THE SOCIAL EFFECTS OF SUBDIVISION DESIGN:
A STUDY IN MICRO-ECOLOGY

By

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REPORT ON A PROJECT SUBMITTED IN LIEU OF A THESIS IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE
in the Department of
COMMUNITY AND REGIONAL PLANNING.

We accept this report as conforming to the standard required from candidates for the degree of MASTER OF SCIENCE.

Members of the Department of
Community and Regional Planning.

THE UNIVERSITY OF BRITISH COLUMBIA
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ABSTRACT

This Thesis was prompted by the belief that most town planners in their creation of the physical environment generally do not realize that they are also creating a social environment. This is particularly true of the sub-division design aspect of planning.

In order to show that the local physical environment as created by subdivision design does affect local relationships, a planned veterans' housing project in East Vancouver was studied. The underlying reason for choosing the veterans’ project, Renfrew Heights, was because the tenants were quite a homogeneous group as a result of the entry requirements of the Central Mortgage and Housing Corporation. This being the case, the effects of the design itself could be more easily determined.

It was believed that people in the lower socio-economic groups were more affected by environment than those in the higher socio-economic groups. Allied with this thought was the belief that the community of interest in areas like Renfrew was often the community itself. Because of these beliefs and the homogeneity of the community, the Renfrew project was chosen.

The basic thesis of the study was similar to Robert E. Parks’ definition of human ecology - that man’s relationships with man are affected by environment. It was proposed that at the neighbourhood level local friendships were affected by four basic physical factors. It was proposed that these four physical factors were; (1) distance between houses; (2) differences in elevation or vertical distance; (3) the use that the distance is put to, or intensity of use; (4) orientation of houses or the way they face.

A questionnaire was prepared and housewives were interviewed personally in order to determine what the local friendship pattern was in various parts of the project. An analysis of the questionnaire showed that local friendships were affected by the four physical factors.

The need for further social research is stressed, particularly the social aspects of planning, in order to see if we are really planning for the people. It is concluded that it is upon this area of study that the future of town planning depends.
In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the Head of my Department or by his representative. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

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Date \underline{May 9, 1958}
It is with pleasure that I acknowledge the debt owed to the many people who helped me throughout this project. I want to thank Dr. S.M. Jamieson who 'opened my eyes' to the field of sociology and provided the base of a lasting interest in the subject through his lectures. Dr. K. Naegle of the same department was most helpful at the beginning of the project in sharpening my thoughts on the subject. My thanks go also to Mr. J.W. Wilson of the Lower Mainland Regional Planning Board who provided in his lectures a clearer picture of the process of subdivision design than I had hitherto seen.

I must particularly thank and acknowledge Professor I.M. Robinson of the Department of Community and Regional Planning for his constant help throughout the entire project. Dr. H.P. Oberlander of the same department was helpful at the beginning in the outline of the scope of the study. Miss M. Dwyer of the University library was a great help at all times. I should also like to thank Mr. and Mrs. Hendrie Leggatt who had the difficult task of translating my original draft and Miss White who typed the final report. I must also acknowledge the Central Mortgage and Housing Corporation who through their national planning fellowships have made it possible for me to follow the field that interests me most.

Robert A. Williams.
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INTRODUCTION
INTRODUCTION:

Town planning, by seeking to improve the physical environment, is primarily a means to satisfy the social and economic needs of the people. Too often the planner in both his planning recommendations and actual developments, forgets this ultimate purpose. Often recommendations are made or subdivisions are planned with hardly any concern regarding the effects of the action on the daily lives of the people concerned.

The main reason for this is probably that the planner just doesn’t know what the social consequences of his actions are apt to be. The fact is that much more information is needed regarding this aspect of planning. And, obvious as it may seem, the only way to acquire more knowledge regarding the social effects of planning is through more research.

The study which forms the basis of this report was a modest effort to contribute toward filling this gap, with respect to one aspect of community planning - residential subdivision design. Specifically, this study was concerned with evaluating some of the social effects of subdivision design.

THE BASIC HYPOTHESIS

The underlying hypothesis of this study is that in the development of land, some of the physical results become barriers in evolving local friendships. Even more basic however, is the belief that the physical environment at the local or 'micro-ecological' level has social effects on the people involved. As part of this basic idea, it is suggested that the local environment affects the formation of local friendships.
Specifically it is hypothesized in this study that local or community friendships are affected to a degree by four physical elements. These are:

1. The first physical element is distance. By distance is meant the linear distance between houses. It is believed that local friendships are affected by the distance between houses; that within a certain range, the most intense local friendships will develop.

2. Distance between individual houses usually involves an element of use and it is believed that this, too, is one of the physical elements involved that affect local friendships. If the distance between houses is used for a local road, a major road, a park or a garden, it is believed that this in turn affects to a considerable extent the human relations across the distance.

3. The third major physical element affecting friendship is believed to be vertical distance or differences in elevation. It is believed that friendships will in effect follow the path of least resistance and that if there are opportunities for local friendships to develop where there are fewer physical barriers then that will be the case. If, for example, one side of a street is at a common level, and the opposite side of the street is all at a higher elevation, then it is believed that the difference in vertical distance would discourage friendship across it and would in effect become a barrier.
4. The fourth major physical element that is believed to affect local friendships is that of orientation of the individual houses. If, for example, at a 'T' intersection of two roads the houses across the head of the 'T' face in different directions, then it is believed that interaction between the houses would be less than if they faced one another.

The specific hypotheses developed in connection with these physical elements, of which only some were actually tested in this study, are described in full in Chapter III.

**THE USUAL CHALLENGES OF THESE HYPOTHESES:**

At this point it would be valuable to discuss some of the arguments likely to be advanced against the underlying thesis of this study. One can anticipate that it will be claimed that the writer is suggesting that people **should** be friendly, that people **should** have many friends, or that people **should** have local friends.

Though these questions may be interesting and important for social-psychological reasons, they really miss the point of the study. The point being made here is that town planners, possibly without realizing it, are frequently creating conditions which limit the possibility of community friendships developing. They should at least recognize that they might be doing so and try to compensate for such possibilities at the design stage of planning.

A single family dwelling in itself, it would seem, provides enough privacy for those members of the community who prefer not mixing with the people nearby. However, if the planner or subdivision designer is unwittingly creating limiting conditions to friendship
possibilities, then he has a direct responsibility for individual happiness, possibly to an extent never before realized.

Widening the possibilities for contact and friendship at the local level would definitely seem to increase the possibilities for more satisfactory friendships to develop. With a wider range, more satisfactory relationships would probably develop.

If the general trend has been for the local group to decline in importance, it would appear that this has happened less in the lower income groups of our society. If this is the case, as the writer believes it is, and if there are physical and spatial factors affecting friendship development, particularly for the lower income groups, then it is fundamental that community planners know and understand what these factors are.

The argument that people are not interested in forming friendships at the local level seems to come mainly from those in the middle or higher socio-economic levels. From this writer's limited experience, it appears that lower income groups are more dependent on the locality or neighborhood for their friendships. The higher income groups may form their friends primarily on the basis of community of interest but for the lower income groups the community of interest might well be the community itself.

Ralph Linton, concerned with the changing role of the neighbors or 'bands' writes eloquently on the subject;

With the present ease of travel and communication, both rural and urban local groups are losing their old qualities as closely integrated, self-conscious social units. As a result, the patterns of government and social control which have been evolved through thousands of years of band living are becoming increasingly unworkable. Moreover, the
change has been so rapid that the average adult is still a person who was conditioned in childhood to life on the band basis. He has been trained to look to his neighbors for reassurance and moral backing, and when these neighbors are removed, he finds himself at loose ends. The modern city with its multiplicity of organizations of every conceivable sort, presents the picture of a mass of individuals who have lost their bands and who are trying, in uncertain and fumbling fashion, to find some substitute. New types of grouping, based on congeniality, business association or community of interest are springing up on all sides, but nothing has so far appeared which seems capable of taking over the primary functions of the local group as these relate to individuals. Membership in the Rotary Club is not an adequate substitute for friendly neighbors.3

A large percentage of the fully planned communities in Canada have been primarily for lower income groups, and are low rent public housing projects. In the Vancouver area, Fraserview, Little Mountain, and Renfrew, are the only fully planned projects, and all are low rent public housing projects.

It appears that for some time in the future a large part of urban Canada will be developed with very little planning control and it appears only dimly possible for comprehensive neighborhood units to be developed to any great extent.

Most of the neighborhoods that are developed on the basis of comprehensive planning will probably be areas of public housing. It is likely, in view of past experience that most of the public housing will be for the lower income groups. These new comprehensive communities will then in all likelihood be homogeneous in their social composition.
This being the case, the element of physical design and spatial groupings takes on an awesome importance. Physical planning on the basis of favorable social results becomes the important thing --- the roles of the architect and engineer become only secondary in comparison.

As Anthony Wallace states:

The architect is designing the mold in which a whole community is cast, and has a responsibility not to allow his enthusiasm for a current standard of aesthetic desirability to freeze the pattern of social relationships in undesirable forms for thousands of people for fifty to one hundred years.

The point of this brief polemic is not that aesthetic considerations are worthless, but that drawing board sketches ought not to take the place of analysis of social needs. After the social needs have been given a framework, then considerations of aesthetic value become important.

If Wallace's thesis is correct, and this writer believes that it is, then town planning will have completed a cycle which began originally on the basis of healthful housing and evolved into the City Beautiful and City Efficient movements. The cycle will be complete with planning based on the satisfaction of social needs. Then, and only then, will community planning take on the most important part of its role - to provide and plan for a community in the true sense of the word.

A PLACE TO TEST THE THESIS

The underlying thesis of this study grew out of an interest in a community considered to be the first 'planned' neighborhood in the Vancouver area. This writer has lived in the neighborhood for the past ten years, a fact which also contributed to the interest.

The neighborhood concerned is on the eastern fringe of the City of Vancouver, and was the first low rent veterans' housing project
THE SOCIAL EFFECTS OF SUBDIVISION DESIGN

A PROJECT IN LIEU OF A THESIS
UNIVERSITY OF
BRITISH COLUMBIA
COMMUNITY & REGIONAL
PLANNING DEPARTMENT

RENFREW HEIGHTS
IN RELATION TO THE CITY

R. WILLIAMS
built in Canada. The neighborhood is called Renfrew Heights, and consists of approximately 600 homes in a well defined grouping.

RENFREW HEIGHTS: ITS LOCATION AND RELATION TO THE CITY

Renfrew Heights is on the eastern boundary of the City of Vancouver, and approximately twenty minutes driving time from the downtown city centre. (See Map 1)

It is bounded on the south by one of the major east-west cross town routes, the Grandview Highway. One half mile further south is the major east-west route of the metropolitan area; Broadway-Lougheed Highway. The project is bounded east and west by two major north-south roads; Rupert Street and Boundary Road. Both of these routes provide the major access to the bridge to North Vancouver. In relation to the metropolitan area, Renfrew Heights is quite centrally located.

Renfrew is immediately south of the Still Creek depression which bisects the eastern section of the metropolitan area. The depression contains the major east-west routes, as previously mentioned, as well as the main line of the Canadian National and Great Northern Railways. Because of the combination of the railway and the two highways, this area south of the project has developed into an important industrial belt.

Renfrew then has immediate access to major routes in the metropolitan area, is quite centrally located, and not an unreasonable distance from the central business district. It is also close to an important area of work. Except for the industrial development to the south, Renfrew is bounded by single family residential areas. At all the four major intersections at the corners of the project, however, there are local commercial shopping facilities which serve portions of the Renfrew as well as other residential areas.
THE BACKGROUND OF THE DEVELOPMENT OF RENFREW HEIGHTS

The Renfrew Heights housing project was the first veterans housing development built by the Federal Government after the Second World War. It is probably fair to say that its development was primarily the result of local pressure. There was a severe shortage of housing in Vancouver after the War, as elsewhere in Canada. The great depression of the 1930's and the concentration on war production after that period had meant that housing nowhere near kept up with Canada's growth in population.

The crisis reached its peak in Vancouver in 1947 when attempts were made to oust veterans and their families from the Old Vancouver Hotel, which had been taken over by the government during the War and subsequently used as temporary housing for the war veterans.

Public opinion in the Vancouver area was so outraged at the attempts to oust the veterans from the hotel without providing alternate accommodation, that the Federal Government sent out the then Minister of Reconstruction, the Hon. Clarence D. Howe, to investigate the problem. The Honorable Mr. Howe met with the Vancouver City Council, and made arrangements to develop a rental housing project for the veterans on the existing site of Renfrew Heights. Aside from the financial arrangements, it was agreed that the grid system of subdivision prevalent in all of eastern Vancouver would not be satisfactory. As a result, the Minister agreed to have a neighborhood subdivision plan made and Mr. Douglas W. Jonsson, formerly a designer with Central Mortgage and Housing Corporation, was sent out from Ottawa to do the work.
For no other reason than that the thesis was a result of an interest in the Renfrew area, it seemed a logical place to test it. There was however, an additional fact which made this area, for research purposes, a good area to study - and this was the similar backgrounds of the residents of the project.

