrow and slopes down toward the east side. The first portion of the circulation route is narrowed by a 10 - 12 foot high retaining wall on the left side and a front yard of a low-rise building (3 stories). This ends at an irregular open space where the circulation is diverted towards the left and right into the central mall's north and south areas. This point where Keefer Street intercepts the central mall defines the central node of the northern circulation area.

Continuing along
Keefer's thoroughfare, the circulation is framed by the narrow lateral sides of two buildings and the open space of a parking area screened by a line of trees on the left and a sunken play area on the right. The Keefer pedestrian thoroughfare ends at the curb of Raymur Drive on the east side of the project and across the street it is met by the ramp of an overpass to the bordering community (Kiwassa).

The central mall circulation is bounded by buildings on both sides, on the north section by a medium-sized low-rise (3 stories) and a retaining wall crowned by a high-rise (12 stories). The mall ends at the point where it becomes part of a cluster on the north side of the project. On the south side the circulation is bounded by medium high-rises (3 and 4 stories), ending in a narrow passage to a cluster and some stairs down to a parking area.

Circulation Areas: The second circulation area is the pedestrian thoroughfare into the project from Georgia Street. The circulation area is defined in two levels. The first level has a gentle slope (ramp-like) from Georgia Street to the point where it and the central mall and the circulation get redirected into two different directions, north and south. The second level is stepped down one floor below the main circulation area and is connected by a set of stairs. The stairs narrow the flow of circulation and turn the second level more into a path-
way to the edge of the curb on Raymur Drive, where there is no pedestrian continuity beyond this point across the street.

The first part of this circulation area is not strongly defined by buildings but by grass and landscaping. There are two buildings on the right side helping to define the pedestrian flow, a church and the narrow side of a building. Both are no higher than four stories. In the same area but to the left, a two-storey high building flanks this circulation directing it towards the stairs. The changing levels of the circulation mark also the bifurcation of the pedestrian routes towards the left (north) into the enclosure linking the central mall's circulation area and to the right (south) towards the playground area where Raymur borders Union Street. The second part of this circulation area is comprised of a sunken green area framed by the 4 stories of the building on the right. The circulation route changes level, creating a feeling of narrowness at the point where the stairs are located. On its left side this circulation area is defined by the narrow side of a building and the open space of a parking area.

ii) Dispersed Open Space

Semi-Defined Clusters: There are six areas that can be grouped into this category. The first area, from north to south, is located at the bordering edge of the project with the retaining wall of the Hastings
Viaduct, defined by Raymur Drive on the east and Ray-Cam Community Center on the west. The cluster is part of a lane and it functions as a parking space. This cluster has no physical delimitation on the east side, but the street has two clear accesses: from the west as a continuation of the lane and on the east as an access into the project. The use of this area is mostly vehicular and often used by children and teens for play. The cluster has a ring of grass in every direction except where it borders the community center. This cluster also is a center of distribution to the surrounding buildings. It has two connectors with the project, both located on the south side. One of these connectors is the corridor at the corner of two buildings where they intersect and the other, the open space between three buildings. The cluster maintains a sense of enclosure from the tall retaining wall of the Hastings Viaduct, the four stories of the opposite building, and the shape of the Ray-Cam Center at the Hastings Street level.
Semi-Defined Cluster: The second semi-defined cluster is located close to the center of the project on the north side of Keefer and borders with Campbell Street on the west. This cluster is a parking space and is also used as a short-cut to some of the buildings surrounding it. There are no physical delimitations on the west side of this cluster, only a grassed area between the street and this area. The bordering edges of this semi-defined cluster are four buildings, a railing, and the drop of the floor level on the east side. Two of the buildings define the north-east corner, leaving between them space for a walkway.

The narrow side of the third building completes the north side of the cluster and suggests the missing west side facing Campbell Street. These three buildings are three stories high, but due to the topography of the site, only two stories frame the cluster. The fourth building is a tower 12 stories high and sets the south side of the cluster. Half of the east side is defined by one of the buildings shaping the north-east corner and the other half is open with a
railing fencing the change in floor levels. There is one direct access and two connecting links to the surrounding cluster on the north side and one link to the central mall area. There is no sense of enclosure but of open space framed on two sides. The cluster is open on two opposite sides and strongly framed by its lateral edges creating a visual tunnel throughout this cluster.

**Semi-Defined Cluster:** The third semi-defined cluster is adjacent to Keefer's pedestrian route on the north-east side and almost at the central part of the project. This cluster is a parking area and used mainly for vehicles. It has a wide grassed area between the parking area and the edge of the street, Raymur Drive. On this side, east, there is no physical delimitation of enclosure. This cluster is defined by two buildings. These two buildings are connected at the point where they change direction and at the same time define two sides of this cluster. The buildings are 4 stories high and frame the north and west sides of the
cluster. The south side is completely open, except for a retaining wall for the ramp on Keefer's thoroughfare creating a small step which varies the enclave's floor level. The main access on the east side is open to anyone. The cluster has three links to the surrounding cluster, two of them on the north side connecting this cluster with the adjacent one, the third link on the west connects with the central mall area. The cluster is too open visually and has very soft delimitations on two sides (east and south) contrasting with the solidly defined building facades on the north and west sides.

**Semi-Defined Cluster:**

The fourth semi-defined cluster is located south of the Keefer Street thoroughfare. The cluster faces Raymur Drive to the east and is bounded by the Georgia Street pedestrian thoroughfare into the project. The cluster is partly a parking area and partly pedestrian open space. It has a small grassed area around its perimeter where it faces Raymur Drive without any physical delimitations of enclosure. The cluster is defined by three buildings, two of them creating the north-west
corner. The other building creates the south side enclosure. While one of the buildings creating the north-west corner has full exposure of its total length, the other building only contributes with its lateral side to define this corner. The buildings are 4 stories high and on the north side the cluster has only a suggested corner followed by an open green area which makes the north side of the cluster half defined.

