AN EVALUATION OF
PERRY'S NEIGHBOURHOOD UNIT CONCEPT:
A CASE STUDY IN THE RENFREW HEIGHTS AREA
OF VANCOUVER, B.C.

by

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We accept this thesis as conforming to the
required standard

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April, 1965
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Department of Community and Regional Planning

The University of British Columbia,
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Date: April, 1965.
The purpose of this thesis is to attempt to validate the pre-supposed hypothesis, that 'The application of Perry's neighbourhood unit theory and its scheme in Vancouver is successful in its physical aspect and is not successful in its social aspect'.

The study program includes the following eight steps:
1. Reviewing the historical aspect of Perry's theory.
2. Describing Perry's theory and its scheme and defining its goal.
3. Summarizing the ramifications of its application.
4. Examining the main criticisms of Perry's theory.
5. Analyzing and evaluating Perry's theory in detail.
6. Surveying the Renfrew Heights area in Vancouver, B.C.
7. Inducting and interpreting the survey findings.
8. From the findings, evaluating the hypothesis.

Through this program, the first five steps have helped the writer to have a deeper understanding of Perry's theory. From the final three steps it is concluded that the hypothesis is valid.

From the whole study it is concluded that Perry's neighbourhood unit theory and its scheme are still useful. The basis for this conclusion is not because of the goal of Perry's theory, but because the theory provides maximum possible
facilities in a residential area with its self-contained character. Finally it is concluded that the successful application of a theory is critical, and the failure of its application does not reduce the value of the theory.
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Abstract</strong></td>
<td>i</td>
</tr>
<tr>
<td></td>
<td><strong>Acknowledgments</strong></td>
<td>iii</td>
</tr>
<tr>
<td><strong>CHAPTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I. THE NEIGHBOURHOOD UNIT CONCEPT</strong></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Introduction</strong></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>A. Perry's Neighbourhood Unit Concept</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>B. Variations on the Theme of the Unit</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>C. A Review of Criticism of Perry's Theory</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>D. The Program of the Thesis</td>
<td>23</td>
</tr>
<tr>
<td><strong>II. AN ANALYSIS OF PERRY'S NEIGHBOURHOOD UNIT AND ITS THEME</strong></td>
<td></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td><strong>Introduction</strong></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>A. Street System</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>B. Residence</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>C. Church</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>D. Shopping Center</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>E. Recreational Facilities</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>F. School</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>G. People and Environment</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Conclusion</td>
<td>48</td>
</tr>
<tr>
<td><strong>III. NEIGHBOURHOOD SURVEY OF THE RENFREW HEIGHTS AREA OF VANCOUVER, B.C.</strong></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td></td>
<td><strong>Introduction</strong></td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>A. The Reasons for this Survey</td>
<td>51</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The Neighbourhood Unit as seen by Clarence A. Perry</td>
<td>6</td>
</tr>
<tr>
<td>2. Linkage Diagram of CBD and Surrounding Neighbourhoods</td>
<td>26</td>
</tr>
<tr>
<td>3. Linkage Diagram of a Neighbourhood's Functions</td>
<td>28</td>
</tr>
<tr>
<td>4. The Mode of Transportation and Travel Time to Work for the People of the Renfrew Neighbourhood</td>
<td>60</td>
</tr>
<tr>
<td>5. The Mode of Transportation and Travel Time to Shopping Facilities for the People of the Renfrew Neighbourhood</td>
<td>61</td>
</tr>
<tr>
<td>6. The Mode of Transportation and Travel Time to Recreational Areas for the People of Renfrew Neighbourhood</td>
<td>62</td>
</tr>
<tr>
<td>7. Travel Times to School for the Student of the Renfrew Neighbourhood</td>
<td>65</td>
</tr>
<tr>
<td>8. The Travel Time to Church for the People of Renfrew Neighbourhood</td>
<td>66</td>
</tr>
<tr>
<td>9. The Travelling Time for People Visiting Renfrew Neighbourhood</td>
<td>68</td>
</tr>
<tr>
<td>10. The Travel Time to Local Stores for the People of Renfrew Neighbourhood</td>
<td>69a</td>
</tr>
<tr>
<td>11. The Frequency with which the People of Renfrew Neighbourhood Use their Local Park</td>
<td>71</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>B. The Planning of this Survey</td>
<td>52</td>
</tr>
<tr>
<td>C. The Renfrew Heights Community</td>
<td>54</td>
</tr>
<tr>
<td>D. The Findings and their Interpretation</td>
<td>57</td>
</tr>
<tr>
<td>E. The Interpretation of the Survey Findings in Relation to the Hypothesis</td>
<td>75</td>
</tr>
<tr>
<td>IV. SUMMARY AND CONCLUSION</td>
<td>77</td>
</tr>
<tr>
<td>A. Summary</td>
<td>77</td>
</tr>
<tr>
<td>B. Conclusion</td>
<td>81</td>
</tr>
<tr>
<td>APPENDICES</td>
<td></td>
</tr>
<tr>
<td>1. MAP 1.</td>
<td>87</td>
</tr>
<tr>
<td>2. MAP 2.</td>
<td>88</td>
</tr>
<tr>
<td>3. MAP 3.</td>
<td>89</td>
</tr>
<tr>
<td>4. The Questionnaires</td>
<td>90</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>93</td>
</tr>
<tr>
<td>BIOGRAPHICAL INFORMATION</td>
<td>114</td>
</tr>
</tbody>
</table>
FIGURE