**THE COMMON BASE OF THE RENFREW PROJECT**

The greatest advantage in using a housing project such as Renfrew Heights, is that in such projects the significance of the design elements of the subdivision are probably more easily identified than in other housing areas. In Renfrew there was no individual choice involved in the locating of individual families and everyone was located primarily on the basis of need and priorities. Therefore, none of the tenants were given their choice of houses because they liked the siting arrangements or certain color schemes.

All of the tenants in the project had to be veterans, have at least two children, and also be in need of housing. On the basis of these requirements, the tenants of the Renfrew project were chosen. The result of course, was a very homogeneous population in Renfrew Heights. All of the people in the project were of the same age, had young families, and to some extent, the same aims and ideals. It is on this somewhat common base that the effects of the subdivision were felt.

Because all of the inhabitants of the project had very similar backgrounds, for the purposes of this study they were eliminated as basic variables. There can be no doubt that differences between people - their different personality traits, etc. are often the basis of local friendships. Nevertheless, to test the physical variables of
this thesis, it was necessary to assume that the people in this project were a common factor - they had similar interests, personalities, etc., and as such, could be eliminated as variables for the study. Other research in this field, though limited, leads to the frightening conclusion that this proposal is a reasonable one. This however, will be dealt with in a succeeding chapter.

TESTING THE THESIS

In testing the thesis, it was necessary first, to devise a system or method for identifying, measuring, and rating the degree of friendship between the people to be surveyed. Fortunately, some recent research has been done on this subject by two American sociologists, Theodore Caplow and Robert Forman. In a study of interaction within a students housing project at the University of Minnesota, the two authors decided upon a range of friendship values from zero to six, which they called a 'Neighborhood Interaction Scale'. The scale is as follows:

<table>
<thead>
<tr>
<th>VALUE</th>
<th>RELATIONSHIP</th>
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<tbody>
<tr>
<td>0</td>
<td>Do not know their names or faces</td>
</tr>
<tr>
<td>1</td>
<td>Recognize them on the street but have only a greeting acquaintance</td>
</tr>
<tr>
<td>2</td>
<td>Stop and talk with them regularly outside (only one adult from each family involved)</td>
</tr>
<tr>
<td>3</td>
<td>Stop and talk to them regularly outside (all adults in the family involved)</td>
</tr>
<tr>
<td>4</td>
<td>Mutual aid and/or common activities (involving one adult from each family)</td>
</tr>
<tr>
<td>5</td>
<td>Mutual aid and/or common activities (involving all the adults in each family)</td>
</tr>
</tbody>
</table>
The authors called this a 'study of the correlates of neighbourliness, together with the inter-family relationships in the residential area.'

At the same time as the Caplow-Forman study, Leon Festinger and his associates were studying the Westgate student housing area at the Massachusetts Institute of Technology. However, in that study there was no real attempt to define friendship and the main question asked of the residents concerned was 'What three people in Westgate do you see most of socially?'

The Caplow-Forman questions seem much more appropriate to this study, and so are used in a modified form for the ease of questioning the people in the Renfrew project. The modified form that was used for this study is as follows:

<table>
<thead>
<tr>
<th>VALUE</th>
<th>RELATIONSHIP</th>
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<tbody>
<tr>
<td>1</td>
<td>Recognize on the street, only a greeting acquaintance.</td>
</tr>
<tr>
<td>2</td>
<td>Stop and talk with them regularly outside.</td>
</tr>
<tr>
<td>3</td>
<td>Mutual aid and common activities.</td>
</tr>
<tr>
<td>4</td>
<td>Mutual entertaining, visiting, drinking, and eating.</td>
</tr>
</tbody>
</table>

The scale prepared by Caplow and Forman appeared to have one basic omission from this writer's point of view: it did not include the frequency of the relationships involved. Nevertheless, for the purposes of this study it was not considered possible to include such a factor.
CHAPTER I.

BACKGROUND AND PREVIOUS RESEARCH IN MICRO-ECOLOGY.

Time, events, or the unaided individual action of the mind will sometimes undermine or destroy an opinion without any outward sign of change. It has not been openly assailed, no conspiracy has been formed to make war on it, but its followers one by one noiselessly secede; day by day a few of them abandon it, until at last it is only professed by a minority. The majority have ceased to believe what they believed before, but they still affect to believe, and this empty phantom of public opinion is strong enough to chill innovators and to keep them silent and at a respectful distance.

---Toqueville
PLANNING INVOLVES HUMAN ECOLOGY

This study has been entitled 'The Social Effects of Subdivision Design - A Micro-Ecological Study.'

The sub-title was chosen deliberately because the underlying theme of this study is that man's relationships with man are affected by environment. This is Robert E. Parks' definition of human ecology. Because this study involves the effects of subdivision design and house location on man's relationships with man, it has been called a 'micro-ecological' study.

Louis Wirth said that 'ecology strives for the objective depiction and analysis of the spatial, temporal, physical and technological bases of social life.'

Although Wirth's statement was originally made during the formative stage of human ecology as a separate field of study, there is no doubt that he realized the many implications of it. In this respect he said:

'The discovery of the patterns into which social phenomena group themselves and of the coincidence of the patterns has had important implications for social control and planning.'

Wirth then added a statement which is especially germane to this study:

'Physical factors, while no means negligible in their influence upon social life and psychological phenomena are, at best, conditioning factors offering the possibilities and setting limits for social and psychological existence and development. In other words they set the stage for man, the actor.'

Wirth suggested that the physical factors in the environment 'offered the possibilities and set the limits for social and psychological existence and development.' This is the element with which this study is concerned; the fact that physical elements set the limits to social
development - in this case, friendship.

Very little research work has been done in this specific field, much of it by accident rather than intention. Nevertheless the work that has been done in this field of micro-ecology has been an important beginning in what could become a vitally important area of study.

PREVIOUS RESEARCH IN ‘MICRO-ECOLOGY’ - THE WORK OF FESTINGER, SCHACHTER AND BLACK.

The best known work in this new field is probably the study by Festinger, Schachter and Black of the Westgate student housing project at the Massachusetts Institute of Technology which has already been referred to. The primary interest in this study was not how groups were formed, but rather, how the groups reacted to certain stimuli and whether there was a group attitude. Once it had been determined what the groups were within the community these sociologists were more concerned with attitudes, values and communication within the groups. The main thesis of their study was to see if the groups would tend to have common attitudes and values, which were generally a result of being part of the group.

Nevertheless, a great deal was learned in the M.I.T. study regarding the spatial ecology of group formation. It is noted in their study that most of the work done in human ecology has been concerned with a relatively large area, such as a metropolitan region. But, they state:

‘Little attention has been devoted to the possible effects of the arrangements of smaller areas, such as neighbourhoods, nor has attention been focused on the relations between ecological factors and the formation of friendship and face-to-face groups.’

Reference is made in the Westgate study to the first basic studies involving propinquity by Abrams and Kennedy who examined the
relationships between distance and marriage selection. These studies showed that there is an inverse relationship between the distance separating potential marriage partners and the number of marriages. It was found for example that in New Haven 76 percent of the marriages in 1940 were between persons living within twenty blocks of each other and 35 percent between persons living within five blocks of each other. 

However, as Festinger and his associates state;

'While such findings may not seem surprising, it is less obvious that differences in distance as small as twenty or thirty feet would play a major part in determining friendships. Within the Westgate housing projects however, even these small differences in distance are effective in determining patterns of friendship.'

It was found in their study, relating physical structure to the formation of friendships, that it was necessary to distinguish between two ecological factors, the first being physical distance and the second being the positional relationships and features of design. This they called functional distance. They state that physical distance and functional distance will affect the pattern and number of passive contacts. They state that the two cannot be considered as independent variables but that in particular cases the distinction becomes clear. For example;

'Two back-to-back houses which are thirty feet apart and have neither back doors nor back yards would be considered functionally farther apart than two back-to-back houses, also thirty feet apart, which do have back doors and yards. Thus we have varying functional distances while physical distance remains constant.'

In order to study the effects of the physical design, it was necessary for these sociologists to relate individual friendships to
the design. This was referred to as sociometric data. As indicated previously, this data was collected by asking the question, 'What three persons in Westgate do you see most of socially?'

In the analysis of the data, it was found that there was a strong relationship between sociometric choice and physical distance. In a statement of some of their findings they say;

'In both projects the greatest number of choices were made to people living closest to the person choosing, and the choices decreased continuously as distance from the home of the chooser increased. The actual measured distances involved were quite small, in no case being larger than 180 feet. Yet the effect of even these small distances is so marked that in a Westgate row no choices at all were made between houses with the maximum separation of four units or 180 feet.'

While this statement was made regarding individual choices within a block or court, it was also found in their study that the same relationship held for choices outside of the court.

Westgate was designed with house groupings forming a 'U' shape within a block. The interior of the 'U' was called a court. With the exception of the house at the bottom of the 'U', or head of the court, all the houses faced one another into the court-yard area. Because of their thesis regarding functional distance researchers believed that because these were end-houses facing the street they would have fewer chances of passive contacts. Passive contacts they found were what local friendships depended upon in order to develop. As a result of the study, it was found that all the inner court residents received a larger mean number of choices than the residents in the end houses facing the street.

A fairly extensive study of apartments in the Westgate project
was also made and it was found that the general thesis applied there as well.

In summary, the authors of the study state that the data revealed a striking relationship between ecological factors and sociometric choice. Regarding this they state:

'The relationships between ecological and sociometric structures is so very marked that there can be little doubt that in these communities passive contacts are a major determinant of friendship and group formation.'

They point out, however, that Westgate is a very homogeneous community and that it would seem possible that in a less homogeneous community the ecological factors become less important. A somewhat similar argument was used by this writer in the first chapter, but it was also suggested that in lower income groups ecological factors were more important than for society in general.

THE WORK OF CAPLOW AND FORMAN

At the same time as the Massachusetts study was being made, two sociologists, Theodore Caplow and Robert Forman, made a somewhat similar study at the University of Minnesota, as mentioned earlier. They studied a students' housing area on that campus and had somewhat similar results as the Massachusetts study. One of the important contributions of their study was the 'neighbourhood interaction scale', described earlier, which was used to determine the amount and degree of friendship between the people residing in the project.

In the study, factors such as the length of residence of each family, the exact position of each dwelling unit and the functional significance of lanes and rows were considered.
These two sociologists found, as did Festinger and his associates, that there was a difference between physical distance (linear measurement) and functional distance (accessibility).

In an article in the *American Sociological Review*, these authors suggest that the term 'micro-ecology' could be applied to this kind of a study. This writer has adopted this term in describing the present study.

Using the rating system or interaction score it was determined how many families in the project were known by the individual families and what the average closeness of the association was.

As part of the study Caplow and Forman found that an extension of the social circle in that milieu involved a net increase in social interaction. Thus, the effect of long residence meant expansion of the circle of acquaintance, rather than increasing the intensity of associations.

In this study the researchers were impressed by their findings. For the purposes of this study however it will probably suffice to say that they were very impressed by the degree of interaction within the project and most important, 'the almost mechanical affect of accessibility upon intimacy and of time on the number of relationships.'

The authors state that there seems to be a general trend towards believing that social participation is 'something grudgingly offered and easily withdrawn.' They cannot however, accept this generally held assumption and submit that;

'A wealth of material suggests only very powerful inhibiting factors can prevent intensive and intimate interaction among persons of similar status wherever opportunity affords.'
As a result of their study the authors believe that when income or level of living, occupation and family composition are generally much the same and there are not other factors such as ethnic, religious or social differences that:

When these obstacles (income, etc) are removed neighborhood interaction rises to an extremely high level and organizes itself with almost molecular simplicity in terms of the spatial pattern of the community.\textsuperscript{16}

They found that the processes of group formation were more amenable to analysis than they had ever expected. In conclusion they state quite plainly:

The selection of intimate associates is in large measure a function of social situation rather than of individual whimsy and is therefore capable of being predicted in some detail.\textsuperscript{17}

There is no doubt that these two basic studies, at Massachusetts and Minnesota, were a most important start in the study of micro-ecology.

Because the researchers in both studies were studying very homogeneous groups (in terms of income, occupation, family structure and background), it is possible that they did not want to generalize or state the implications of their findings. Nevertheless, whether they felt the implications were obvious or not, there were no statements regarding the importance of their findings for the planner or architect.

This writer has been led to the conclusion that the sociologist is very wary to apply his findings. There appears to be an unwillingness on his part to have his results used in a constructive way. This appears to be the case in all the studies that have been seen in this field. This may be modesty on the part of those concerned, or just plain fear.
Nevertheless, our society is not in a static state; we are building new communities daily. Must we perpetuate the old known mistakes because the sociologist is unwilling to make any positive proposals to the planners?