The west side of the cluster is almost completely defined by one building except for the open space left between the end of this building and the one on the south side. The open space between the building on the south-west corner is caused by the alignment of the Georgia Street pedestrian thoroughfare and allows direct access into the cluster from the west. The south side is well defined by a 4-storey building whose total length encloses this side of the cluster. The main accesses consist of one vehicular on the east and one pedestrian on the west. Secondary accesses into the cluster are links to the surrounding areas. In the north-west corner of the cluster there are two links, one tangential and parallel to the building and the other indirect and to the south section of the central mall. On the south side two links at either end of the building connect this cluster to the playground area. The cluster's enclosure is undefined on two sides (east and north) while maintaining a well defined edge on the south and an edge partially defined with an open corner on the west.

Semi-Defined Cluster: The fifth semi-defined cluster is located in the south-west corner of the project. The cluster is a parking area surrounded by four relatively small grassed areas. The northern area has some trees of good size. The cluster is defined
by two buildings 4 stories high on the south and east sides. Both buildings are joined together at their bordering corners thus delimitating the cluster's south-east corner. On the north side the cluster is bounded first by a regular sized grassed area with some fully grown trees, then by a small building (Greek Orthodox Church). On the west side the cluster is open to the street (Campbell), except for a narrow strip of grass separating a parking area from the street. The west side has no physical delimitations of enclosure. The cluster has three main accesses. Two of them are on the west side off Campbell Street, and the third is a pedestrian thoroughfare in the north (off Georgia Street into the project). There are also two secondary accesses linking the east side of the cluster with the playground area. The enclosure of the cluster is unclear although there are two perfectly defined edges (south and east). The north edge is weak because of the scale of the church and the height of the trees on this side. Finally, the west edge is completely open, leaving the cluster with a feeling of openness.
controlled only by the massive south and east edges in the background.

**Semi-Defined Clusters:** The sixth and final semi-defined cluster is located on the south-east corner of the project and is a playground area. The cluster is defined by two buildings, one in the north and the other in the west. Both buildings are 4 storeys high. On the south side there is no delimitation except for a cyclone fence installed on the perimeter of the playground area creating a definition of the space, but not a visual enclosure. As in the south, the east side of this cluster is surrounded by a cyclone fence. The fencing of the east and south edges of this cluster leave open corners only between the fence and the building on the lateral sides. On the north-west corner the open space between the two buildings creates an incomplete edge which is similar to the others, creating open corners in this cluster. There are four main access points into this cluster; one on the south edge corner from Union Street, two on the east side, in the middle and the corner, from Raymur Drive, and the final one is at the north-west corner which is the main access connecting this
cluster to the rest of the project. There are also secondary accesses into this cluster from the north side and west side. Two secondary links on each side connect this cluster with adjacent clusters. The enclosure of the cluster is only physical and not visual. However there are two perfectly defined edges on the west and north sides created by the buildings on these sides and two fragile edges on the south and east sides created by the mesh cyclone fence. Although the cluster has four edges, only two count as solid definitions of the open space enclosure.

Dispersed Open Space - Open Areas: There are several patches of open space that are distributed irregularly all over the project's grounds. In most cases the open areas are located along the periphery of the cluster and the bordering edges of the project with the streets surrounding it. Two areas that can be defined are on the east side bordering Raymur Drive and the west side facing Campbell Street.

The area on the east side has three patches of open space. One is located north of the Keefer pedestrian thoroughfare adjacent to
the northern cluster and facing Raymur Drive. The other two patches of open space are located south of Keefer's pedestrian thoroughfare. One is a play area and the other is the corner of a semi-defined cluster. They are separated from each other by a parking area. There are five small patches of open space on the west side. One at the corner of the lane crossing Raymur Place from Campbell Street to Raymur Drive. The second and third are at both sides of the entrance to the parking area for Tower No. 2 at the north side of Keefer's pedestrian thoroughfare. The fourth is located on the south side of the same pedestrian thoroughfare. The fifth is located where Georgia Street initiates its pedestrian thoroughfare into Raymur.

These open areas have some function (play area, path, garbage area, or open green space), but generally the space is not used efficiently, thus these areas are underutilized open spaces.

b) Open Space and Buildings' Hierarchy of Privacy

The internal organization of the open space in Raymur follows a hierarchy which is defined by the use and character of the space between buildings, differentiating communal from private areas. The character of public use of the open space is defined by the pedestrian and vehicular circulation patterns around Raymur and connecting with the rest of the city.

The public character of the open space is extended into Raymur by the penetration of Keefer Street's pedestrian route and Georgia Street's interrupted thoroughfare. Similarly the public open space framing Raymur spills over into the project through the parking areas, which is communal space.
The internal organization of the open space in Raymur can be classified under the following hierarchy of use and character:

Communal Open Space

Semi-Private Open Space

This classification of open space into communal and semi-private has a very particular value in helping to define the sense of territoriality of cluster within the proximities to unit access.

i) Communal Open Space

Communal Open Space represents the largest areas in the project and is defined by the space between buildings creating circulation areas and clusters. Parking areas, playgrounds, green and landscaped areas within the project are included within this definition.

ii) Semi-Private Open Space

Semi-Private Open Space borders the communal areas and is linked to the privacy of the units. It represents a more refined aspect of use and character of the open space. Included in this
group are access porches, and the front and back yards of units located at ground level.