12. The Relationship between Travel Time and the Number of Social Visits per Month for the People of Renfrew Neighbourhood ........................................ 72

13. The Relationship between the Number of Social Visits per Month and the Intensity of Friendship or Kinship .............................................. 73

LIST OF MAPS

MAP

1. Location of Renfrew Neighbourhood, Vancouver, B.C. 87

2. The Land Use of Renfrew Neighbourhood of Vancouver 88

3. Survey Map of Renfrew Neighbourhood of Vancouver 89

LIST OF TABLES

TABLE

1. Recreational Acreage and Population of a Neighbourhood ............................................................... 57
CHAPTER I

INTRODUCTION

At first the concept of the neighbourhood unit was restricted to mean a settlement with no special social, economic, and political meaning. As the concept of the neighbourhood emerged, certain defining characteristics became apparent. Webster's Seventh New Collegiate Dictionary defines it as "people living near one another."\(^1\) When people live together long enough to become well acquainted, certain community characteristics appear. There was at first no political structure, but certain unifying characteristics on the social, economic and physical levels were evident. For example, neighbours were friends, relatives, or business associates.

People who lived in a neighbourhood benefited each other in many ways. They borrowed or lent tools and labour, and helped each other in times of crisis; people gathered together after work to drink, eat, dance, or play games with each other.

The origins of the neighbourhood unit concept were numerous and complex, but the composition of some of the threads

which were woven into the final concept have been recorded, and evidences of others can be detected. Clarence Perry, the originator of the concept in its classical form, gives credit to three sources which have influenced him. First, there was the community centre movement; second, he had first hand experience of living in a successful neighbourhood--Forest Hills Gardens in the Borough of Queens, New York City; and last, he was influenced by urban sociologists such as Charles Horton Cooley. The general idea of neighbourhoods was and is influenced by sociologists' impressions of the ethnic settlements in certain American cities, and by their knowledge of community life in many of the older cities in other parts of the world.

The Community Centre Movement originated with Toynbee Hall, which was organized in 1885 by Canon Barnett and his associates in the East End of London. Its purpose was to provide a place where the inhabitants could meet for recreation, education and for general social outlets. In 1909, Perry set

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out to investigate activities similar to those of Toynbee Hall being carried on in conjunction with school buildings in New York. The movement finally received its name in Rochester.\(^5\)

In 1922 Perry, working for the Russell Sage Foundation, began preparations for his part of the Regional Plan of New York and its environs. His solution was inspired by his experiences at Forest Hills Gardens.

For the sociological aspects of the neighbourhood concept, Perry was very much influenced by Cooley’s theory of the intimate, face-to-face community. Cooley has stated:

> By primary groups I mean those characterized by intimate face-to-face association and co-operation. They are primary in several senses, but chiefly in that they are fundamental in forming the social nature and ideas of the individual. The result of intimate association, psychologically, is a certain fusion of individualities in a common whole, so that one’s very self, for many purposes at least, is the common life and purpose of the group. Perhaps the simplest way of describing this wholeness is by saying that it is a *we*, it involves the sort of sympathy and mutual identification for which *we* is the natural expression. One lives in the feeling of the whole and finds the chief aim of his will in that feeling.\(^6\)

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\(^5\) Perry, *op. cit.*, Ch. 9.

Cooley and the sociologists of the pre-war days had found that urban living seemed to lack the neighbourliness of rural life. This lack of neighbourliness, they concluded, was one of the major undesirable characteristics of urban living.

A. PERRY'S NEIGHBOURHOOD UNIT CONCEPT

Based upon Cooley's theory, Perry evolved his neighbourhood unit theory which is described in his book *Housing for the Machine Age*. The neighbourhood unit, a scheme to foster the family life of the community, was actually first described in one of three monographs that made up volume 7: "Neighbourhood and Community Planning" in the *Regional Survey of New York and its Environs*, which was written by C.A. Perry and published in 1929. In *Housing for the Machine Age*, Perry developed his theory and listed six principles which are as follows:

1. **Size**: A residential unit development should provide housing for that population for which one elementary school is ordinarily required, its actual area depending upon its population density.

2. **Boundaries**: The unit should be bounded on all sides by arterial streets, sufficiently wide to facilitate its bypassing, instead of penetration, by through traffic.

3. **Open Spaces**: A system of small parks and recreation spaces, planned to meet the needs of the particular neighbourhood, should be provided.