We are continuing to build our cities; surely we can do so in the light of some knowledge regarding social need.

THE WORK OF WILLIAM H. WHYTE, JR.

In his recent widely quoted book, The Organization Man, William H. Whyte, Jr. devotes a chapter of his general study to 'The Web of Friendship'. Whyte investigates the physical reasons for friendliness but states at the beginning:

Just as important as the physical reasons is a responsiveness to the environment on the part of its members, and not only in degree but in character it seems to be growing.\(^18\)

This responsiveness to the environment is the base upon which ecology works and as such its importance cannot be overemphasized. Whether this spatial patterning of friends is good or bad involves a value judgement but the fact remains that this appears to be a choice, conscious or subconscious, of our society.

Whyte continues:

In suburbia friendship has become almost predictable. Despite the fact that a person can pick and choose from a vast number of people to make friends with, such things as the placement of a stoop or the direction of a street often have more to do with determining who is friends with whom.\(^19\)

Whyte did most of the research for his study in a ‘junior executive class’ suburb of Chicago, Park Forest. There were certain basic features in the subdivision design and house groupings that were used in the project to a great extent, with small physical variations
between them. Says Whyte;

'While the architects happened on a design of great social utility, they were not trying to be social engineers - they just wanted a good basic design that would please people and make money for the developers - and some of the features they built into the units turned out to be functional in more ways than they expected.'

In Park Forest 105 courts or super-blocks were built which were all quite similar although there were attempts to introduce variety among them through varying the number of apartments, the length of streets, parking bays and apartment groupings. Regarding this, Whyte states:

'No two courts or superblocks are alike. Neither are they alike socially; some neighborhood units have been a conspicuous social success from the beginning, while others have not. There are more reasons than physical layout for this, of course, yet as you relate the differences in the way people have behaved in them over a period of time, certain cause-and-effect relationships become apparent.'

Whyte even goes farther and states:

'The comparison of physical layout and neighborliness will show that it is possible to deliberately plan a layout which will produce a close-knit social group.'

He maintains however that there is much more of a price to be paid for this kind of neighborliness than is generally imagined.

Whyte found many revealing facts about suburbia......that where the flow of wheeled juvenile traffic was also the line of the wives 'kaffeeklatsch' routes......that friendship is more apt to flower over adjoining back stoops......that the centre of social activity is in the middle of the block and that trafficked streets become a boundary to the adult group by common consent.
It would not be fair to Whyte to only state the situation that he found in suburbia because the basic issue in his book involved conformity and the price we must pay for it. For this and other reasons it is only fair to include the statements of Whyte regarding the cost of the 'happy' groups in suburbia.

Whyte maintains that the court, 'like the double bed, enforces intimacy' and that self-imposed isolation becomes 'psychologically untenable'.

An important question he asks is whether the 'Gemütlichkeit' of the gang compensates for the misery of the deviate. The author states:

'It is frightening to see the cruelty with which an otherwise decent group can punish the deviate, particularly when the deviate is unfortunate enough to be located in the middle of the group, rather than isolated somewhat out of benevolence's way.'

The basic problem of such groups developing in suburbia, as Whyte sees it, is that the group is a tyrant and a friend at the same time and that what gives the group its power over the man 'is the same cohesion that gives it its warmth'. This, he says 'is the duality that confuses choice'.

Whyte concludes this chapter with a question from one of the residents of Park Forest who asks 'Is it just enough not to be bad?' Whyte comments on this question as follows:

'Many others are so troubled. They sense that by their immersion in the group they are frustrating other urges, yet they feel that responding to the group is a moral duty - and so they continue, hesitant and unsure, imprisoned in brotherhood.'

Whyte's plea for a recognition of the pitfalls of the conformity that is engulfing American life is extremely important but cannot be
dealt with within the scope of this study.

For the purposes of this study however it is important to note that Whyte, in spite of a comprehensive study of all the other factors that might affect local friendship, found that physical factors were the most important and often the only criteria for local friendships.

**THE WORK OF LEO KUPER**

In the study of a newly planned and developed area in England, a sociologist, Leo Kuper, states that 'there was a general tendency for the awareness of neighbors to be determined by siting factors, a result certainly not envisioned by the architect.'

Kuper maintained however that the siting factors only provided a potential base for neighbor relations and that there was 'no simple mechanical determination by the physical environment.' Regarding this he stated;

>'The extent to which the awareness of neighbors will develop into active social relationships depends on the characteristics of the residents, their attitudes to neighboring, their status aspirations and their general compatibility.'

In conclusion he said;
>'We will not be able to understand either the patterns of these social relationships nor the contribution of elements in the house design and general siting arrangements without an analysis of population characteristics, attitudes and status aspirations.'

It is interesting to note that Kuper felt that this was the case, yet in view of his findings - which were to some extent similar to Whyte's - it would seem that it was more wishful thinking rather than a conclusion based on the data collected.

Nevertheless, it is probably not the best procedure to include research that was done in Britain because of overriding differences in
the cultural factors that might be involved.

THE WORK OF HAROLD ORLANS AND FLOYD HUNTER

In a scathing criticism of utopian ideals and some of the philosophies behind community planning, Harold Orlans dealt with the Stevenage New Town.

In a report by the Stevenage development authority it was stated:

'We do not claim that a sensible physical arrangement of houses and other buildings normal to a good residential neighborhood will automatically produce a friendly and neighborly spirit. But we do claim that it will give a considerable initial advantage to the development of a healthy social life.'

Of this, Orlans said that; 'like other religions, its validity was not amenable to proof.'

Regarding the effects of planning, Orlans laconically observes;

Fortunately many planning decisions are unlikely to affect the happiness of the New Town residents one way or the other, for the residents will probably be less concerned about them than are the planners, and being ordinary people and not abstractions, will be able to adjust satisfactorily to a variety of physical and social environments.

Statements such as those made by Orlans cannot go unchallenged. His statement that the suggestions of the New Town authority were not amenable to proof is hardly valid in view of the research of the previous sociologists considered who have studied this field of micro-ecology.

Orlans' suggestion that planning does not matter because people will adjust to a variety of physical and social environments just does not make sense. Of course people will adjust, the researchers in the field have shown us that, but the point is that their adjustment usually involves some moulding by the physical environment. This is the important thing - and whether the moulding is good or bad involves a value
judgement - but to state that the planning does not matter is either a
desire to be wilfully misleading or a result of being grossly misinformed.

Similarly misleading is the statement by Floyd Hunter that:

‘Urban life is organized along the lines of organized interest groupings whether the particular interest be in higher wages, higher profits, lower tax rates or lower disease rates. Basic organizations have sprung up around a multiplicity of interests in urban communities and the possibility of the so-called face-to-face relationship of the city dwellers is an illusion clung to by those who tend to speculate about community organization but who have not been actively engaged in organizing city groups.’ 32

There appears to be no doubt that the studies previously referred to have resulted in conclusions quite unlike those of either Orlans or Hunter. There is absolutely no doubt that in many cases the ‘face-to-face’ relationships are extremely important. This has certainly been shown by the findings of Festinger, Caplow, and Whyte. The present study similarly has resulted in such conclusions.

Many of the statements made by Hunter and Orlans appear to be based on the somewhat shaky foundation of middle or upper class values and attitudes. It is part of the thesis of this study that attitudes such as those suggested by Hunter may certainly be the case in the higher socio-economic groups but that such attitudes and values simply do not apply to society in general. It is suggested here in particular that in the lower socio-economic groups ‘face-to-face’ relationships take on an almost primary importance and that as an individual ascends the socio-economic ladder they take on a decreasing importance.

Similarly, as the importance of face-to-face relationships declines, it is suggested, so does the importance of the spatial factors in determining friendship.
It is the conclusion of this writer that local friendships play a most important part in the everyday lives of those in the lower socio-economic groups.

In their report to the Massey Royal Commission on the Arts and Sciences the Community Planning Association of Canada stated:

The bearing of the physical environment upon the life of its inhabitants is being demonstrated both by social scientists and by practitioners of the fine and useful arts.33

Henry Churchill, an eminent architect and city planner, in an address to his colleagues said:

Architecture, urban architecture, is our environment and cannot be escaped. It affects, subconsciously, even those who are the least aware of it.

If the planner knows what the physical factors are that affect some social relationships then it is possible for him to plan more realistically.

Ultimately, the planner is planning for the people, and if he does not know what the social results of his plans are, how can he be sure he is planning for the people?
CHAPTER II.

SUBDIVISION DESIGN AS A PROCESS IN COMMUNITY PLANNING

New Attitudes and new objectives are required in planning or, perhaps, it would be more correct to say that we should return to the philosophy of the pioneers of modern planning. We should think more and more in terms of the family, of human beings, their likes and desires, their attitudes and needs.

-----Gordon Stephenson
A REVIEW OF THE CURRENT DESIGN PROCESS IN PLANNING

Residential subdivision traditionally has been for three main reasons; for the profitable sale of lots, for the creation of lots for living on, and the creation of a part of a community.

The town planner traditionally has considered subdivision design in relation to the land use pattern of the city's needs. He has been primarily interested however in the street pattern and seeing that it is functionally designed as a communication and transportation network. Essentially the subdivision designer has been concerned with his subdivision in relation to the various community services that people within the subdivision would require.

An important determinant in subdivision designs has been the land itself, primarily in terms of relating the road pattern to the topography and natural features of the site.

Most recent subdivision designs have been supported and designed on economic grounds. Criticism of former grid layouts has been mainly on the basis of its wasteful use of land and uneconomic servicing costs. Economic considerations have played an important part in determining such things as lot size, lot frontages, road widths, block size, and whether lanes should be provided or not.

Another determining factor in subdivision design has been that of traffic safety. In many cases such principles as that of limited access to peripheral major roads have been applied. Allied with this is the principle of roads being built on a functional basis. This would mean that within a subdivision, especially one developed as a neighbourhood, there will be local roads that serve only as a means of access to a limited
number of individual lots. These local roads would feed into collector roads that would empty the traffic from within the subdivision to the points of intersection with the major roads linking up the city. The primary reasons for this sort of development within a subdivision design has been for reasons of traffic safety and for reasons of economy. For reasons of traffic safety, and possibly economy, many road intersections have also been ‘T’ type junctions within recent subdivisions.

Subdivision design has also been determined to some extent by aesthetic considerations. This would involve such considerations as achieving enclosure within a subdivision grouping in order to give an area finite limitations that are pleasing to the eye. Cul-de-sac streets, squares, and curved streets achieve this to some extent. Other aesthetic considerations might involve an opening up of a view by having street types that allow vistas. Although many of the aesthetic considerations in an urban area primarily involve architecture, subdivision design can be effected by many aesthetic considerations.

Along with these basic determinants of subdivision design are functional requirements that might dictate the subdivision design to some extent. For example, grades over ten percent might be considered undesirable and as a result it will limit the choice of road placement in certain areas. Road widths will often be determined on the basis of the road function. Claims of the community at large for certain areas within the subdivision design for such purposes as schools, for example, might well be a determining factor in subdivision design.

To a limited extent social and cultural factors become determinants of subdivision design. Our culture is primarily one that accepts the detached single family dwellings as the best place to live, so this of
course is one of the basic factors affecting subdivisions. This however is a basic fact for the designer to face, and beyond this there are generally not too many social factors considered by the designer. Design on a neighbourhood basis may be primarily for economic or functional reasons though on occasions it is suggested that there are 'good social results' such as a feeling of place and community or a 'we feeling'.

Probably most important of all the determining factors in subdivision design is the individual designer. A qualified subdivision designer, in creating a subdivision, usually applies a personal concept to his plan. This may range from a type of loop street to something as radical as the Radburn plan of Henry Wright and Clarence Stein. Once the planner has decided upon the concept, however, he usually bends the other basic design factors (economics, aesthetics, function, etc.) to fit within the framework of the concept. It will usually be the case that the concept involves one of the basic design factors which is stressed more than the others, depending on the designer's background. The architect-planner, for example, will generally stress aesthetic or visual considerations at the expense of other important factors.

Very few town planners however, have a background of sociological training. As a result, the most important factor to be considered in subdivision design - the people who will live in the subdivision, and their happiness, are usually not the primary consideration of the designer.

Planning today is seen as an adjunct of either engineering or architecture, even by those who are generally considered well informed. It is precisely this lack of comprehension of the nature of the city by the majority in these two professional groups that was the reason for
town planning developing as a distinct profession in the first place. If planners continue to plan and design subdivisions with an architectural or engineering bias, they will be abrogating their rights as distinct professionals. Indeed, there will be no reason for the planner to remain a separate entity.