In both groups the corridors on second and third levels play a varied use and adopt a particular aspect of territoriality. These corridors have a communal character but provide a very strong sense of semi-privacy which is primarily identified as territoriality, given the open conditions of the corridors and the symbolic definition of the units' doors, which open directly to the corridor thoroughfare without transitions.

c) **Summary**

The analysis of the interaction between people, residents and passersby, and open space in Raymur Place has revealed modifications in their use that vary from the isolated to the dramatic. Thus, mobility patterns and static activities will be discussed under the titles of: Accesses, and Circulation Routes.

i) **Accesses**

Considering that in Raymur Place there exist three general types of buildings (high-rises; row houses; and double staggered units), and that all the accesses to the units are located on one side of the buildings at ground level or along open servicing corridors on two levels, the major conflicts identified in Raymur Place related to the orientation of the unit accesses with the project's communal areas or surrounding public areas can be summarized as follows:
Access to Units Facing Peripheral Streets to the Project

Comments: This location of unit accesses creates an open feeling toward the street leaving the inner core of the cluster for secondary uses such as observation and circulation. It does not encourage resident interaction with others living in the adjacent buildings.

Access to Units Facing Parking Areas in the Project

Comments: The units commonly lead into the parking area; however, the relationship between automobile and pedestrian is not
compatible. The parking area lacks any visual amenity; to pedestrians it is a potential circulation area; for children it is a play space (hockey, bicycling, etc.). In some cases (W) the parking area allows a back access into some units creating a focal point for those units.

Access to Units Facing Circulation Routes in Project

Comments: The connection between circulation area and unit access lacks any clear definition. Similarly the public character of the circulation areas in the project conflicts with the communal character of the open areas. The access points located along the circulation areas have no relationship to other accesses, except in the case of (T), where back access leads to the unit.

Access to the Project: The most commonly used accesses into Raymur Place are located along Campbell Street (west side) and at both the north and south sides. On the east side the only access with continuity through Raymur is the Keefer Street (east - west) thoroughfare.
Comments:

Access (1) from Pender Street has an overpowering private character which discourages outsiders from going through and lacks visual continuity. Its opposite access on the east side lacks continuity and use.

Access (2) from Keefer Street is not well defined but has visual continuity. It is the only connection between east and west neighborhoods through Raymur Place.

Access (3) from Georgia Street is not clearly defined, though it has visual continuity through the project. On the east side there is no continuity beyond Raymur Place.

Access (4) from north lane provides indirect access into Raymur from the parking area on the lane. This access is the most commonly used from the north side.

Access (5) from Union Street is widely used by passersby as a shortcut. It lacks any specific character.
ii) Circulation Routes

The traced routes and casual paths used in the project by pedestrians to internal centres of activity or external nodes of influence in the community have two separate but related problems:

Existing Circulation Routes

Comments: Keefer Street thoroughfare is the only circulation route in Raymur Place with continuity east-west. However, it does not relate to the buildings at either side of the development. While the Pender Street circulation route has limited use in connecting Tower No. 1 with Campbell Street, the Georgia Street Circulation route has no connecting point with any specific building.

Similarly, the central north-south circulation route in Raymur Place is open-ended at both extremes. It lacks a reference point or direction.

Casual Circulation Routes (Paths):

Comments: Short-cuts have been developed in Raymur Place as spontaneous and direct circulation routes in or out of the project.

Path I takes over circulation of Pender Street access providing
a direct (north) entrance or exit from Raymur Place. It is heavily used.

Path A is used as an alternative to enter or exit parallel to the Keefer route.

Path B is a shortcut to the back of Tower No. 2. It creates conflict because it crosses an active parking lot.

Paths C and D cross over the main circulation route of Keefer Street increasing the confusion of this access into the project.

Paths C and E are shortcuts for pedestrians crossing over the parking lot. Both paths produce conflict and are continually used.

Path F is a shortcut over green areas and parallels the Georgia Street access.

Path G is a shortcut over grassed area and runs parallel to Georgia Street as well.

Path H is a major pedestrian shortcut and is heavily used. It crosses the playground facilities and creates conflicts with the uses of this area.
1. Access to Project

Because of Raymur Place's long and narrow layout and the fact that it is bordered on the east and north sides by the fenced right-of-way of the Burlington Northern Railway and the Hastings Street Viaduct, all the main access routes to the project are located on the west side on Campbell Street.

There are three defined accesses for pedestrians along Campbell Street: at the intersection of Pender, Keefer and Georgia Streets. On the east side of the project there is only one access located at Keefer Street and Raymur Drive. On the south side there is a well-defined access into Raymur that becomes a north-south central pedestrian mall.
Vehicular accesses into Raymur Place are located strategically in pockets of parking lots along Campbell Street on the west and along Raymur Drive on the east. On the southern boundary, separating the Viaduct from the project, a lane crosses throughout from east to west allowing space for vehicular circulation and plenty of parking spaces.

2. Access to Buildings

The main routes of access into Raymur Place are used as thoroughfares and some of them provide direct access into the buildings bordering these routes. Similarly, vehicular access into internal parking areas provide the strongest connection to building entrances since the relation of parking area to building is direct.

In Raymur Place three types of access to buildings can be identified: Peripheral; Enclosed; and Directed Access.

a) Peripheral Access

The first type, Peripheral Access, applies to buildings located on the edges of the project whose entrances face the bordering streets. There are two buildings located on the north side of the project facing
the lane between Raymur and the Hastings Viaduct.