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7 Perry, *op. cit.*, pp. 51-52.
4. Institution Sites: Sites for the school and other institutions having service spheres coinciding with the limits of the unit should be suitably grouped about a center point, or common.

5. Local Shops: One or more shopping districts adequate for the population to be served, should be laid out in the circumference of the unit, preferably at traffic junctions and adjacent to similar districts of adjoining neighbourhoods.

6. Internal Street System: The unit should be provided with a special street system, each highway being proportional to its probable traffic load, and the street as a whole being designed to facilitate circulation within the unit and to discourage its use by through traffic.  

(For illustration see Diagram I, p. 6)

With these principles Perry believed that a neighbourhood community in which the fundamental needs of family life would be met more completely than they were by the usual residential sections in cities and villages would develop. In these schemes, the neighbourhood was regarded both as a unit of a larger whole and as an entity.  

The neighbourhood unit principle proposed a city whose residential areas were pleasant; healthy, with adequate open space and recreational facilities; safe, in a motor-car age, with the elimination of dangerous through traffic; locally self-contained, with shops, and social and cultural facilities;

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8 Perry, op. cit., pp. 51-52.

9 Ibid.
Area in open development, preferably 160 acres - in any case it should house enough people to require one elementary school. Exact shape not essential but best when all sides are fairly equidistant from center.

A shopping district might be substituted for church site.

Shopping districts in periphery at traffic junctions and preferably bunched in form.

Only neighborhood institutions at community center.

Ten percent of area to recreation and park space.

Interior streets not wider than required for specific use and giving easy access to shops and community center.

Reproduced from New York Regional Plan Volume 7.

Figure 1. The Neighbourhood Unit as seen by Clarence A. Perry.
and identifiable, both through inner cohesion, and the definition of precise boundaries. The basic function of the neighbourhood unit was to provide a physical environment which would regenerate and maintain primary, face-to-face social contacts and associations within the city.

In 1947, James Dahir defined the neighbourhood unit, based on Perry's concept, as follows:

One of the most pleasant memories oldtimers have is of the friendly community spirit that used to be so strong years ago. This plan aims to confirm and recreate that congenial feeling in modern garb, through the organization of the town into neighbourhood units of 1500 families (5000 people) each. By living in a compact community environment, children will develop a sense of security and belonging, while adults will feel themselves closely integrated into a personal social unit. With Framingham growing into a larger more industrialized community, the neighbourhood unit will become increasingly important to preserve the individual security and personal participation of all citizens in community life.10

Perry's neighbourhood unit concept might be regarded as a main theme upon which city planners have elaborated many variations. The concept has been the basic substance of innumerable permutations.

B. VARIATIONS ON THE THEME OF THE UNIT

Classically defined, the neighbourhood unit consists of a residential area's size, boundaries, open spaces,

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institution sites, local shops and an internal street system. As a unit, it is complete and precise. Unfortunately, similar precision was not to be found in Perry's ideas about the neighbourhood unit's relationships with other units and the town's centre. In dealing with these problems, he was content to state the principle that each neighbourhood unit was to be considered an entity, while at the same time part of the great whole of the city. The hierarchical system he put forward was thus: residence: neighbourhood: city. Since Perry's original formulation of the idea, there have been a large number of suggested variations developing the theme of the neighbourhood unit. Some of these were concerned with the unit itself, particularly its size, the nature of its boundaries, and the location of shops. Others have been concerned with the system of relationships between neighbourhood and town, and have suggested modifications of the hierarchy of units. For a full understanding of the neighbourhood unit it is necessary to review the different developments.

Clarence Stein, a pioneer in the application of Perry's theories, made certain important extensions to the idea. He increased the number of steps in the hierarchy, advocating small neighbourhoods, groups of neighbourhoods or districts (supporting such large-scale facilities as hospitals and cultural centres which might lie beyond the scope of individual neighbourhoods)
uniting to form the city. He also extended the hierarchy beyond the city into the region. A more radical departure from Perry was found in Stein's uncompleted plan of Radburn, in which there are three overlapping neighbourhoods. The practical Stein saw in this suggestion a greater flexibility in planning, particularly in regard to future development schemes. The theoretical implications were important, however, because the emphasis changed from the boundary (no longer regarded as the inviolable barrier) to the core of the neighbourhood.

Walter Gropius, in his investigations into standardized houses, as at Toerton-Dessau, developed the organic series: house, street, neighbourhood, town; and in relation to his tall apartment block, the parallel series: dwelling, apartment block (or 'superhousehold'), neighbourhood and town. The step intermediate between dwelling unit and neighbourhood arose out of Gropius' concept of the changing role of the family in German society, with its greater stress on the individual on the one hand, and on the large non-kinship community groups on the other. With the exception of this intermediate stage, Gropius' idea was

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12 Walter Gropius, Die Sociologischen Grundlagen der Minimal Wohnung, Die Fustig, 1930.
very close to the neighbourhood unit concept as developed, unknown to him, in America.\textsuperscript{13} When he himself migrated to America, he identified himself with the neighbourhood unit theory, stressed the sequence of development for social viability, and suggested the series: dwelling and neighbourhood unit, precinct, city.\textsuperscript{14}