It may be felt that this writer is over-stressing the case, but to show how this approach may be enveloping the proper development of planning it seems reasonable to give a résumé of the generally accepted approach, as exemplified by Mr. H. Spence-Sales, a Professor of Planning at the School of Architecture, McGill University. His approach is stated in a widely accepted Canadian publication entitled How to Subdivide: A Handbook on the Layout of Housing Developments. This report has become a sort of handbook on subdivision design procedure.

To be fair to the author it must first be stated that the book was written at a time when some reference book on subdivision design was needed by developers in the country. There was pressure for such a publication and it was written primarily for developers. The boom after the war in housing developments and mass subdivisions was probably handled in a more rational way because of the use of Mr. Spence-Sales' book.

The fact remains however that the handbook, with its obvious omissions, is still being used throughout Canada and is being sold by public agencies as a comprehensive handbook on subdivision procedure.

Spence-Sales first deals with the selection of the site; generally on the fringe of urban development and in the path of city growth. He then deals with the actual site; its topography, soil types, and physical characteristics, and as a result decides upon the pattern of land use.
The author then somewhat weakens his reason for making the land use decisions on the basis of land quality by stating that quality can often be improved by effecting soil drainage and grading.

He then states:

The areas into which the site has now been split represent clusters of different types of development unrelated to each other. To associate the parts with each other a circulatory system is needed. The next step is to develop the outline of a street system.²

The author goes on to state that the next step is to sketch the lots in within the block system. He continues:

A building lot is a unit of land which provides economically for the erection of a house and for the out-of-door requirements for the household. Its size and shape must ensure adequate daylight, sufficient sunshine and circulation of air, and it must afford privacy and safety against fire hazard from adjoining properties.³

He states that lots should be fifty feet wide in order to achieve light, air, privacy, and safety from fire hazard. But he states, a 'desirable' width would be seventy feet. He says also that a lot should be at least one hundred feet in depth 'to provide for setbacks from the street line.'⁴ He adds another reason; to allow for household purposes. His pattern of thought however, has emerged, and the people that are going to have to live in the subdivision are a factor that has become submerged in the 'technology' involved.

Mr. Spence-Sales continues:

The layout has now come into focus. Its main parts have been merged together into a single unit of development that can be examined critically to ensure that as a whole and in detail, it is practical and economical.
The next step is to review the pattern of the plots.

First count the lots to see if an adequate number has been provided.5

Let us consider these statements in some detail. The author says 'the layout has come into focus'. However only the layout has come into focus. The people are subordinated to the plan.

Says Spence-Sales: 'it is a single unit of development' - which may be true in terms of bulldozer operations or sewer pipes. But it is a community; many individual families will live most of their lives in its various parts. It is not a single unit of development except in technological terms. He continues, stating that it must be examined critically to see if it is practical and economical. The approach is acceptable to a degree but is hardly adequate. The climax is doubtless reached when he says: 'First count the lots to see if an adequate number have been provided.'

Surely this approach reveals its own damnation.

Mr. Spence-Sales then states that factors such as services and utilities should be related to the street pattern. Only after this and the previous decisions does he state that the pattern of open spaces should be examined. He then justifies the open space by stating: 'Open space provides the greatest single opportunity for improving the quality and hence the value of a development.'

He continues with the statement:

It is often more profitable to use for open space a pocket of land which cannot be well subdivided, rather than to divide it into lots that would be unsuitable for building.6

The location of the buildings on the lots is then considered and Spence-Sales feels that the character of the development is largely
dependent upon this factor. He states that the buildings (Note: not houses or homes) relationship to each other is 'critically important'. This is true of course, but Spence-Sales sees its importance only in architectural terms.

As Spence-Sales sees it:

The planning of a residential area is incomplete until landscaping has been considered. It adds more to the immediate attraction and permanent value of the project than any other element.

The final touch in the design is, therefore, the landscaping.

The planning layout is now complete.

Unfortunately, too many people believe that when a subdivision design has gone through these stages that it is complete. Subdivisions cannot be considered only as commodities for purchase. It is not just a case of buyer and seller of land and buildings. The buyer is asking for a framework for living, and the seller must realize that a framework for living is what he must provide.

With these various general considerations in mind, we shall next proceed to examine the actual design process that was evolved in the subdivision plan for Renfrew Heights. Before this is done, however, a brief description of the site of the residential area would be helpful for setting the stage.

THE SITE OF RENFREW HEIGHTS

By some standards the Renfrew area might be considered a rather rugged site, though by Vancouver standards it would be considered rather typical for a residential area. The site is the base, and steepest section of the slope south of the Still Creek depression. The slope of the site is reasonably constant and generally between 7.5
and 10 percent in grade. The general trend of the slope is diagonal across the project; the lowest point being in the north-west corner of the project; the lowest point being in the north-west corner of the project and the highest being in the south-east corner. The slope is broken up in the south-western corner of the project by a ravine approximately 300 feet wide.

A central part of the site is reasonably flat as is the southern fringe where the valley slope tends to decrease in gradient.

The original forest cover of the site was entirely stripped off when the housing project began to be built, so the slope is somewhat barren in that respect.

The site has a northern exposure which ordinarily might be considered a disadvantage; however in this case it proves to be possibly the greatest advantage that the site possesses. Because it is a northern exposure it offers some of the best views of the Coastal Mountains to the north. The entire chain of mountains allows for many fine vistas from the project site. A view of central and north Burnaby is also afforded from the site and the northern slope of the Still Creek depression provides a foreground for the North Shore mountains.

THE DESIGN OF THE RENFREW SUBDIVISION

It must be stated at the outset that this writer's statements about the design process used in the evolution of Renfrew Heights are purely his own assumptions based on considerable study of the area and personal experience in subdivision design. An attempt is made to describe the considerations that were probably taken into account by the subdivision designer of the project, in view of the actual design that has been developed. As such they do not necessarily represent the
actual process involved in the development of the Renfrew plan.

The first basic determinants in the design of the project were of course the boundaries, which were the four major roads surrounding the site. It was necessary for the designer to accept these roads; however he had to decide whether some of the lots should face, back or flank these major roads. These decisions were probably resolved in relation to his basic concept of the whole design and the existing houses on the fringe of the site. As a result, some lots face the major roads, some back on the major roads, and some have their flankage along the major roads.

Because most of the topography was similar and the grades were generally not excessive it does not appear that the topography was the primary determinant of the design. There are three main exceptions to this however. The ravine and creek in the north-west corner had to be considered and there were two reasonably flat areas; one in the centre of the site and one at the south-east corner of the site that had an existing elementary school on it.

The subdivision plan was also limited, so to speak, by the fact that it was designed for one-family dwellings, though this should probably not be called a limitation, but rather part of the definition of the problem.

Within these limitations then, the designer was able to work creatively, evolving a synthesized answer to the subdivision design problem.

It was at this point that the designer probably evolved his basic concept of the subdivision. (See Map 2). As this writer sees it, the basic concept was a variation of Clarence Stein's and Henry Wright's Radburn plan.
The designer used the flat central site as the neighbourhood park and school and had a diagonal strip of parkland from, and including, the ravine in the north-west corner of the project. Thus a large portion of the project was linked with the main neighbourhood park. It seems fair to state that the park idea was basic, particularly in view of the fact that approximately eighteen percent of the gross project area is parkland. In conjunction with the neighbourhood park and school was the idea of a neighbourhood shopping centre.

The designer however appeared to be unwilling to carry his design to the logical conclusion that Wright and Stein did, so he had his houses oriented towards the street rather than the park.

Allied, and part of this underlying concept seems to be the idea of three ‘double loop’ streets about the neighbourhood park. By ‘double loop’ is meant one small loop or court bounded by a larger loop. A fourth ‘double loop’ was proposed at the head of the ravine area.

Given this basic concept and the previously mentioned limitations, the subdivision design for the whole area begins to fall into place. The south-western section of the project is fitted into the basic concept and is a diagonal variation of the grid pattern (See Map 3).

The road pattern takes on an almost geometric appearance based upon the idea of the double loop road and the idea that the loops should be bent only by forty five degree angles. The reasons for this were probably economic and aesthetic. The outer loop roads are approximately thirteen hundred feet long and are of almost super-block size. Because of their length they are quite an economic means of providing access and services to the lots on either side. A block
thirteen hundred feet long however, can become very monotonous and for this reason the designer probably conceived the idea of breaking the block up visually by achieving the loop with only forty-five degree bends. The bends of the loop not only provided a visual end to the street, but also allowed an exciting and changing panorama of the North Shore mountains. This conception was then a synthesis of the economic and the aesthetic by the planner using his knowledge of both factors.

There is a collector system of roads within the framework of the basic concept. In places the collector loop does not appear to be too distinct and this is probably the result of the loop and park system being the main concept rather than the collector system for traffic.

Complaints could probably be made about Mr. Jonsson's design on economic or aesthetic grounds. However, in view of the great public pressure for the development of the project and the lack of detailed topographic information, the present design can certainly be considered a credit to the planner's ability.

In view of the pressure for the quick development of the Renfrew Heights it is unlikely that many social considerations affected the design stage of the project. As noted previously in this chapter, most subdivisions are designed without the basic thought in mind that they are a framework for living and as such they will substantially affect the lives of the people within them.

Because Renfrew is not unlike other subdivisions in this respect this writer desired to obtain information on some of the social results of the functional, economic and aesthetic determinants of the Renfrew Heights subdivision design. As the basis for such an evaluation, a series of tentative hypotheses regarding the social effects of various aspects
of the subdivision were developed. These are discussed in the next chapter. Although time did not permit the testing of all these hypotheses, they are included with the hope that other researchers may find them challenging enough to undertake similar types of studies.
CHAPTER III.

HYPOTHESES REGARDING SOME OF THE SOCIAL EFFECTS OF SUBDIVISION DESIGN.

In Science you don't have to know the right answers, all you have to know are the right questions.

----Favre.
Favre stressed the importance in science of asking the right questions. Much of the work of this study has been predicated upon this idea. Since this study is primarily interested in two aspects of planning, physical planning itself, and the social effects of the physical planning, a study of the physical elements as seen by the town planner was made with a view in mind of the possible social results of the design. Only one aspect of the social results is considered in this study and that is the local friendship pattern.

On a basis of studying the layout and groupings as well as the physical character of the local site a great many hypotheses have been made. How reasonable these hypotheses are will be determined after the questionnaires have been completed.

However, as observed previously, in the field of town planning there has not been too great a concern about the social results of some of our design devices and even speculation about some of the social results has been very rare. It is hoped that the hypotheses presented here will be accepted as more or less first thoughts about the subject and that they will be modified and consolidated after further work and research in this field.

Individual sections of the housing project will be considered - these sections have been chosen primarily because the writer believes that they have affected the residents within them to some extent and because between some of them there might be a comparability that would be interesting to discover.

In some cases there may be little difference physically between any two examples chosen, with the exception that one variable (e.g., position of lane) may be different between the two and this would allow a reasonably scientific check of the effect of the variable. The isolation
of one variable is often not possible and more than one variable may have to be considered at a time. Nevertheless, in most cases of design it will probably be a combination of physical variables that affect face-to-face or community friendships, and it will be important to know what these are.

It is very possible that all the physical variables affecting community friendship have not been considered by this writer. What appear to be correlations, or the effects of one of the variables, might well be due to the effects of an unrecognized physical factor. This fact will be kept in mind throughout the study and every effort will be made to see if there appear to be physical factors, other than those being tested here, governing or limiting friendship possibilities.

In general the main hypothesis is that community or local friendships are governed to a certain extent by four basic physical elements:

1.) distance.
2.) differences in elevation, or vertical distance.
3.) the use that the distance is put to.
4.) orientation.

There is probably a range for each of these factors - that is, at a certain value each of these factors individually become a barrier to friendship. For example, in a given situation a certain distance will become a barrier to friendship in itself. Similarly certain differences in vertical distance or elevation will become barriers in themselves. Considering traffic as a use factor then at a certain point intensity of use will result in a friendship barrier. Certain uses in themselves however might constitute a barrier. Orientation is an important factor in friendship but is probably more difficult to measure than the other factors.
Given a certain value at which each of these factors individually becomes a barrier to friendship it would seem likely that when one of the factors, distance for example, is combined with one of the other factors, say vertical distance, then a lower value of each factor when combined with the other would constitute a friendship barrier.

A common example of a combination of these factors could be a hundred foot road, (THE DISTANCE FACTOR) cut along a hillside so that the lots on one side are ten feet above the road and the lots on the other side are ten feet below the road (the vertical distance factor); and the road might be a heavily travelled through route (the use factor). Finally, the houses on both sides of the street might face in different directions as well -- the orientation factor. (See the following sketch).

It is suggested that a combination of purely physical factors such as these would deter the possibilities of friendship. One of the factors alone might not have such an effect, but this would depend on the range or intensity of the factor.