Similarly on the west side there are two buildings whose entrances directly face Campbell Street. Access to the buildings in the south and east do not conform with this first group. In the east side there are two buildings whose entrances can be considered enclosed access.

b) Enclosed Access

This type of access is created by the penetration of vehicles into the project to the parking areas establishing direct access to the buildings framing the parking areas. On the west side there are three areas with enclosed access characteristics. The parking area in this location facilitates direct access into three buildings whose main unit accesses are facing this parking area.
c) Directed Access

Directed Access can be considered to be any direct connection to the buildings' accesses from the main pedestrian routes throughout the project. Keefer and Georgia pedestrian thoroughfares have very few direct connections to the buildings' main access bordering these thoroughfares. Meanwhile the pedestrian thoroughfare from Pender Street into Raymur provides direct access exclusively to one isolated building. However in comparison to Pender, the Keefer and Georgia Street thoroughfares provide a link to the central mall of Raymur establishing the internal pedestrian circulation network of the project which provides direct access to four buildings along the mall.

3. Routes into Raymur

The three main defined accesses into Raymur follow the extension of the streets at points where they intersect the project and become pedestrian routes. Two of the main access into Raymur are well-defined and used as access paths (Keefer St. and Georgia St.). The third main access is unclear and has not much use except to the Central Tower's residents (Pender St.)

The four major access routes into Raymur are indirectly defined and can be considered shortcuts. They cross a lane, a walk-way, a parking lot, and the playground facilities. In this group there are also two minor routes functioning as private accesses to buildings and shortcuts, both through parking lots.

The main location of all the accesses into Raymur Place is on the west side of the project along Campbell Avenue, with the exception of the east-west link defined by the continuation of Keefer Street through the project and the shortcut defined by the access in the
south-east corner into the playground area.

4. Routes Out Of Raymur

There are two major mobility axes out of Raymur as defined by the routes followed by residents in their daily activities:

to:    to:

work    school
visit    community centre
shop    corner store
leisure    play areas, parks (outside the project)

Chinatown shopping area

These two types of networks are influenced first, by the project residents' transportation means and second, by the type of networks
promoted by the location of activity nodes. While the commuter nodes are located in two areas bordering the project, north on Hastings and south on Venables Avenue, the most distant node of activity is the Chinatown shopping core. Nodes of activity around and closer to Raymur Place are located both east and west.

West: In the west are the school and community center of Strathcona connected to Raymur by Pender and Keefer Streets. Also the numerous institutions (religious, social and cultural) are spread throughout the whole area.

East: In the east are the community center of Kiwassa and Seymour school connected to Raymur by an overpass over the north-west right-of-way. This connection follows the line of Keefer over the tracks.

The closest nodes of pedestrian mobility to Raymur are the corner stores located on Campbell Avenue at Hastings, Keefer and Georgia Streets. There is one more store, one block west of Campbell at Hawks and Union.
5. **Centers of Activity**

Two kinds of centers of activity exist in Raymur: the play facilities and the communal service facilities. The communal service facilities are the Ray Cam Center, the Russian Center and the Greek Orthodox Church. The three of them are located along the west edge of Raymur and Campbell Avenue.

There are five play facilities. They are located mostly in the north and south ends of the project, with the exception of one small play area adjacent to Keefer Street and Raymur Drive which is located east of the central mall of the project.

The south end contains the largest playground in the project and has a small play area nearby.

The north end contains three play areas which are divided by a building thus separating one area from the other two. The small play area located at the east of the central mall is rarely used and therefore cannot be considered as a functioning center of activity.

In Raymur there is also a "transitional" center of activity with a very specific function. It is one of circulation and orientation and is located at the intersection of the Keefer Street path and the central mall. This center of activity is mostly for pedestrian mobility, but it is also used as a play area as well as a "wandering around" area in the core of the project.
Communal Services Facilities  Centers of Activity

6. Nodes

There are two major nodes of internal activity, one located at the north and the other at the south corners of the project. The central area of the project is left alone without play facilities.

The northern node is strongly defined by the community centre's indoor facilities and children's nursery playground. It is separated by an active traffic lane from the rest of the project.

In the north sector the play areas are limited to one game in each, thus leaving the three areas unrelated to one another with few game choices.

The south node is clearly defined by the playground area which attracts almost all of the project's population.

The nearby play area is used very little and creates a feeling of isolation from the other play zones of activity where children play outside of the playground areas.

In the south node there is also a spreading out of the playground facility into the surrounding areas which are used as extensions of the playground.
Another type of internal mobility is defined by the adults (networks) visiting friends or maintaining communication with Management and Tenants' Association offices in the project (they are located in the north sector of the project in the central tower). This network of adults socializing within the project varies and is of less interest than the mobility caused by users of the play areas because normally the socializing of the adults in Raymur occurs inside their units and not out of doors in play areas, malls and paths. Casual interaction that occurs out of doors mostly consists of the socializing of senior citizens. Unfortunately in Raymur the seniors have no mobility at all within the project because of the secluded area defined for them at the ground level of their building (Central Tower No.2) which is at the level of Campbell Street and above the central mall area (caused by the slope of the land).
7. Zones of Influence

The zones of influence of some of the activity centers within Raymur carry over into other zones of influence which are characterized by types of activity. In Raymur it is possible to identify various zones of extended activities which in some cases tend to modify the original perceived use of the area (i.e. parking lot used for hockey, treed area with ropes tied to the branches for "Tarzan-like" games).