Georgi Minervin said that in the U.S.S.R. a decisive change in town planning had been the introduction of residential areas called 'micro districts'. These micro-districts, which had populations of from 6000-8000 people, were equipped with schools, shops and social facilities, and were separated from main roads by stretches of greenery, and were apparently similar to the neighbourhood unit.\textsuperscript{15} There was a larger unit interpolated in the scale between the micro-districts and the total city. This was termed the residential district, and was a group

\textsuperscript{13} Seigfried Giedion, in his introduction to Sert's, \textit{Can Our Cities Survive?}, Cambridge, Harvard University Press, 1942, reports the deliberations of the third congress of CIAM in Brussels (1930) on "How to organize whole groups of dwellings into neighbourhood units" and names Gropius as one of the principal lecturers.

\textsuperscript{14} For a full exposition of Gropius' viewpoint see his \textit{Rebuilding Our Communities}, Chicago, Paul Theobald and Col, 1945. See also the discussion on the organic nature of Gropius' town planning.

or cluster of three or four micro-districts with a centre comprising major cultural and sports facilities. Thus in Russian town planning, the series (was postulated) of residential buildings, micro-district, residential district and city. Even small towns were already adopting a nucleated plan.16

In South Africa, in 1943, an advanced replanning scheme was put forward by the Witwatersrand University Architectural School. This scheme proposed the following system: The basic unit was to be a 'housing unit', based upon an elementary school. It was to have a population of approximately 2600 persons. Two housing units, plus a community centre, formed a neighbourhood unit. The combination of two neighbourhood units, plus a high school, provided the next step in the scale, a community unit. Four such community units plus a civic centre, industries and agricultural holdings made up the town. Towns linked by major transportation routes, with the added facilities of a regional centre, constituted the largest unit in the hierarchy, the metropolitan area.17

16 The village illustrated in Architecture USSR, 11, 1961, p. 31 which indicates five residential areas of some 1500-2000 population each grouped around a town centre with full social facilities.

17 The report on the exhibition 'Rebuilding South Africa' in the South African Architectural Record, September and October, 1943.
In the same year, Forshaw and Abercrombie brought out the County of London Plan. They suggested a neighbourhood unit of 6000-10,000 people, based on the elementary school, as the minimum unit for redevelopment. These neighbourhood units were to be regarded as sub-units of larger units, called communities. In the Greater London Plan of the next year, Abercrombie expanded upon this idea. In planning at the regional level, the basic planning unit became the community, with a population of perhaps 60,000. Each community would contain one or more neighbourhood units, together with those buildings and open spaces which would make it largely self-contained. Each community would have a life and a character of its own, yet its individuality would be in harmony with the complex form, life and activities of the region as a whole.

Gibberd, accepting a neighbourhood unit of a population of about 5000, related to the elementary school, was


20 Ibid., p. 113.

concerned with variations in scale at both ends of the series. He achieved a small-scale unit in his housing groups of various designs, as in Harlow. His answer to the large-scale unit was the neighbourhood cluster. He argued that, in a large town, facilities such as libraries and health centres would be required in outlying areas, as well as in the town centre. A cluster of three neighbourhoods, with a population of 15,000, could reasonably support such extra facilities, which would, in Gibberd's argument, unbalance a single, small neighbourhood.  

A similar cluster system might be found in the British New Town of Glenrothes. The new towns, as a group, have been the most consistent examples of the application of the neighbourhood theory. In most respects, Perry's formulation of the theory had been followed. Anthony Goss' analysis of New Town neighbourhoods indicated that divergencies between Perry's and the official British neighbourhoods appeared in three aspects. In the New Towns, shops tended to be within the unit, and not on the perimeter, as Perry suggested. Public open spaces became peripheral in the British examples, acting as boundaries. Perry's boundaries were arterial roads, and open space was concentrated in the heart of the unit. The ideal size —

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22 Ibid., p. 213.
although not always the one adopted — would appear, in the New Towns, to be an arbitrary 10,000; this did not relate to a single primary school as in Perry's formula.²³

Henry Churchill's sociologically-oriented theory²⁴ differentiated between two units, the social 'neighbourhood' and the 'school unit'. His theory established the series: family, social neighbourhood, school unit and city. The social neighbourhood was defined as a small area of a fairly ultimate nature which fostered a neighbourhood feeling. The school unit, Churchill's ideal planning unit, comprised several social neighbourhoods. It connected with the smallest political subdivision of the city, and would be co-terminous with the school, voting, police, city, census, health and other administrative subdivisions of the town.

The Chicago Plan Commission's Report of 1946²⁵ contained a full pattern of city development based on neighbourhoods and grouped neighbourhoods. It was suggested that the city be comprised of 514 related and self-contained neighbourhoods, and


²⁴Henry S. Churchill, The City is the People, New York, Reynal and Hitchcock, 1945, cited in Dahir, op. cit., p. 35.