A typical example of a friendship range might be as shown in the sketch below:
The Social Effects of Subdivision Design

A Project in Lieu of a Thesis
University of British Columbia
Community & Regional Planning Department

Renfrew Heights

Dieppe Drive

Map 4
Scale: 1" = 100'

R. Williams
In this example \( (x) \) might be the range for linear friendships along the same side of the street, \( (y) \) might be the range for friendships along the other side of the street, as affected by distance, and \( (z) \) might be the range for friendship across the lane as affected by orientation. These ranges might change as different orientation, vertical distance, and use factors come into play.

Keeping the hypothesis of the four basic physical factors affecting local friendship in mind, various individual sites in the planned neighborhood were considered.

Example 1.

(Dieppe Drive - Map 4)

1.) The interesting physical feature in this example is that the grade changes are linear, or along the street. It would appear that the effect of grade here, accentuated by retaining walls, would be to limit the friendship possibilities along the one side of the street.

This should be compared with a level street to see if there is a difference between the results of a ‘stepped’ residential strip and a level residential strip.
2.) In order to increase the range of local friendship possibilities, it would seem likely that cross-lane friendships might develop. Back of these parcels however is a special situation to some extent because it is one of the four residential ‘courts’ or places, which might have special characteristics of its own.

3.) One would think that cross-street friendships might develop in order to avoid the linear grade differences. However it is likely that this is not the case in view of the orientation of the housing across the street. If the orientation were as shown in the sketch below, it is quite possible that a different friendship pattern would exist.
THE SOCIAL EFFECTS OF SUBDIVISION DESIGN

A PROJECT IN LIEU OF A THESIS
UNIVERSITY OF BRITISH COLUMBIA
COMMUNITY & REGIONAL PLANNING DEPARTMENT

RENFREW HEIGHTS

MAJOR RO. - 22nd AVE.

SCALE: 1" = 100'
R. WILLIAMS

MAP 5
Example 2
(22nd Avenue - Map 5)

1.) The street here is a width of 100 feet. It is possible that distance is a friendship barrier here. However, if it is not a barrier to cross-street friendships then an interesting comparison would be with Rupert Street which is the same width but carries much more automobile traffic. If relationship patterns vary between the two streets it would seem reasonable to state that it was a result of the use of the distance.

2.) This street is not a public transit route, whereas Rupert Street is. It is possible that the extent or range in distance of local friendships on Rupert Street might be more limited because of the ease of accessibility to the rest of the city. This would be dependent however on previous residence in the city mainly.

3.) Back of this residential strip along 22nd Avenue are a wide range of lot types. It would be interesting to see if relationships across the lane differed with the lot types involved.

4.) Cross street relationships may also be affected by the factor of vertical distance along part of the street here as shown in the rough following sketch, and this can probably be checked reasonably well.
THE SOCIAL EFFECTS OF SUBDIVISION DESIGN

A PROJECT IN LIEU OF A THESIS

UNIVERSITY OF BRITISH COLUMBIA
COMMUNITY & REGIONAL PLANNING DEPARTMENT

SCALE: 1/" = 1000'

RENFREW HEIGHTS

MATANAN CR.

VIMY CR.

GRANDVIEW

HIGHWAY

R. WILLIAMS

Orientation on major ax
A small section of the lots are a width of 45 feet compared to a general width of 41 feet. The difference here is probably not enough to show a difference in friendship patterns—however, it might be tested in other cases. That is, distance becomes less of a barrier to friendship if the range of possible friendship is lowered. An exaggerated example of this would be in rural areas where people certainly go farther for their local friendships. There is then possibly a range in density that affects distance as a determining factor in local friendship patterns.

6.) It is likely that there will be different relationships with the inhabitants of the older homes on the same side of the street. This would probably be due mainly to social differences such as age, income, family structure, and the fact that they are non-veterans.

Example 3
(Grandview Highway - Map 6)

1.) These are two sections along the Grandview highway, the main differences between the two being orientation; one section faces the highway, the other section backs on the highway. It would appear that in both cases the combination of distance, vertical distance and use prohibit inter-action across the highway itself. The effects of orientation cannot be readily checked here because the houses that do not face the highway are across from industrial plants rather than residential homes.

2.) It is likely however, that the houses that back onto the highway take advantage of interaction across Vimy Crescent itself and thus would feel more integrated with the neighborhood as a whole.

3.) There are three parcels alone facing the highway east of Skeena Street. It would seem that they are quite isolated from the rest
of the community and might be comparable to the north-west corner of
the project (example 4) on a smaller scale. Of the three lots, the most
easterly or triangular one would appear to be either the most isolated
or insulated as a result of its lengthy flankage along the lane.

4.) By virtue of the steep bank on the front of all these parcels,
it is quite likely that the lane becomes the general means of access, and
thus the use of the lane might result in more cross lane friendships than
ordinarily -- as well as being strengthened by the negative barrier of
the highway itself.

5.) It would be interesting to compare the friendship pattern
here with areas where there is a wider range of possibilities.

Example 4
(North Rupert Street - Map 7)

1.) The primary question in this example is if there is a feeling
of isolation here as a result of physical factors and if interaction is
limited locally and with the rest of the neighborhood. There are many
reasons to believe that this might well be the case because:

a.) It is at the bottom of the hill
b.) It is bounded by restricting roads
   - Rupert Street, a major north-south road
   - Grandview Highway, a major east-west road
   - Worthington Drive, a collector road
c.) It is bounded on one side by a large undeveloped park
   and creek depression
d.) It is near a change of land use - commercial and in-
dustrial
e.) It is on a major transit route and access to the rest of the city is much easier.

2.) On the other hand it is quite possible that a common problem helps to band them together and attending community functions. In this case it is a problem of rats in the undeveloped park.

3.) One lot in particular, at the corner of Falaise Avenue and Dieppe Drive would seem to have very limited possibilities for friendships to develop. These limiting physical factors would be:
   a.) on a corner
   b.) Orientation about it is entirely different in all but one direction
   c.) The lots to the east are very long, and only back yards are nearby.
   d.) across the lane there is a wide park and the church
   e.) it is bounded on the east by the heavy traffic end of a collector road.

4.) A possible effect of the design of Matapan Crescent is that the 45 degree bends in it might have the same effect as the ‘end of a block’. Aesthetically this seems to be the case, but is there a social correlation as well?

5.) There is one ‘pie’ shaped lot on the Crescent where orientation, compared to the other lots, is quite different and the lot is also bounded on one side by a lane. The lot is on a bend of the road and across the street a typical subdivision design device has been used in order to increase the frontage of the lots.

The result of this device has been of course to increase the distance across the street. The lots across the street are lower
than this side of the street as well. This particular lot is also cut off from immediate cross-lane contact at the back of the lot.

Example 5
(Rupert Street - Map 8)

1.) It is possible that there are two major physical pressures for cross-lane friendships to develop here.

![Diagram of park and collector road as barriers]

The park and the collector road form a very real barrier on one side - in terms of distance and use - and the major road too is very likely a barrier to communication. It is interesting and somewhat ironic to note that this very important part of the urban communications network may become a barrier to the local communications of people.

These physical barriers may be deterring factors or negative forces against friendship in certain directions that give a positive result which might be cross-lane friendships.

Because of the traffic on the two roads, the residents probably keep their cars in the back which is in itself a positive force towards cross-lane friendships.

It might be, then, that these forces have resulted in a channelization to achieve the desired range of community friendships.

2.) Another interesting possibility in this example is that
the stepping or staggering of cross-lane property lines invites a wider range of friendships, as shown in the following sketch:

3.) It would be important to check cross-street relationships on this major street as compared to 22nd Avenue (Example 2) where there is much less traffic, although the streets are both 100 feet wide. Another reason for any differences might be the availability of transit on Rupert Street as compared with 22nd Avenue.

4.) It is possible that the narrow east-west lane in this block becomes a ‘cut off’ point, or end of a friendship group. Elevation and use (access to a collector road, with a tendency to carry some of its traffic) would tend to make it more of a barrier than in the usual case.
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RENFREW HEIGHTS

MAP 3

SCALE: 1" = 100'

R. WILLIAMS
5.) The fact that Rupert Street here has a fairly steep gradient might tend to cut down linear relationships as well as the availability of transit. It might be interesting to compare the effects of gradient here, with other limiting factors, with the effect of gradient alone on Worthington Drive.

Example 7
(Matapan Crescent - Map 9)

1.) It would seem probable that the area bounded by Matapan Crescent, Dieppe Drive, Vimy Crescent, and Skeena Street (the funnel end of the collection road), where there is the most traffic, would be a deterrent to cross-street friendships. In short, there is possibly a range of cross street relationships along a collector road which would decrease as the collector road gets nearer to the point of connection with the major route.
5.) The primary control factor of the project (being accepted by Central Mortgage and Housing Corporations as a tenant) is lost in the older original homes along the south side of Matapan Crescent. It is likely that there is a difference in friendship patterns here. Differences in age, family structure, income, and community of interest would seem to make this so.

Example 8

(Falaise - Malta Avenues - Map 10)

1.) It would seem very likely that extended linear relationships along one side of the street would be the friendship pattern that would develop along these streets. The reasons for thinking this way are the physical deterrents involved.
a.) The park is probably too wide for friendships to develop across it.
b.) The fact that both streets face courts rather than another linear grouping is probably a very important deterrent to friendships.
c.) Orientation across the street in both cases is different.
d.) Along Malta Avenue vertical distance is probably a strong deterrent to cross street relations between the street and the court.

2.) Because these physical factors are quite strong, only a linear relationship pattern might develop. Along Falaise Avenue however, orientation might prove to be less of a barrier than on Malta where it is combined with a vertical distance change. A desire for a wider range of possible friendships between the smaller court, Falaise Place, and Falaise Avenue might make a different pattern possible.
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RENFREW HEIGHTS

FALAÏSE PLACE

MAP II

SCALE: 1" = 100'

R. WILLIAMS
Example 9
(Falaise Place - Map 11)

1.) One of the basic questions involved in this example is whether distance itself is a barrier to friendship... ... at least to certain limits. This court is 100 feet wide, the same width as the major roads bounding the neighborhood. It is unlikely however, that friendship patterns are the same. It is suggested that use in this case then becomes the more important determinant.

2.) Orientation might be shown to be more important than distance here. The houses on the corners of the court are closer in distance to the houses along Falaise Avenue, but there is not a front-to-front orientation. It is likely that there is more interaction within the court by those in the corner houses than across the avenue where orientation is different.

3.) This being one of the smaller courts, it would seem likely that there is a strong group feeling compared to the larger courts or other parts of the project.

4.) The majority of these lots are very wide along the lane as a result of the grouping about the court. One might assume that the broadening of the lots at the rear would broaden the possibilities of friendship across the lane, but it is likely that this is not the case. The proximity and orientation of the court is probably the most important factor.

The houses at the head of the court are on lots with narrower frontages and have an inward orientation. It would seem possible that there is more contact among these lots than in the rest of the court.
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SCALE: 1" = 100'

R. WILLIAMS
6.) The older, original homes to the back of the head of the court probably result in different relationships across the lane, compared with other areas.

Example 10
(Malta Place - Map 12)

1.) It would be interesting to compare this court with Falaise Place, which is shorter. The length of the court here is 275 feet, compared with 175 feet in Falaise Place. The two courts however, are both the same width.

2.) By virtue of this length, it would seem possible that stronger linear relationships would develop, rather than cross-court relationships.

3.) Are there relationships between the houses on the corner of the court with those across Malta Avenue that have a different orientation? It would seem less probable that this would be the case here than on Falaise Place, particularly because of the differences in elevation, or vertical distance.

4.) Many of the lots in this court are quite wide along the back; the larger ones ranging between 70 and 146 feet. It would seem likely that this is a barrier to cross-lane friendships, and would tend to be accentuated by the differences in elevation between the lots surrounding the court, and the lots behind.

Example 11
(Dieppe Place - Map 13)

1.) This is the widest court in the group; in effect it is a street, 170 feet wide. It is possible that this width is sufficient to be
a barrier to cross-court friendship in itself. If this is the case, then it would seem to indicate that there is a point between the 100 foot width of the smaller courts and this 170 foot width that becomes a deterrent to friendship development.

2.) At the entrance to the court, the houses on the south side of the road are above the road grade, and the houses on the north side of the road are below the road grade. It would seem that the differences in elevation would decrease the friendship possibilities across the court in this section. At the head of the court, the ground is more level, and it would seem that there are more ease of access for friendship to develop than at the mouth of the court.

![Diagram](image)

If this were a good example, which it might not be, because of excessive distance and not too great a difference in elevation, it might be possible to find the point where a resistance to cross-court traffic develops. The point would mean that the combination of vertical distance and horizontal distance was enough to deter relationships.