There are three major zones of influence in Raymur:
- The Playground located in the south-east corner of the project.
- The central mall area and one group of three buildings which are connected to each other in a zig-zag fashion bordering the east side of the mall.
- The two play areas located on the north side of the project and the Ray-Cam Center.

These three zones of influence are not isolated from one another. They meet at a point creating an "Area of Interaction". This area of interaction acquires characteristics of its own from those of the zones of influence meeting at this point.

a) The Playground

The playground zone of influence is like an enclosed loop with three extensions. Two of the extensions are oriented toward the nearby corner store on Campbell Street and Georgia. The third extension penetrates into an adjacent
court located north of the playground and between the pedestrian accesses into Raymur on Keefer and Georgia.

b) The Central Mall

The Central Mall zone of influence has a zig-zag shape following the lay-out of the east side of the central mall. Its zone of influence has three extensions: one of them following the pedestrian route (in-out) on Keefer Street west towards the corner store across Campbell Street. The other two extensions are directed mostly into areas of interaction north-east and south-west of the central mall. The Central Mall's zone of influence extending into the south-west penetrates into a court where it meets the edge of the playground zone of influence. The north-east extension meets its adjacent bordering zone of influence at the edge of a play area.

c) The Play Areas and the Ray-Cam Center

The play areas and the Ray-Cam Center zones of influence on the north side are individually very small but grouped together create an elongated form. This form barely meets at one end (south) of the central mall's zone of influence. The other end (north)
of this zone of influence stops at the edge of the streets bordering
the Ray-Cam Center (Campbell and Hastings). This zone of influence has
no extension because of its small components.

Zones of Influence

- The Playground zone of influence is defined by younger children
  ages 4 - 12, and a few teens ages 13 - 16.
- The Central Mall zone of influence is defined by age groupings of
  5 - 10, 10 - 14 and 15 - 18 years old.
- The Play Areas zone of influence is defined by younger children
  ages 4 - 10. The area adjacent to the Ray-Cam Center is defined by
  groups 5 - 10 and up to 18 years of age. The zones in between the Ray-
  Cam Center and the play areas are chiefly defined by younger children
  4 - 10 years old.

The areas of interaction in the project for these zones of
influence are mostly used by children aged 4 - 10 and pre and early
teens aged 10 - 14. The only variance is at the north-east area of
interaction where teens over 14 years of age play racket-ball.

8. Zones of Influence Impact on Project and Proximate Community

In Raymur most types of modifications to the open space by the users are made in terms of use and not by physical alterations. The kinds of modifications found in:

a) The Playground's zones of influence are:

The use of a parking lot as a miniature hockey court; a play area developed on a tree'd area which is also used as a shortcut out of the project; a green area with trees framed as a planter box but being used as a sandbox and also as a shortcut from the units bordering it to the main areas of circulation; the lateral wall of a building bordering a parking lot is used as a place to play racket-ball.

b) The Central Mall's zones of influence are:

Wooden-framed planters separating access into units at ground level are used for climbing; the corridors on the second level in front of the units' doors are used as solariums or terraces; the balconies of some units are primarily used as exterior storage space; the planter in the central mall is used as a shortcut; the grassed area at the Keefer Street access is also used as a shortcut.

c) The Play Area zones of influence are:

The green areas are used by kids to roll on. The planters located at the access to the units are used as a bench and garbage area.

The Ray-Cam Center zone of influence has used the street slope as a play ramp for bicycles, roller-skating and skate-boards.

The age groups modifying the use of the open space varies but generally children between the ages of 5 and 10 have the strongest influence. However, adults also have some influence regarding the
modification of open space such as reinforcing shortcuts in the project which were originally made by children; using balconies as storage space and corridors as terraces or solariums. The use of the lateral walls of buildings for "ball-bouncing" is also supported by adults.

Modified Open Space

d) Vandalism and Graffiti in the Project

The zones of vandalism can be linked with those of graffiti. In Raymur it is possible to identify two areas where vandalism and graffiti are prominent as well as an intermediate area tying both together.

It is common to find graffiti in every stairwell as well as on the second levels of the buildings on the corridor walls. The ground levels have a lesser amount of graffiti although they still have a detrimental appearance.

The central mall area contains the greatest amount of graffiti. It can be seen on the walls of the corridors on the second level as well as in circulation wells of the three buildings which are joined together.
There is less graffiti seen as you approach the buildings located in the north-east corner of the project and the lateral walls of the main tower building.

There is also less graffiti near the mural drawings on the retaining walls flanking the Keefer Street access into Raymur and the adjacent walls toward the south.

As is the case with the central mall buildings, the closer one gets to the playground area the more graffiti is seen. The difference is that graffiti is found on both ground and second levels of the buildings in the south-west corner of the playground.

Vandalism can be seen around the partitions which have been built to separate the accesses to units located at ground level. The results of vandalism can also be seen in some landscaped areas on the badly cut-up benches throughout the project.

e) Impact on the Proximate Community

There are four zones of influence extending from Raymur toward its immediate surroundings. Two of them are located in the western edge of the project along Campbell Street, and the other two, with a small ratio of influence, are located east at the beginning of the overpass ramp on Raymur Drive and Keefer Street, and north at the edge of the project and the parking lot adjacent to Ray-Cam Community Center.

One of the zones of influence is located at the intersection of Campbell Avenue and Keefer Street. The area is inhabited by groups of young adults and children sitting on the front steps of a church and playing in front of a corner store.

The other zone of influence, at the intersection of Campbell Avenue and Georgia Street, is characterized by children playing or
riding bicycles in front of a corner store that is located there.

In the east there is only one zone of influence which is located at the access of the overpass ramp on Keefer Street and Raymur Drive. Here School-age children sit or play with toys.