59 communities. The typical 'neighbourhood' was a quarter square mile in area, but this was varied with the density. The suggested population was from 4,000-12,000, related to the needs of an elementary school. The community was a cluster of neighbourhoods, of 45,000 to 90,000 people, and was the service area for a high school. The community, complete with all social, cultural and industrial ancillaries, was regarded as constituting a 'well-balanced' small city. A linked network of the 59 communities made up Chicago as a whole.26

The Detroit Plan was similar in some respects to the Chicago Plan of the previous year,27 but Detroit added one further step to the series, which became a neighbourhood unit, based on the elementary school, a minor group of four neighbourhood units, based on an intermediate school area, with branch library facilities and supermarket shopping, and a major group or community of 7-10 neighbourhood units. These units provided for a population of 75,000-100,000 persons, and were equipped with a minor civic centre. Eliel Saarinen, an advocate of the cellular theory of town planning, submitted


alternative plans for Detroit based upon a small initial or basic unit of 200 homes, organized in clusters which in turn related to different school levels.²⁸ Ludwig Hilberseimer, another apostle of organic town planning, suggested that the archaic city block of the gridiron system be replaced by a new settlement unit on an entirely different scale. This settlement unit would be limited in area to a walking radius of 15-20 minutes, would consist of balanced housing, commercial and industrial areas, and be of varying populations (and hence of different densities). Its population would be large enough to meet the social and personal requirements of the individual, large enough to offer variety in work and life, and large enough to support the necessary communal, cultural, and hygienic institutions. But it should also be small enough to preserve an organic community life, so that democracy might prevail and each individual participate in community activities.²⁹ It was Hilberseimer's intention that these basic settlement units be combined in various ways. The unit itself was a simple community, a combination of units would constitute a complex community, and

²⁸Dahir, op. cit., p. 60.
an aggregation of these communities, complex or simple, would create a diversified city fully equipped with administrative, educational and cultural facilities.\textsuperscript{30}

The term 'unit of settlement' was also used by Herry and Pertzoff.\textsuperscript{31} This unit (referred to alternatively as a 'residential unit') housed from 500-2,000 families, or 8,000-20,000 people. It was made up of a combination of smaller units or 'neighborhoods' of 30-60 families each. These terms are confusing, because the size of the residential unit (800 persons) is approximately that of a neighborhood as generally conceived. However, the system itself is clear. "A flexible system is postulated, with neighborhood boundaries fluid and overlapping, to reflect and accommodate a social system which in itself was constantly changing."\textsuperscript{32}

All these different variations only involved departures in details from Perry's formulation. Such departures concentrated on the planning of schools which arose from technical planning difficulties, and not from doctrinaire opposition to

\textsuperscript{30}Hilberseimer, \textit{Nature of Cities}, p. 216.

\textsuperscript{31}Herman Herry, Constantin Pertzoff, and Erna Herry, "An Organic Theory of City Planning, \textit{Architectural Forum}, April 1944, pp. 133-5.

\textsuperscript{32}Herbert, \textit{op. cit.}, p. 177.
Perry's theory. A fundamental divergence from Perry is noted when sub-units were introduced into the neighbourhood concept. This divergence happened when the metropolitan area grew to a certain size. The hierarchy of the residential unit within a municipality needed a bigger unit. Stein's district, the residential unit in the USSR, the community unit both in South Africa and London, and Gibberd's cluster, all were organized from three or four neighbourhoods. However, adding a larger sub-unit to the top neighbourhood series did not affect or change the basic concept of Perry's neighbourhood; and although his neighbourhood concept has been adopted with varying modifications in many parts of the world, the theory and its basic formula have remained essentially unaltered since 1930.

C. THE CRITICISM OF PERRY'S THEORY

There were many books and articles -- some of them developing Perry's concept, some of them evaluating or criticizing it -- which have been published in the last thirty years. Three of these articles, two by R. Isaacs and one by Herbert


were the most challenging.

Reginald Isaacs, Chairman of the Department of City Planning at Harvard University, wrote an article, "Are Urban Neighbourhoods Possible?", published in the Journal of the American Institute of Planners, July to August, 1948, indicating that the concept was most faulty and required the following examination:

1. Is it sociologically possible to create neighbourhoods in the complex urban structure,
2. Is the neighbourhood unit adequate as a physical concept for planning?
3. Should the concept be challenged on the basis that it lends itself to the purposes of discrimination since its most widespread application has been its methodical use for segregation?
4. That the school cannot be the focus for the neighbourhood;
5. That the church cannot be planned to fit into a neighbourhood unit system.35

Isaac's first question -- Is it sociologically possible to create neighbourhoods in the complex urban structure? -- was very sensible, even if it was not quite clear. Everyone knew there were many neighbourhoods in Chicago and New York. People living together naturally would have some social activity. Isaac's questioning of the sociological possibility of the neighbourhood seems illogical but Isaacs might have meant that it is impossible to create a sociological neighbourhood unit in

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the complex urban structure. The author contends that a sociological neighbourhood is a neighbourhood which should not only have physical proximity of homes, schools, shops and institutions but should have a great many social activities. If none of these phenomena are evident in a neighbourhood, then that neighbourhood unit is not a sociological neighbourhood. In this way, the author tends to agree with Isaacs. A survey of a neighbourhood in Vancouver will attempt to prove this (see Chapter III).