3.) It would seem possible that the head of the court might be isolated to some extent because of the two lanes that separate it from the rest of the group.
4.) It would seem more probable that cross-lane friendships would develop in this court rather than the smaller courts, which might be more distinct groups in themselves. It is possible that the distance across this court would tend to make cross-lane friendships an easier alternative. The lots at the mouth of the court are 147 feet long and the lots at the head of the court are 110 feet long. It would seem likely that cross-lane relationships would be much more likely at the head of the court, because of the shorter distance involved.

**Example 12**
(Worthington Place - Map 14)

1.) The size of this court is almost identical with Falaise Place (example 9), and the design similarly is almost identical. However, in cross-section, there is a difference between the two courts. This court has differences in elevation that are not the case in Falaise Place.

![Diagram of court with elevation differences]

It would seem then that this would limit cross-court traffic to a greater extent than in the other example.

2.) It would be interesting to note the differences in cross-lane friendships between the bottom of the court and the head of the
court. It would seem likely that 'pie' shaped lots at the head of the court would tend to be barriers in themselves at least as far as friendships at the back are concerned.

**Example 13**

(Various 'T' Intersections - Map 15)

There would seem to be a possibility that lots at the head of 'T' intersections are possibly more isolated than the other lots in the street. There remain the linear friendship possibilities along the street of course, but that is only one side of the street. It would seem possible that cross-lane relationships are reinforced as a result.
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RENFREW HEIGHTS

SMALL CLUSTERS

SCALE: 1" = 100'
R. WILLIAMS

MAP 16
Example 14  
(Small Clusters - Map 16)

1.) The examples here are four small clusters of housing ranging in groups from four to six.

2.) The linear friendship possibilities in these examples would appear to be quite limited, because they are such small units, and the ratio of corner lots to ‘body’ lots is much higher.

3.) It would seem then that cross-street or cross-lane relationships would be increased as a result of the limited linear possibilities. However, the lots on the westerly side of Mons Avenue back onto flankage lots, rather than parallel lots which would seem to limit the cross-lane possibilities compared to the easterly side of the street.

4.) It would seem that more cross-street relationships in this example at the foot of Worthington Drive would develop than farther along the street where the linear distance is broken up hardly at all.

Example 15  
(Comparison Across a Hillside - Map 17)

1.) It would seem likely that the narrow park would be a barrier to communication across it, dependent upon the use to which the park is put. The distance from back property line to back property line is 130 feet. From house to house it is approximately 250 feet, which is almost the same as Dieppe Place.

2.) If there is no cross-contact here, and there is on Dieppe Place, then it would appear that orientation and use, are most important determinants.
3.) Whether the flankage lots along the ‘T’ lanes are not conducive to friendship as a result of the lane use and the orientation of the houses can probably be determined in this example. This might be compared with the ‘pie’ shaped lots which have rear lot widths almost equal to their flankage.

4.) Along Worthington Avenue there is a 100 foot break for access to the school, it would seem likely that because of the use of the distance, the distance itself and the differences in elevation, that there would be very little cross-relationships here.

It would seem that across the whole slope here that cross-lane relationships would differ because of factors like the park and the fact that Worthington Drive is a collector road. This might be tested to see if it is so.

6.) It would seem that friendship along this whole slope might be affected linearly as the grade increases up the hill.
Chapter IV.

SOME FINDINGS OF THE RENFREW STUDY

The more deeply we get into economic and technical analysis, the more often we come up against social questions, issues that have hardly as yet been properly posed, let alone answered.

----Catherine Bauer.
The major hypotheses regarding the social effects of subdivision design were that local friendships would be affected by four major factors. The first factor was distance: by this was meant the linear distance between homes. The second factor suggested was vertical distance or changes in elevation. The third factor suggested was the use and intensity of the use that the distance was put to. The fourth factor suggested was orientation, or the way the houses faced.

In one way or another the hypotheses all seemed applicable to the Renfrew project. This writer, because of the limited time available for the study, was unable to test many of the examples presented in the previous chapter. Nevertheless, it was believed that the important part of the study was to ask the questions. More answers will come from subsequent studies. It would certainly be better too, if the answers came from the sociologists rather than the planners. The conscientious planner working on subdivision design often asks basic questions about the work he is doing and for this reason alone could be a great aid to the sociologist. However, most sociologists, building the foundations of a new science, are not applying their study and research to the contemporary physical problems of building our cities. The planner, asking the questions he feels are necessary, and attempting to find some of the answers himself, without the skills of the sociologist, is bound to be criticized.

It is right and proper that this should be so - for this is the way that knowledge is obtained. If there is criticism of the approach used by the planner out of his field then it will mean that someone
else has thought about the problem. This is what the planner wants because it can lead to some answers that will result in subdivision design being done more on the basis of social needs.

It was with these thoughts in mind that an all too brief study of a few parts of Renfrew Heights was made.

In the Renfrew study the residents of various parts were questioned about their relationships with the people around and about them. A copy of the questionnaire that was used in the study is included in this report (Appendix B). The questionnaire is divided into three parts. The first section includes primarily general information, such as location, length of residence in the project, car ownership and so on. The second section needed only to be filled out through observation by the interviewer; it includes items regarding various physical aspects of the development, such as street widths, lot types and so on. The third section includes a system for coding the various possible personal relationships that evolve between different types of lots.

The important consideration in the drafting of the questionnaire was the possibility of transferring the information to IBM cards in order to check all the possible correlations of the data collected. Time however did not make this possible. The method developed for coding friendships is explained in Appendix C. As an aid during the questioning of the residents however a map of the local area was on the back of each questionnaire which allowed an easier identification of houses for the interviewer and interviewee.

The friendship value scale used was, as previously mentioned, a modification of the neighborhood interaction scale of Theodore
Caplow and Robert Forman of the University of Minnesota. A value was given the relationship by the interviewer after considerable questioning.

Prior to interviewing the various residents a letter was delivered stating who the interviewer was, his reasons for undertaking the survey, and the time that he hoped to interview the resident. It was found that the letter was quite helpful in ‘breaking the ice’ before the interview. A copy of the letter is included in Appendix ‘A’.

Approximately seventy people in the Renfrew project were interviewed. (Originally it had been planned to interview at least two hundred residents of the housing project.) The interviews generally took place on weekday afternoons. The reason for selecting this time of the day for the interviews was primarily in order to be able to talk to the housewife when she was least under pressure of work. It was decided that the housewives would be the most suitable to answer the questionnaire for several reasons. It was believed that the women bore the main load of social life in the community and that because they lived there much more of their life than their husbands, there were more chances of passive contact with local neighbors. It was also of course easier to contact the women of the household than the men. A conclusion similar to this was reached in the Westgate study at the Massachusetts Institute of Technology. It was believed by Festinger and his associates that if they interviewed a woman in one family and a man in another then it would introduce variables that they could neither control nor identify. They maintained that to interview the man and the woman in each family would have hopelessly complicated the task.
A final reason for interviewing the housewife is that it was
assumed in this study, as in the Westgate study, that the family can be
regarded as an unit and that this unit can be studied by interviewing
only one of its members. This assumption does not seem unreasonable
for it was found in the Westgate study in all cases that could be checked
with knowledge from informal interviews and observation that the data
obtained from interviewing the wife did adequately give data about the
whole family unit.

The ideal experiment would of course be a situation where all
the variables considered important could be controlled by the experi­
menter or researcher. If, for example, the researcher was able to keep
all the variables constant but one, then he could check the effects of
change in the one variable.

A social research experiment however is rarely, if ever, a con­
trolled situation. This is both the fascination and the frustration of the
social sciences. In studying a complex social phenomena such as a
community, it must be accepted as is and where is. The exact effect of
variables may be difficult or impossible to assess but nevertheless the
effects of some of the variables do become apparent. This is the case
in Renfrew Heights. The main hypothesis of this study was that four
physical variables affected the pattern of face-to-face friendships. The
data collected tend to show that the hypothesis is correct, but it is
difficult to isolate the variables in some cases where a combination of
variables become barriers to local friendship.

GENERAL FINDINGS:

It was found in the Renfrew study, for example, that children
often played an important part in determining who their parents' local
friends might be. The children would of course play with other children nearby who were in their own age groups. This meant that passive contacts would result between the parents which might develop into a close friendship. For the children in the younger age groups however the physical factors of the environment take on a much different perspective than for adults and so distances and elevations are multiplied. As a result, passive contacts between parents, through their children, are limited to a considerable extent by physical factors. A collector road is a barrier that children are not allowed to cross, and as such becomes a barrier of sorts for adult friendship across it.

While the children are important factors in determining local friendships it is not believed that they play the major role in determining who their parents' local friends might be.

It was found that the automobile is to some measure a determinant of local friendship as well. Every interviewee was asked if they owned an automobile and whether they parked in the front or the rear of the house. It was found that in the cases where cars were parked in the back, near the lane, that friendships across the lane increased tremendously, generally two-fold. It did not appear that parking in the front of the house increased friendships along the street particularly. It may be the case however that on narrower streets the parking of the vehicle in front might increase the number of cross-street friendships.

It was found in this study, as in the Westgate study, that there was less local interaction or friendships by those who occupied corner houses than those who were in the interiors of blocks. This proved to be the case in William H. Whytes' study of Park Forest as well.
Small physical details also appeared to take on considerable significance for local friendships. The location of back porches and clothes lines were quite important. Quite frequently the interviewees would mention the fact that their back doors were close to a neighbor on one side, and that they were most friendly with that person compared to the neighbor on the other side of the house. At the heads of the courts where two neighboring lots might be oriented inward towards one another and also have back porches near to one another, there would usually be quite a close friendship between the two families involved.

It was found generally that next door neighbors were either quite friendly with one another or relatively cool towards one another. This fact would tend to compare with Anthony Wallace's suggestions about next door neighbors sharing a common driveway.

As a general rule friendships tended to concentrate in a linear pattern along the same side of the street as the house. This varied however with the physical variables.

It was found that the houses that were not part of the veterans project but were some of the original homes within the project boundaries did not fit into the general friendship patterns that developed in the project. Differences in age, incomes and background were probably too important to be overcome by propinquity.

It was found that the number of local friendships increased with the length of residence in the project. The average number of local friendships of those who had lived in the project two years or less was nine. The average number of local relationships for those who had lived in the project between two and five years was twelve.
The average number of local relationships for those who had lived in the project for more than five years was thirteen.

It appears that local relationships tend to taper off considerably somewhere between the two and five year length of residence. It is more than likely that there is what might be called a 'desire range' of local friendships for one family and it is quite possible that in the Renfrew area it is around twelve or thirteen.

It was found that after two years residence in the project that the average intensity of friendships remained about the same even though the number of local friends increased. It appears from the available data that the intensity of friendship in the first two years in the project was higher than later when the average number of local friends more than doubled. After the two year period, however, the intensity of friendship did not decrease with an increasing number of friends. The average intensity of friendship (or friendship value) for local friends was 2.0 for those who had lived in the project two years or less while the average intensity of friendship for those who had lived in the project two years or more was 1.6.

The significance of the average value of friendship is questionable in that a range of friendship value of only 4 was probably not a broad enough range. A study in this area alone would probably be better if it were based on the original Caplow-Forman neighborhood interaction scale.

Because of the limitations of time it was not possible to test all of the sections of the project described in the previous chapter. The findings regarding a few of the sections however are presented in the following pages.
FALAISE PLACE (See Map 11)

It appears that the width of the court (100 feet) is a barrier to friendship across it. To the hundred foot width must be added the set back distances of the houses from the property line. This would be a total distance between houses across the court of approximately 150 feet. The general pattern is that people on one side of the court know the people on the other side to speak to but friendship has not developed beyond that stage.

It was found that the large 'pie-shaped' parcels at the head of the court had no friendships across the lane. The only exception was one person who knew one person across the lane. The other lots in the court have friendships across the lane but these larger lots do not. There is no doubt that the excessive back yards are probably the main reason for this difference. In this court there is a slight slope towards the back, which is also, it appears, a factor contributing as a barrier to friendship across the lane.

One of the 'pie-shaped' lots however is only approximately 100 feet deep, as compared to the others which range over 200 feet, and here the pattern changes considerably.

Because it is a much shallower lot there are more friendships across the lane than there are within the court itself.
Prior to questioning it was believed that courts such as Falaise Place might be fairly strongly integrated and that there was a sense of belonging to the group in the court. However, this does not seem to be the case.

One of the interviewees stated that right after the project had been built the friendship pattern was in three groups. The groups were arranged, one on both sides of the court and one at the head of the court. (See the sketch opposite).

This pattern had broken down somewhat with the change of tenants but it appeared to still be somewhat the same. The group at the head of the court however was somewhat isolated in relation to the groups on the sides of the court who were more able to make friends across the lane behind their homes.

The people in the houses at the corner of the court, where it entered the street knew people along Falaise Avenue, but generally just to speak to. Orientation appears to have had quite an effect here. Even as close as the second house in from the corner in the court there was practically no knowledge whatsoever of the people living on the street (Falaise Avenue).