Finally in the north zone of influence, children and a few teens play ball, roller-skate or ride bicycles downhill. This zone is located in the parking lot area bordering Raymur and the Ray-Cam Community Center.
1. **Physical Setting**

The uses of the open space in the project by both residents and outsiders contribute to define the spatial settings where diverse types of activities take place. In spite of its different spatial characteristics, the open space becomes a physical setting with multiple, overlapping uses.

The physical settings in Raymur Place are affected by the pedestrian routes throughout the project, by the characteristics of the users, by the type of activity performed by the users, and finally by the spatial definition of the open space where the activity takes place.

The most common users of the open space in Raymur Place are children and teenagers and the types of activities they are involved in vary from static games and conversation groups to random mobility throughout the project. On the other hand, the adults normally withdraw their activities from the open areas to semi-secluded spaces such as connecting corridors on the second level of the buildings or to the backyards of their units. However, pedestrians, including groups of children, teenagers, adults and seniors, flow throughout the project.

The following diagram shows the open areas in Raymur Place most commonly used by children and teenagers.
Comments: Two zones are used as activity settings.

One chain of settings, emanating from the north-eastern corner of the project, moves through the parking lot, crosses through the lowest portion of the adjacent cluster and continues south through the central mall to the intersection of the Keefer Street thoroughfare. At this intersection of the mall and Keefer Street, the chain of settings curves right into the parking lot of an adjacent cluster. From here the chain of settings is dispersed into other clusters and to the periphery of the project.

Another chain of settings starts at the point where the central mall narrows down and connects with the south circulation routes. From here a small branch extends down and east into a parking lot where it ends. A second branch continues south through a cluster and splits into two arms at the point where it meets the Georgia Street circulation route. The two arms from this second branch extend into the south-east corner of the pro-
ject where the playground area is located.

The following diagram shows the conflicts that have arisen by overlapping the pedestrian routes throughout the project and the settings where static activities are taking place.

2. Sampling Of Physical Settings

Three cases have been identified in Raymur Place for selective analysis where the character of the existing open space is continuously affected by its use by residents and passersby.

The selection of these three cases is based on three different characteristics of the open space used primarily by pedestrians:

- Circulation Routes
- Defined Clusters
- Project's Recreational Facility
The sampling analysis will summarize in detail patterns of mobility and static activities in the selected cases. It will follow a check-list of factors affecting or reinforcing the function of the open space in each one of the cases.

a) Circulation Routes

The main pedestrian routes in Raymur Place cross the project on an east-west axis, connecting Kiwassa in the east with the Strathcona community in the west. There is no easy connection on the north since the abutting land uses are exclusively industrial. On the south side of the project there is a good sized playfield towards which some of the central circulation of the project leads. Unfortunately, this route does not have a strong effect on the rest of the internal circulation because it has been segmented by short crossing routes through the project.

The first case to be analysed is the central pedestrian east-west route through the project.

b) Defined Clusters

In Raymur Place there are several clusters which have different characteristics, but only three of them can be considered defined clusters. The three defined clusters are similar in that the open space takes the form of a court surrounded by buildings. Two of them have no
vehicular traffic while the third contains mixed pedestrian mobility and vehicular traffic.

The second case to be analyzed is the largest cluster in Raymur Place. The open space is defined by buildings which create a central court, but the court is subdivided by a central building. Pedestrian routes cross this cluster functioning as access routes to the cluster.

c) Project's Recreational Facilities

Raymur Place has one large outdoor recreational facility located in the south-east corner, and several small facilities dispersed throughout the entire project. However, the small recreational areas lack a communal character and are isolated from the rest of the project.

The largest recreational facility in the open space of Raymur Place is a playground with several facilities for children and teenagers, a gravel pit, swings, a combined basketball and hockey court, benches and green areas.

The character of the open space in the recreational area is strictly pedestrian. It is surrounded on two sides by buildings and a major circulation route, and on the other two sides by a chain-link fence.

Since pedestrian routes and mobility in this area of the project are very numerous, the
analysis of the characteristics of the open space in the playground area will be the third case to be analysed.

d) Physical Settings: Summary

Clusters Typology

i) Defined Clusters: 1, 2, 3, 4

ii) Circulation Routes: 5, 6

iii) Undefined Clusters: 7, 8, 9, 10

Circulation Routes
Mobility and Static Activities

3. Selected Settings

a) Areas of Intensive Activity Conflicts

- **CONFLICT:** Main entrance to project should be used
- **PROBLEM:** Children play area and trees hang-out place
- **CONFLICT:** Central circulation (mall) area without pedestrian orientation to a point outside of project, overcrossed by direct thoroughfare with defined direction (continuation of)
- **PROBLEM:** Central mall used by children & teenagers (emergency?) or projects immediate

- **CONFLICT:** Continuous pedestrian thoroughfare crossing over traffic in lane problem
- **PROBLEM:** Children & adults route out of project interfering with vehicular traffic

- **CONFLICT:** Unofficial route in/out of project crossing over parking area (short-cut)
- **PROBLEM:** Children & pedestrians taking over vehicular area

- **CONFLICT:** Undefined route in/out of project crossing over main playground areas
- **PROBLEM:** Children/moms interfered with traffic & adults crossing over play areas

- **A1-Pedestrian Enclave**
- **A2-Circulation**
- **A3-Playground**
c) **Selective Analysis**

The following analysis synthesizes the major conflicts identified in the open space of Raymur Place caused by pedestrian mobility and the static activities of residents and passersby.