The second question -- Is the neighbourhood unit adequate as a physical concept for planning? -- is related to the first one. Perry expected that his scheme of the neighbourhood unit would bring face-to-face relationships among people. If the scheme failed to do so in its practical applications, then Isaac's question would be a valid one. This question will be examined critically in Chapter II.

The third question -- Should the concept be challenged on the basis that it lends itself to the purpose of discrimination since its most widespread application has been its methodical use for segregation? -- was self-contradictory to his first question. Segregation means "separated from others of the group."36 If a group of people living in a neighbourhood

36 *Webster's Dictionary*, p. 782.
were strongly associated with each other, then that means the
neighbourhood unit could be a sociological unit and the first
question was invalid. If both the first and third questions
were well-founded, then the doubt should not have been put on
the scheme itself. That is a social problem to which Roland L.
Warren had given a reasonable analysis in his book, *The
Community in America*,\(^{37}\) which was published in 1963. This problem
will be examined further in Chapter II under the topic of
"The People and Their Environment".

The fourth point -- that the school cannot be the focus
of the neighbourhood -- was a critical one. This will be
reviewed in Chapter II under the topic of 'School'.

The fifth point was not as critical. Isaacs presupposed
that a neighbourhood might involve many different religious
groups, none of which would have a majority. This presupposition
might be true in certain areas but certainly not everywhere.
In fact, most people in North America are Christian. There
might be some difficulties in the relationships between
Christian societies in a neighbourhood. In that case, setting
two or three different churches in the neighbourhood centre
would be a solution. A church located in one neighbourhood is

\(^{37}\)Roland L. Warren, *The Community in America*, Chicago,
not restricted by the boundaries of that neighbourhood — in other words, it is available to all the surrounding areas. Thus Isaacs' fifth challenge has no critical significance.

In 1963, G. Herbert criticized Perry's principle; he stated that the neighbourhood unit was not an organic concept because:

1. It stresses the part, but not the relationships of part and whole;
2. It leads to growth by aggregation and not by synthesis;
3. It is inflexible and prohibits change.\(^3\)

In effect, Herbert has said that the neighbourhood unit scheme is inflexible and non-organic. However, it is not the unit which must be flexible and organic. Instead the actual designing of the city should be organic, that is the relationship of the different functions in the city.

Perry's neighbourhood unit is a guide in the designing of residential areas in cities. His concept is a theoretical one so that when it is applied in everyday circumstances, some modifications may be necessary. As a theory, it still remains consistent within itself. How to use it organically in actual design is the planner's job. It is quite true that bad planning leads to growth by aggregation and not by synthesis. However, the blame should be laid on the planner's shoulders and not on the concept of the unit itself.

\(^3\)Herbert, *op. cit.*, pp. 165-213.
THE PROGRAM OF THE THESIS

A thesis has one or more hypotheses with the goal of the thesis being to attempt to verify these hypotheses.

The program of the thesis is a brief outline of the order followed. This thesis has the following program.

A. THE GOALS

The objective of this thesis is to attempt to verify the hypothesis that the application of Perry's neighbourhood unit concept in Vancouver is not successful in its social aspects, but is successful in its physical aspects.

B. THE PROGRAM

1. Analyzing the goals and goal forms of Perry's neighbourhood unit concept:
   a. Street System
   b. Church
   c. Shopping Centre
   d. Residence
   e. Recreation
   f. School
   g. People and Environment
2. The study of the Renfrew neighbourhood in Vancouver, B.C. as a case study.
   a. The Survey
   b. The Analysis
   c. The Conclusion

C. THE SUMMARY AND CONCLUSION

1. The summary
2. The conclusion
CHAPTER II
THE ANALYSIS OF PERRY’S NEIGHBOURHOOD THEORY
AND ITS SCHEME

INTRODUCTION

Perry’s neighbourhood unit is, as mentioned in the first chapter, a guiding scheme for designing urban residential areas and should be organically related to other parts of the city. The relationship between a neighbourhood and the other areas of the city can be shown by a linkage\(^1\) diagram (see page 2). Figure 1 (page 2) shows the following functions:

1. The linkage \(a_1\) from neighbourhood \(N_1\) to CBD shows that people living in the neighbourhood can go to and from CBD where they can work, shop, play, etc.

2. The linkage from neighbourhood \(N_1\) via the route \(b_1\) to the suburbs shows that people have easy access to the adjacent town or city.

\(^1\)Linkage is the manner or style of being united (Webster’s Seventh New Collegiate Dictionary, op. cit., p. 492.) The roads, streets, lanes, paths and other transit areas are the actual linkages among all the functions in the city. A linkage diagram shows the abstract relations of the functions in an area.
Legend:

CBD. The central business district of a city.