DIEPPE PLACE (See Map 13)

Dieppe Place is the widest court in the Renfrew project with over 200 feet between the houses on either side of the street. While some of the residents know the people across the street to speak to, there are many that they would not even recognize. The elevation, or vertical
distances change considerably across this section of the project. (See the following sketch of the area in cross section).

The houses along the northern side of the court are lower in elevation than the houses on the southern side of the court. The grade behind the houses on the south side of the court rises quickly and is considerably steeper than the grade across the court itself. In contrast, the grade behind the houses on the north side of the court levels off somewhat and is almost insignificant.

The friendship pattern significantly follows the 'path of least resistance'. The houses on the north side of the court, where the grade is insignificant, all have many friendships across the lane, whereas the houses on the south side of the court, where the grade behind is considerable, barely know the people across the lane. There are not even such factors as length of residence that can account for the differences here. Vertical distance certainly is the barrier to friendship in this example.

The lanes at the head of this court also become barriers to friendship to some extent as well. The lanes are only twenty feet wide so certainly distance cannot be the main factor in their becoming a barrier. The use factor is probably the most accountable reason for the lane being a barrier. Along with the change in land use for the lane there is also a change in the orientation of the houses
as well which is probably another factor. (See the following sketch).

Whether the lane is a physical barrier or a convenient breaking off point for relationships is an important question, but it would require a great deal of further study to properly ascertain this.

To show how these side lanes work as barriers the following sketch will probably give a fair picture of the friendship pattern.

Group A know everyone within the group to varying degrees. They also know the people behind them across the lane. The family on lot one however is the only exception in the group in that it knows the people in group B. However, even for this family the second lane becomes a barrier to their friendship group.

MALTA PLACE (See Map 12)

This court is the same width as Falaise Place but is somewhat longer. A linear pattern of friendship tends to develop on both sides of the court and the head of the court appears to be somewhat separate. The people in the houses at the mouth or corner of the court know
some of the people across the avenue but only one of them has a close
friend across Malta Avenue itself. (See the following sketch). It is
interesting to note that even in this one case which is an exception the friend outside
of the court was a person that the housewife had met when they were working together.

Beyond the corner lot as was the case in Falaise place the people generally do
not know the people who live along the avenue itself. In this example there is a combination of distance (in some cases) as well as orientation and vertical distance differences.

The head or top of Malta Place is definitely limited in its contact across the back lane. The pie-shaped lots are quite long and tend to be barriers to contact across the back. (See the following sketch). This was accentuated on these lots because half way between the houses and the lane there is a concrete retaining wall. The retaining wall is approximately four feet high and tends to accentuate the physical barriers across the lane. Because these parcels are so big back of these houses
the retaining wall tends to become the end of the used part of the back yard as well.

In this court it became quite apparent how the location of back porches and local house orientation affected friendship patterns. Back porches close together certainly showed to be incentives to local friendship. It is important to note however that such small differences as set-backs of the houses are vitally important. (See the following sketch).

Houses A and B in this sketch would be somewhat isolated in that the possibilities for passive contact would be limited because their back porches were not near the same set back as those houses on either side of them.

WORTHINGTON PLACE (See Map 14)

This court is quite similar to Falaise Place in size; the widths and lengths of the two courts are identical. The main differences between the two courts is in vertical distances within the courts. The cross section of Falaise Place is relatively flat whereas Worthington Place has a grade difference across the court. In cross section Worthington Place appears somewhat as in the following sketch:
There is an elevation difference of approximately seven feet on either side of the court. As a result of this elevation difference there is even less interaction across this court than in the flatter court of the same width. In fact, many people in this small court do not know the people on the other side whereas this is not the case in Worthington Place. As a result of this fact there is more interaction toward the back, across the lane, of the houses in this court to a very noticeable extent. The 'pie-shaped' lots at the head of the court are an exception to this to a considerable degree.

One of the lots in this court is very similar to a lot in Falaise Place and there is again a very similar social effect. The lot shape isolates the lot from the rest of the court group and the lot is also shallower than any of the others in the group. (See the following sketch). As a result the people who live on this lot have hardly any contact with the people in the court itself but have many local friends across the lane instead.
The corner lot of the court here is somewhat isolated - even to a greater extent in this case because of the park across the street. (See sketch). The friendship possibilities are limited and there is a tendency for more cross-lane contacts although these are limited as well.

Again, in this example a side lane becomes a friendship barrier, and particularly because of the use function. Whereas in most cases a back lane becomes an alternate area for friendship possibilities when physical factors deter friendship across a street, the side lane seems to be a barrier.

The side lane in this example receives much more use than ordinarily would be the case because it becomes a partial outlet for a collector road. As a result it becomes a definite barrier to contact between people in the court and those adjacent to it on Worthington Drive. Only the people on either side of the lane know one another. Those in the second lot up from the lane and those in the second lot down from the lane know no one across it. There is no doubt that use is the major factor that makes the lane a barrier to friendship. The width of the lane is only twenty feet so use of the distance is obviously the important thing.
FRONTING AND BACKING ON MAJOR ROADS (See Map)

While there was no detailed study of the effects of housing either facing or backing on major roads two examples that had a somewhat cursory investigation were Twenty-second Avenue and Dieppe Drive. It was found that on Dieppe Drive, where the houses faced into the project away from the major road (Boundary Road) there was absolutely no interaction across the major road whatsoever. On Twenty-second Avenue however there was some interaction because the orientation of the houses was different. Although there is a difference in the use factor between the two roads; Boundary Road carries much more traffic than Twenty-second Avenue, there can be no doubt that orientation was an important factor as well.

It can be seen from the previous sketch that on Dieppe Drive where the houses back on the major road that orientation is an important factor. The uses of the front yard - at least the periods of heaviest use - are usually at the same times during the day. This is true of the back yard as well. As a result when the yards are getting their most use, when there is the most chance for passive contact, the families on either side of the street cannot be seen by one another.

SUMMARY

A brief summary of the main general findings of the Renfrew study would probably be helpful at this point. The summary is listed
in tabular form below:

1. There appears to be a 'desire range' of local friendships - the average of which is thirteen people. That is, the average number of people that the residents of the project know - total thirteen.

2. This 'desire range' appears to have been reached after 3 to 5 years residence.

3. The greatest number of friendships is generally linear, along the same side of the street as the house concerned.

4. Back lanes tend to be alternate routes for people thwarted from linear friendship possibilities on the same side of the street as the house concerned.

5. Side lanes tend to be barriers to friendship, particularly when breaking up a linear house grouping.

6. The interior part of the block has more interaction than other areas, although this can be affected by physical factors.
7. Corner lots generally have fewer friendship possibilities. Physical factors such as elevation (vertical distance) can aggravate this to a greater extent. Similarly use factor, such as a park across from the corner lot can isolate it even more.

8. 'Pie-shaped' lots generally inhibit the possibilities of friendship across the lane at the back of the lot.

9. Noticeable elevation changes - for this purpose however this writer prefers the term vertical distance - have a strong inhibiting effect on friendship, particularly is there are alternate possibilities in which to achieve the 'desire range' of friendship.
10. Street widths of 100 feet appear to be a deterrent to cross-street friendships.

11. Street widths over 150 feet appear to be definite deterrents to local friendships.

12. Houses with significantly different orientation within a house grouping tend to be isolated from the rest of the group.

13. Interaction across major roads is nil when orientation on one side of the road is different from the other side. That is; if houses on one side of the major road face onto the road and the houses on the other side back onto the major road.

14. Houses facing inward toward one another may have a strong positive incentive for friendship.
15. The location of back porches or stoops and clotheslines are an important positive or negative elements in determining local friendships.

16. The location of automobile parking, at the front or the back affects the location of local friendships to a great extent. Parking in the back particularly increases the face-to-face relationship in the back across the lane.

17. Local adult friendships are determined to some extent by children's playmates. Nevertheless, physical factors are an important issue in determining who the children's playmates will be.

A project such as Renfrew Heights deserves a much more intensive study than this writer was able to give it. Nevertheless, even in the short time that was available, it is believed that some useful findings evolved from the study of the subdivision design. There is no doubt in the mind of this writer that the four underlying hypotheses of this study are correct. It has become clear however that the surface has only been scratched and that there is a wealth of knowledge to be obtained from this type of study of our own urban habitat.
CHAPTER V.

THE PROSPECT FOR THE FUTURE;
THE SOCIAL SCIENCES AND THEIR
RELATIONSHIP TO PLANNING.

'We have only begun to knock a few chips from the great quarry of knowledge that has been given us to dig out and use. We know almost nothing about everything. That is why, with all conviction, I say the future is boundless.'

-----Charles F. Kettering.
It looks as though a new science is in the making. It seems likely that many sociologists, and certainly city planners will realize the importance of micro-ecology. The planners are bound to realize the importance of the science because they are the people who are primarily responsible for the physical development of our cities. There is a growing realization among planners that planning is not just a technology allied to engineering and architecture. More and more there is a realization that planning is an applied social science.

Only in the physical application of the principles of social science do the technologies take on any importance. Even then they are only a means to an end.

In fact it would probably be better to say that planning is not an applied social science but applied social science. This would include an application of such sciences as economics, sociology and political science. The social science that has been most dissociated from planning in the past is sociology. This has probably been the greatest weakness of contemporary urban planning.

If planning is to be called applied social science then it must be based on more social research. The greatest need for research is certainly in the field of sociology. Previous research has been primarily at the macro-ecological level (if that term may be used). Studies such as Burgess' Concentric Ring theory of city development and Homer Hoyts' Sector theory of city development while they may be interesting are not as fundamentally important as studies of the effects of physical development on face-to-face relationships.

The local neighbourhood is where most of family life takes
place and it is at this level that a great deal of research is necessary. If planning is to be based upon social need then it must be based upon a sound knowledge of those social needs.

The purpose of this study was primarily to point to the need for a different approach in planning - or a return to the original approach - and to show that such decisions as those made by the subdivision designer have social consequences hitherto generally unappreciated.

The main thesis of this study was that there are four basic physical factors that can be barriers to friendship. This writer has been satisfied by his small study of the Renfrew project that this is true. Not only are these physical factors barriers to friendship, they are also in some instances the factors that encourage friendship. This being the case, the planner must design more carefully, and with the realization that his design will constitute the framework for local friendship.

The studies of such people as Caplow and Forman, Festinger Schachter and Black, as well as William H. Whyte have been most revealing. Nevertheless, it is true of all these excellent studies that they were not primarily concerned with micro-ecology itself. The two university studies were of more or less barrack-type dwelling areas and as such are probably not too applicable for comparison with most urban residential areas. Whyte seemed primarily concerned with the courts in Park Forest and the row houses surrounding them. The area of greatest need for this type of study is certainly in the subdivisions that are encircling every major city in North America. More often than not these subdivisions abound
with the latest clichés of the design aspects of planning. These new fads in design continue to be applied in most of our cities, even though there is no knowledge whatsoever of their social effects. If subdivision design continues to be done this way then it becomes a part of the planning process that is divorced to a great extent from the social sciences.

But subdivision design is one of the important positive parts of the planning process and as such deserves a greater amount of study and research than it now gets. Because it affects people in many ways there is a great obligation to apply it with a background of as much knowledge as is available. There is also an obligation to broaden the knowledge itself.

Many questions are being asked and many hypotheses are now being put forward. The hypotheses of such social scientists as Anthony F.C. Wallace for example need testing so that the applied social scientist, the planner, can do a more realistic job. Donald L. Foley in a study for the University of Rochester has studied such matters as how the localization of facility use varies with the family cycle.

Unless the planner recognizes the fact that the realism of his work depends upon factors such as these, his work is simply not adequate.

Even if the sociologists studied such things as the changing friendship patterns of children as they grow up and change schools, they would be doing a service to planning. Such factors as these could become the underlying method of determining the placement of services and facilities for various age groups.
There appears to be an important place for the use of electric machines in evaluating some of the social effects of urban development. I.B.M. machines could become very important in the determination of correlations between various factors affecting local face-to-face relationships. These machines are able to absorb a great deal of information and correlations between any of the factors can be readily discovered. In the analysis of the effects of such things as subdivision design these machines could be most useful. If time had allowed, these machines would have been used in this study. There is however an appendix on the questionnaire that was used and it is shown how I.B.M. could have been used in the analysis of the data collected. It might be possible to realize correlations that would otherwise not even be considered a remote possibility.

There is no doubt that the sociologist is the most qualified to study the social effects of physical planning and the planner must make him increasingly aware of the role he can play. It is not enough however for the sociologist to simply do his research in isolation. There is a need for the sociologist to present his findings with recommendations about future physical development. The importance of the sociologist has been underestimated in planning, but there is no doubt that part of the fault is the sociologist's.