The analysis is focused on physical characteristics and social uses of the project's open space and is guided by the following checklist:

**Checklist: (Physical Setting Analysis)**

I. Physical Characteristics
   A. Site Characteristics
      - Definition
      - Enclosure
      - Cluster
   B. Microenvironment
      - Sunpath in winter and summer
   C. Amenities, Facilities and Materials
      - Description
      - Materials: Floor, Wall, Color, Texture
   D. Landscape
      - Location and Description
   E. Furniture
      - Location and Description

II. Mobility
   A. Circulation and Mobility
      - People Mobility
      - Access to Units
      - Vehicular Mobility
B. Zones of Activity
   - Description and Identification of Areas in the Setting and Classification of Users by Age Group
C. Intensity of Use
   - Description of Variation in Use of the Setting in a Seasonal Survey
D. Physical Setting - Inner Links
   - Description of Relationship Existing with Other Settings in the Project

III. Defensible Space
A. Visual Control and Territoriality
   - Identification of Areas in the Setting Where Visual Control is Possible and Where Vandalism and Graffiti Prevail
B. Open Space Hierarchy
   - Identification of Open Space Character From Public to Communal, from Communal to Semi-Private, and from Semi-Private to Private.
C. Physical Setting - Transitional Spaces Among Clusters
   - Description in Graphic Detail of the Setting's Function and Territoriality Focused Mostly on Entrances and Gates into the Setting.
D. Physical Setting - Units - Transitional Spaces
   - Description in Graphic Detail of the Units' Transitional Areas into the Communal Open Space of the Setting.
IV. Summary

Grouping of Transitional Areas Identified in the Setting as:
- Public to Communal (Project)
- Communal to Semi-Private (Cluster)
- Semi-Private to Private (Units)
A1 - DEFINED ENCLAVE:

PHYSICAL CHARACTERISTICS: Enclave, Enclosure & Definition

MICROENVIRONMENT: Summer and Winter Sun Path

CIRCULATION AND MOBILITY:

PEOPLE MOBILITY: Central core and northern edge of the enclave are the areas with major pedestrian circulation.

ACCESS TO UNITS: Peripheral to enclave except for two buildings on east side and central tower. STAIRS

VEHICULAR MOBILITY: Bicycles, skate-boards, tricycles, roller-skates, etc. used in central and northern area all week long although heavier on weekends.

PARKING AREA
AMMENITIES, FACILITIES & MATERIALS:

FLOOR

CHILDRENS' PLAY AREAS Asphalt
GREEN AREAS Grass
CIRCULATION AREAS Cement
PARKING AREAS Asphalt

WALL

Stumps, Low Fence
Brick, Concrete & Wood Fences
Enclave's Bldgs.

COLOR

Dark Brown
Green
Gray
Black

TEXTURES

Smooth & Soft
Smooth & Rolling
Hard
Smooth

LANDSCAPE: Two green areas with scattered trees, one framing central access to tower and play areas (west); the other accentuating land depression on east side.

FURNITURE: Three benches on main access route and two isolated in play areas. Low railing protecting green areas and stumps'solid line in play areas. Ramps and hand railings for handicapped in main circulation areas.

ZONE OF ACTIVITY:

PLAY AREAS

TYPE OF ACTIVITY Climbing, Sliding, Running & Sitting

USER GROUP Children Aged 4-10

PAVED AREAS & WALLS

Bicycles, Tricycles, Balls Bounced on Walls, Games Grouping, Talking on Foot or Bicycles

Bduules Aged 4-10 & Teens Teens & Adults Children Aged 4-10 & Some Adults

ACCESS TO CENTRAL TOWER

ACCESS TO UNITS(Porch) Toy Games, Sitting, Littering

INTENSITY & USE:

WEEK-END
AVERAGE USE:

MONDAY

SATURDAY

SUNDAY

OPEN SPACE HIERARCHY:

PRIVATE

Semi-private

Backyard

Semi-private

Front Access

Pedestrian Flow

Public Space

Communal Space

DEFENSIBLE SPACE:

VISUAL CONTROL AND DEFINITION OF

GROUPS' SPATIAL TERRITORIALITY

Zone Out Of

Visual Control

Visual Control

Graffiti Area

Vandalised Area

Areas Used By

Different Groups

Staircase Area
AL - ENCLAVE'S TRANSITIONAL SPACES:

1. Defined gate: linking 1 parking to enclave's core.
   - Zone of adjacent units' shared territoriality
   - Route to garbage container.
   - Area out of enclave's visual control and distant from street surveillance.

2. Direct link: central mall.
   - To enclave's units
   - Route to parking.
   - Unassigned area, out of visual control and surveillance.

3. Defined gate: main access from Pender St. to enclave's core.
   - Undefined space parallel to access route.
   - Limited visual control.
   - Direct link from public to semi-privatized space.
   - Street character with defined units' territoriality.

4. Defined gate: linking.
   - Parking to enclave's core.
   - Zone of adjacent units' shared territoriality.
   - Visual control and surveillance from adjacent bligs.

5. Direct link: parking area to enclave.
   - Unassigned area out of visual control and street surveillance.
   - Route to parking and mechanical room.
A1 - ENCLAVE UNITS' TRANSITIONAL SPACES

CASE A

CASE B

CASE C

CASE D
A1 - DEFINED ENCLAVE: Transitions

ENCLOSURE: Access Route to Units:

**ENCLAVE TRANSITIONAL SPACES:**

I - PUBLIC TO COMMUNAL
   - Parking Areas
   - Street Accesses

II - COMMUNAL TO SEMI-PRIVATE
   - Enclave Accesses
   - Circulation Routes

III - SEMI-PRIVATE TO PRIVATE
   - Units' Main Accesses
   - Backyards

SPACE MODIFIED BY USERS:

- Central tower's lateral walls used to play raquet-ball.
- Short-cuts generated by crossing over lawns and play areas.
- Garbage containers' location used for games and playing.
- Stair-landing used for playing and hanging around.
- Steps and stair ramp used to play and hang around.
- Front access porch: planters used as benches or play areas.