N₁, N₂, N₃, N₄, N₅, N₆ The neighbourhoods around CBD

a₁, a₂, a₃, a₄, a₅, a₆ The linkages between N₁, N₂, N₃, N₄, N₅, N₆ to CBD respectively.

b₁, b₂, b₃, b₄, b₅, b₆ The linkages from N₁, N₂, N₃, N₄, N₅, N₆ to the suburbs respectively.

C₁ The linkage between N₁ and N₂
C₂ " " " N₂ " N₃
C₃ " " " N₃ " N₄
C₄ " " " N₄ " N₅
C₅ " " " N₅ " N₆
C₆ " " " N₆ " N₁

Figure 2. Linkage Diagram of CBD and Surrounding Neighbourhoods
3. The linkage \( c_1 \) between neighbourhoods \( N_1 \) and \( N_2 \) and the linkage between neighbourhoods \( N_6 \) and \( N_1 \) shows that people living in different neighbourhoods can communicate with each other by using these linkages.

4. All the physical linkages could be considered as social and economic linkages too, because people could use the road to go to work, shopping, visiting or recreation.

Figure 2 is a linkage diagram which shows the relationship between different functional areas in a neighbourhood (see page 28).

From Figures 1 and 2 one may see the internal and external relationships of a neighbourhood. An analysis of the functions of physical element of a neighbourhood is given below. Two questions must be answered when analyzing the functions of elements in a neighbourhood

1. Is the element necessary to the certain aspect of neighbourhood?
2. Does Perry's scheme locate the element in the right place?

The analysis includes a discussion of the following physical elements: A. Street System; B. Residence; C. Church; D. Shopping Centre; E. Recreation Facilities; F. School; G. People and Environment.
Legend:
1. School  S
2. Church  C
3. Community Hall  M
4. Park or Playground  P
5. Residence  O
6. General Store  G
7. Street
8. Path

Figure 3. Linkage Diagram of a Neighbourhood's Functions
A. STREET SYSTEM

The unit is bounded by arterial routes on all sides and is provided with a special internal street system which should be designed to facilitate circulation within the unit and to discourage its use by through traffic. The arterial street should fit into the whole network of communication of the city. The neighbourhood is linked by the arterial street to the city-core and to the other component parts of the urban area.2

Streets are very important in planning. The vehicular traffic on the street can be very heavy and for a pedestrian to cross a busy street without having traffic signals is very dangerous. The street system comprised of a gridiron pattern is easy for through traffic to use. A curvilinear street system discourages through traffic; in addition, it gives a variety to the size, shape, and orientation of the building lots which will provide a good setting for the architectural design of the individual houses.

Perry's street system is very good in principle; it is quite hard to apply. If it is overdone, then the whole neighbourhood will become a maze which gives difficulty to the outside people in visiting their friends in this area.

Figure 2 (p. 28) shows the layout of the street system in the neighbourhood.

B. RESIDENCE

A neighbourhood is an area for people to live in, and the possession of a house and a plot of land is one of man's primary aspirations. Different people have different sizes of families, incomes, and different tastes. They need different kinds of houses. In order to meet these needs, a neighbourhood should provide various kinds of houses, such as detached houses, semi-detached houses, side-by-side duplexes, up-and-down duplexes, row houses and apartments. A neighbourhood with the same style, size and scheme of house will become monotonous. Too many varieties of houses will make the environment complex and chaotic. Planners should group the housing according to its size and height and architects should apply their magic hand to relate them in a harmonious way, even if they design them as individual units. But 'should' does not mean they would or actually could; when people like to have individual freedom, they have to suffer from an inharmonious environment.

A residence is a basic living unit in a neighbourhood. That a neighbourhood is good or not should be measured by the function of the residences quantitatively and qualitatively.

A residence as a basic living unit is a complex in itself. For example, a couple have two children; one is a boy
six years old, the other is a teenage girl. Each of them has different activities which generally need different facilities. This family needs at least a three-bedroom house. Moreover, the boy should have a play area; the boy's father, being a scholar, needs a study room; the boy's mother, being a professional painter, ought to have a good sized studio; the boy's sister, practicing piano every night, needs a sound-proof chamber. Outside of these individual things, they need a living room, dining room, bathroom, kitchen and storage rooms, etc. This living unit needs an environment providing a playground for the boy to play, a school for the boy's education; a shopping centre in which the boy's mother can buy their daily goods, a senior high school for the education of the teenage girl, good access to the highway or speedway by which the father can go to his working place conveniently. A neighbourhood may have 1,000 living units, some of which may be very simple and some very complex. The functions of these 1,000 units are woven together. The planner should eliminate any conflict, encourage their common interests and fulfill the basic needs of these units.

Perry's scheme did give the above convenience in the neighbourhood. From the resident's viewpoint, Perry's neighbourhood unit scheme is quite good.