If he is to play the part he should in the physical development of our cities then the sociologist must make some of the difficult decisions that are now made by city planners without his aid. The work of the planner involves many value judgements and there is no doubt that many of these judgements would be on sounder ground if the decisions were arrived at with the aid of the sociologist.
There can be a great deal of knowledge gained about the effects of planners' schemes through the use of the social survey. What better way is there to find out the effectiveness of planning techniques than asking the people concerned? Henry Cohen said at the 1955 convention of the American Society of Planning Officials that:

'The philosophical dilemmas that appear to face the planner are not avoided by ignoring the existence of public opinion. Refining our knowledge of public opinion will make for better planning - for better plans, with surer roots.'

There is certainly no surer way to see if the planner is achieving his proposed goals than through the social survey. Indeed the social survey may well provide the knowledge to formulate new goals as well as provide a better foundation for evaluating existing goals.

In a paper presented at the same conference of the American Society of Planning Officials Clyde W. Hart and Donald J. Bogue stated:

The planner's main hope of bettering his performance lies in the acquisition of more comprehensive, more penetrative and more accurate information about the forces and factors at work in the situation to which the plan relates. The planner needs, above all, empirically derived knowledge of the processes of social and cultural change in which he is force intervening.

At the risk of being trite, we wish to point out that knowledge of the kinds planners need comes only from one source: research.

Bogue and Hart point out that the things we know most of about the city are those fields that pertain to problems connected with the physical aspects of the city and its functioning as a technological machine and that the things that we know least about the city are those fields that deal with people as individuals, as members of neighbourhoods, and as members of institutions and other social organizations.

It is pointed out in the paper that it is from the least advanced fields of research, the social science fields, that the planner wants
much detailed, accurate, and scientific information. Bogue and Hart state:

The success or failure of plans will depend, in many cases, upon the 'human factors' or the factors that relate to the attitudes that the public has or will have as it resides and functions within the physical environment designed by the planner. Therefore it would appear that progress in city planning awaits, at least in part, research progress in the fields of sociology, social psychology, political science and government.

The writers then suggest that the most logical arrangement is for planners and social researchers to join forces in order to speed progress. They could then apply the principles of basic research to practical problems. The authors maintain that social surveys and new sampling techniques could become useful tools in furthering knowledge in these fields. They say that modern surveys focus on a particular relationship or set of relationships and ask questions that 'fit together' to obtain data that are needed to test a particular hypothesis or establish a particular principle.

There is no doubt, they state that 'the social survey is capable of being a powerful aid in planning.'

Accepting the fact that much more basic research is needed in the social sciences if planning is to progress then the question arises: Who is to do the research? Should the research be done by city planning staffs, who of course employ most of our planners, or should the research be done by the Universities?

Let us first consider the research function at the city level:

As Martin Meyerson stated in a paper on 'Research and City Planning':

..........the action agency, when faced with hiring a research analyst often tends to put that person in a residual category, e.g. a planning student who does not display design competence is assumed to be qualified by default as a researcher.
Confusion of the nondesigner with the competent researcher tends to muddy qualifying criteria for top research posts. Research programs thus suffer from the lack of trained personnel - a lack which stems in part from both a weak supply and a weak demand.6

This is then the basic attitude toward the research function in planning of planning agencies. Meyerson points out that most planning agencies are eager to undertake research 'studies' prior to announcing policy decisions. Questions referred to the research analyst are generally those concerning inventory regarding such things as housing and redevelopment.

Such factual questions, says Meyerson, are asked as a prelude to planning decisions, but they are also often asked as a basis for reinforcing a policy decision already made. States Meyerson:

This latter kind of fact finding activity is in reality a part of a propaganda function, - an activity designed to justify recommendations or to bolster the power position of the planning agency in relation to other agencies or other interest groups in the community.7

Regardless of whether this is the case or not, Meyerson maintains that planning research on city staffs is done on an ad hoc basis, that the questions are asked as specific problems arise and do not form part of a consistent pattern of information desired about the community. As well as this fact, time is usually short and existing data from other agencies is usually re-worked with the result that many information items of particular planning relevance are omitted.

With conditions such as those outlined by Meyerson prevalent in most city planning agencies, it becomes quite obvious that the city agency is not the place to move back the frontiers of knowledge.

The obvious alternative appears to be the Universities. This
however involves a closer look at existing methods of planning education. Generally, most of the planning courses are post-graduate courses, accepting graduates from various undergraduate courses in the applied and social sciences. Most of these graduate schools however are closely allied with the faculties of architecture or engineering.

Because planning is generally not given as an under-graduate degree course, (the notable exception being Durham, England) a great deal of the time in the course is spent on quite elementary planning concepts. The orientation of the students from various fields takes up far too much time for a graduate course. This prevents student research that would probably be the case if there were an under-graduate planning degree as well as a post-graduate planning degree.

In a section of his book, On British New Towns, Lloyd Rodwin discusses 'The Achilles heel of British town planning' which he sees as the lack in basic research and the lack in planning education. He maintains that if there is no undergraduate training in planning then persons who wish to become town planners must study some other subject even though both their resources and interest may be quite limited. He also maintains that many of the persons educated in other fields who then serve as planners will forget the bulk of their under-graduate specialization: 'the facts, the techniques, the concepts, possibly even the point of view.'

Very lucidly, Rodwin states:

At best, most of them will be superficial architects, surveyors, engineers, or whatever they happened to have studied. After all, an undergraduate major provides only limited orientation and tools. Much of the refined technical and professional education occurs in the more advanced programs and in outside professional practice. If further graduate work and direct experience in the original professional
field do not occur, is not the educational result
half-baked architects, engineers and social
scientists with a thin veneer of planning edu-
cation, who gradually, as they acquire experience,
become more expert as planners?

Rodwin maintains that there is a difference between developing
'specialists in planning' through existing post-graduate training method
and 'planning specialists' who should be trained at the undergraduate
level.

If the separation were made it would mean that much more
necessary research would be done at the graduate level of training which
is as it should be. Much of the research necessary for planning to pro-
gress could be done by the graduate students.

There is no doubt as well that research at the graduate level
would be better if it were allied with the faculties of social science which
really provide the base for new knowledge in planning.

Certainly the university is the institution in which to accumulate
the knowledge in the many fields that make up the synthesized science
of town planning.

The roots of the problem are deep but the future of planning as
a science is dependent upon a recognition of where the roots are. Once
the roots are recognized then future growth can be on a sound base.
INTRODUCTION FOOTNOTES


2. Ibid., p. 487.

3. Ibid., p. 487.

4. Festinger et al., op. cit., p. 33.


8. Festinger et al., op. cit., p. 34.

9. Ibid., p. 36.

10. Ibid., p. 43.

11. Ibid., p. 43.

12. Ibid., p. 58.


15. Ibid., p. 366.

16. Ibid., p. 366.

17. Ibid., p. 366.


19. Ibid., p. 367.

20. Ibid., p. 367.


22. Ibid., p. 370.

23. Ibid., p. 365 - 404.
CHAPTER I. FOOTNOTES (CONT'D)

24. Ibid., p. 397.

25. Ibid., p. 404.


27. Ibid., p. 27.

28. Ibid., p. 27.


2. Ibid, p. 20.


5. Ibid, p. 22.


8. Ibid, p. 31.
CHAPTER V. FOOTNOTES

1. Donald L. Foley, *Neighbors or Urbanites?*, Department of Sociology, University of Rochester, New York, 1952, p. 25.

2. Henry Cohen,

3. Donald J. Bogue and Clyde W. Hart.

4. Ibid., p. 160.

5. Ibid., p. 162.


7. Ibid., p. 204.


Dear Sir or Madam:

I am a graduate student at the University of British Columbia completing my Masters degree in Town Planning. I am making a study of Renfrew Heights as a place to live and in particular the effects of the subdivision on the friendships that have developed in the project.

As part of my study I am interviewing various persons in the project. I would like to call by your house and ask you a few questions. The questions will not be personal but will nevertheless be kept confidential.

I had planned on calling around your block this Thursday about 3:00 PM. I hope you will be able to see me at that time or at your convenience.

Yours truly,

Robert A. Williams, B.A.
### General Information

1. **House Code:** Lot _______ Block _______
2. **Residence:** City _______ Years
3. **Residence:** Renfrew _______ Years
4. **Owner:** Tenant _______
5. **Tenant Prior to Buying?** _______
6. **Did You Live in Another House in the Project Formerly?** _______
7. **Education:** Husband: 1, 2, 3, Wife: 1, 2, 3
8. **Age:** Husband _______ Wife _______
9. **Level of Living:** 1, 2, 3, 4
10. **Member of Community Association?** _______
11. **Member of Bowling League?** _______
12. **Member of Baseball League?** _______
13. **Member of P.T.A.?** _______
14. **Do you Have a Car?** _______
15. **Do You Have a Garage?** _______
16. **Do You Park in the Front _______ Rear _______**
17. **Proximity to Transit** _______

### General Physical Information

1. **Traffic:** Heavy _______ Medium _______ Local _______
2. **Road Width:** 66 Ft. _______ 700 Ft. _______ More _______
3. **Front on a Major Road?** Yes _______ No _______
4. **Back on a Major Road?** Yes _______ No _______
5. **Hill:** Linear _______ Cross _______
6. **Face Park:** Yes _______ No _______
7. Park Width: Under 100 Ft. _____ Over: ________
8. Park Type: Open _____ Play Equip. ____________
9. Average Lot Widths __________________________
10. Cross Lane Lots: Staggered? Yes _____ No _____
11. "T" Head Lot? Yes _____ No ________
12. Side Lane Lot? Yes _____ No ________
13. Back on a Side Lane Lot? Yes _____ No ________
15. Back on "Pie" Lot? Yes _____ No ________
16. A Bend Lot? Yes _____ No ________
17. Flank a Bend Lot? Yes _____ No ________
18. A Corner Lot? Yes _____ No ________

Second From Corner? Yes _____ No ________
Third From Corner? Yes _____ No ________
Fourth From Corner? Yes _____ No ________
"Body" Lot? Yes _____ No ________

19. A Change in X-Street Orientation? Yes _____ No ________
20. Houses Across Street? Yes _____ No ________
21. Houses Across Lane? Yes _____ No ________

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Relationships

Linear: 1 _____ 2 _____ 3 _____ 5 _____ 6 _____
A _____ B _____ C _____ D _____ E _____ F _____

Cross Front: 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____
A _____ B _____ C _____ D _____ E _____ F _____

Cross Rear: 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____
A _____ B _____ C _____ D _____ E _____ F _____

Cross Corner Linear: 1 _____ 2 _____ 3 _____ 4 _____

Cater-Corner: 1 _____ 2 _____ 3 _____ 4 _____

Cross Front Flankage: 1 _____ 2 _____ 3 _____ 4 _____

Flank Lot, Cross Side: 1 _____ 2 _____ 3 _____ 4 _____

Lane Flank, Cross Side: 1 _____ 2 _____ 3 _____ 4 _____

Corner, Lane Cater: 1 _____ 2 _____ 3 _____ 4 _____

Lane Flank, Cater: 1 _____ 2 _____ 3 _____ 4 _____
EXPLANATION OF THE QUESTIONNAIRE, SECTION 3.

The third section of the Questionnaire used in the Renfrew study was a method of coding the possible relationships according to lot types. The idea in mind was that a coding scheme could be developed that could be used in a single family subdivision area anywhere. The various possible relationships are shown in the following pages in sketch form.

1.) **Linear**: Six lots on either side of the lot concerned are identified.

2.) **Cross-Front**: Six lots on either side, across the street are identified.

3.) **Cross-Rear**: Six lots on either side across the lane are identified.

4.) **Cross-Corner Linear**: Four Lots across the flank street, yet in the same linear arrangement, are identified.
5.) **Cater-Corner:** Four lots cater-corner to the lot concerned are identified.

6.) **Cross-front Flankage:** Lot concerned is at the junction of two roads and the flankage lots across the street are identified.

7.) **Cross-side, Flank lot:** The flank lot is the lot concerned and the lots that face the flankage are identified.

8.) **Cross-side, Lane Flank:** The same situation as the previous case except a lane is concerned rather than a street.
9.) **Cross-back, Flankage:** The relationship across a back lane when houses at the back are flankage lots.

10.) **Corner lot; lane cater:** The relationship cater-corner across the lane.

11.) **Lane flank lot, cater:** The relationship cater corner from a side lane flank lot to a corner lot.

It was believed that identification of all the possible lot types would allow a codification of all the possible relationships between lot types, with their respective friendship values. The Caplow-Forman neighborhood interaction scale would identify friendship values. As a result, all possible relationships between lot types and degree of friendship could be coded on machines.
such as I.B.M. and the machine could pick out any relationships re-
quired by the researcher after the data had been coded.

Bogue, Donald and Hart,


Cohen, Henry,


Foley, Donald L., *Neighbors or Urbanites?* Department of Sociology, University of Rochester, New York, 1952.

Garrett,