AREAS WITH LIMITED USE:

- Access to Enclave, east and west from Pender Street.
- Green Areas Along Campbell St., corner of Campbell and access lane; access to parking.
- Central Green Areas - Core east side and circulation corner in the upper west side.
- Back Yards, facing communal areas are mostly used for storage and litter.
- Access Porch - Some used for littering or are kept empty
ACCESSORIES:

Benches: 5 in total number, located on the enclave's west side along circulation and play areas, either set alone or linearly without a thought to conversational arrangement.

Hedges: (Fences) In communal areas. Are less than a foot high with stumps or old railings twisted through some of them.

Lighting: Communal reflector installed on upper edge of buildings surrounding the core. Access routes to enclave. Light fixtures hidden in ceiling.

Signs: None; information related to unit numbers or building codes do not exist.

Garbage Containers: Located outside enclave in parking areas. Most are exposed and present a negative image for outsiders and residents. Do not have a defined area setting, but some have concrete frames. Container boxes never properly returned to correct location.
A2 - CIRCULATION AREAS (Internal):

PHYSICAL CHARACTERISTICS: Enclave, Enclosure & Definition

MICROENVIRONMENT: Summer and Winter Sun Path

CIRCULATION AND MOBILITY:

PEOPLE MOBILITY: Circulation routes west-east and north-south maintain continuous pedestrian flow.

ACCESS TO UNITS: Mostly located along central mall's east side and the west side of Keefer access.

STAIRS: Direct access from central mall.

VEHICULAR MOBILITY: Bicycles, skate-boards, tricycles, roller-skates, etc. used in central mall area and Keefer thoroughfare.

PARKING AREA: P
**AMMENITIES, FACILITIES & MATERIALS:**

<table>
<thead>
<tr>
<th>FLOOR</th>
<th>WALL</th>
<th>COLOR</th>
<th>TEXTURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIRCULATION AREA</td>
<td>Central Mall</td>
<td>Cement</td>
<td>Brown-Red &amp; Gray</td>
</tr>
<tr>
<td>(N-S axis)</td>
<td></td>
<td></td>
<td>Hard</td>
</tr>
<tr>
<td>CIRCULATION AREA</td>
<td>Keefer St.</td>
<td>Cement</td>
<td>Brown-Red &amp; Gray</td>
</tr>
<tr>
<td>(W-E axis)</td>
<td></td>
<td></td>
<td>Hard</td>
</tr>
<tr>
<td>ACCESS AREA</td>
<td>(West side) Keefer St.</td>
<td>Asphalt,</td>
<td>Gray, Black, Hard &amp;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brick, Concrete</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&amp; Wood Fences</td>
<td>Smooth</td>
</tr>
<tr>
<td>LANDSCAPE:</td>
<td>Four trees in dug-out squares, two trees planter boxes, northern central mall area. Grassed area and planter boxes separate unit accesses. Trees border Keefer Street's east access. Raised isle fenced with scrubs at circulation axis intersection. Small green area, with few trees, is divided into sections by Keefer Street's various access paths on the west side.</td>
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</tr>
<tr>
<td>FURNITURE:</td>
<td>Tree benches on planters' borders, one on central isle and Keefer Street's west side access. Low railings and stumps border green areas. Ramps and railings for handicapped on Keefer Street's west side.</td>
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<tr>
<td>PEDESTRIAN FLOW:</td>
<td>A-B: East-West Route</td>
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<td></td>
<td>C-D: North-South Route</td>
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<td></td>
<td>SECONDARY ROUTES: A-D A-C</td>
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<td>SHORT CUTS: A-E B-F</td>
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**CIRCULATION ROUTE INTENSITY**
ZONE OF ACTIVITY:

CORRIDOR 2nd LEVEL
(north side central mall)

PEDESTRIAN ROUTES
INTERSECTION AREA

CENTRAL MALL AREA

KEEFER ST. ACCESS
(west side)

INTENSITY OF USE:

OPEN SPACE HIERARCHY

ENCLAVE INNER LINKS
ENCLOSURE: Access Route to Units

ENCLOSE TRANSITIONAL SPACES:

I - PUBLIC TO COMMUNAL
- Parking Areas
- Pedestrian Thoroughfare

II - COMMUNAL TO SEMI-PRIVATE
- Pedestrian Thoroughfare
- Linked to Internal Circulation Areas

III - SEMI-PRIVATE TO PRIVATE
- Units' Main Access
- Back Yard

VISUAL CONTROL AND DEFINITION OF GROUP'S SPATIAL TERRITORIALITY
- Zone Out of Visual Control
- Visual Control
- Graffiti Area
- Vandalized Area
- Areas Used by Different Groups
- Staircase Area

SPACE MODIFIED BY USERS:

Central Mall Area: Circulation Isle: Used for children's games
North Side: Planters dividing units' accesses on mall level. Used for children's toy games and climbing device to corridor on Second Level.
Landscaped Area: On mall used for games on dirt. Play Area: Used by workers in the neighborhood at lunch time. Short-Cut: Over central isle in circulation route (Keefer St.) and over green area at access point from Campbell Street.