The relationship between residence and the other functions of the neighbourhood is shown in Figure 2, page 28.
C. CHURCH

The desire to worship is one of man's basic instincts and in fact the place of worship is the focal point of most settlements in most areas of the world. In North America the Christian Church is the major place for people gathering to worship God. A neighbourhood, as a large living unit, should have a church and the best place for it according to Perry's scheme, is in the centre of the neighbourhood or at the perimeter or boundary of the unit. How many churches a neighbourhood should have or what denomination the churches may be Perry did not mention and there are no useful data that can be suggested. This depends upon the percentages of various denominations of believers among the people and the size and density of the population.

The fifth aspect of Isaacs' criticism indicated that the church cannot be planned to fit into a neighbourhood unit system. The reason was that the service spheres of the church do not coincide with the neighbourhood's. His criticism is justified up to a point but it cannot be proved everywhere. People either can go to other neighbourhood churches once or twice a week to worship or can share the use of the same church in the neighbourhood (even the community centre).³

³Chicago Commons and other settlements have welcomed many church groups to share the use of their buildings: Taylor, Graham, Chicago Commons through Forty Years, Chicago, Ill., 1936, p. 193.
The Church has an important function in integrating racial and economic classes. It is unfortunate that the Church has not accomplished this goal. If the Church still cannot offer valuable ideas or methods of joining people together, then the declining number of believers will bring about a change in the structure of the neighbourhood.

D. SHOPPING CENTRE

Local neighbourhood stores are one of the most important focal points in a residential area. This focal point can be considered a social meeting place. For example, the youth of the area automatically flock to the nearest cafe where they can drink their 'cokes' and listen to the 'top fifty' records on the juke boxes; the older adolescents will meet with their 'dates', and the adults will drop in, off and on, for bachelor meals, cigarettes, and the like. According to Perry's scheme, the sphere of the shopping centre will overlap several neighbourhoods. Such a centre has been defined as:

A group of commercial establishments planned, developed and managed as a unit, with off-street parking provided on the property, and related in location, size and type of shop to the trade area that the unit serves - generally in an outlying suburban area.5


A study of shopping habits,\(^6\) revealed that 80-90 per cent of shopping is done by women who do most of their downtown shopping around noon and visit suburban centres approximately between 4 and 6 P.M. One-third of purchasing is impulsive, so that a wide selection of goods at a convenient local store will pay off. People generally buy their 'convenience' goods locally and 'higher order goods' (such as clothes, furniture, television, etc.) from downtown. Recently the improvement of the quality of goods, the scale of the operation, the provision of parking facilities and the ease of accessibility of the local shopping centre indicates that people like to shop locally.\(^7\)

E. RECREATION FACILITIES

THE PLAY AREAS, PARKS AND COMMUNITY CENTRE

Recreation is good for our minds and bodies. People need a place for culture and new ideas; their nervous systems need relaxation from the pressure of modern life and their bodies benefit from sun and good exercise. The object of life nowadays is to have a higher culture and a healthier civilization -- strong in mind and body, wealthy and happy.

\(^6\)Ibid.

\(^7\)Urban Land Institute Technical Bulletin, no. 24.
A neighbourhood should provide a recreational area which can achieve these things. Someone may argue that people in the urban area are mobile; people with cars can go any place they want; there is no need to have a community centre or park in the neighbourhood. This is true only to a certain degree. In fact there are many other factors which indicate the need for recreational space and facilities in the neighbourhood. These are:

a. Children need play areas near their homes.

b. Old people and mothers with babies need a park to take a walk in every day.

c. People who cannot or do not want to join in the weekend exodus; who have weekend shift-work; who have infirm dependents; who do not have a car or do not like the fuss and bustle of the long, hot drives away from their homes do need recreational facilities in the neighbourhood.

d. Cars give convenience to people but offer problems too. In downtown areas the increasing difficulties of parking discourage people from spending their leisure time in the downtown area and drive people back on to their own resources.

The pattern of recreational areas of Perry’s neighbourhood scheme is shown in Figure 2 (p. 26). A park is in the neighbourhood centre and play areas are evenly distributed
through the whole area. A community centre near the park is accessible to the whole neighbourhood.

Recreational facilities generally are divided into active and passive. Standards for recreation with a figure of ten acres per 1,000 persons were accepted as the ideal for the overall city picture for both active and passive recreational facilities.

1. The Park or Play Area

The play area of a neighbourhood should provide the following items:

a. Small space for pre-school children -- tot lots
b. Apparatus area for older children
c. Open space for informal play
d. Surfaced area for court games, such as tennis, handball, volleyball, etc.

e. Playing field for games, such as softball, touch football, mass games, etc.
f. Paddling pool
g. Shelter and dressing rooms with toilets, wash facilities, drinking fountains, and maybe an area for quiet games, instruction, crafts, etc. -- although these activities
are better carried out in part of the community centre, which should adjoin the playground.8

TABLE I

RECREATIONAL ACREAGE AND POPULATION OF A NEIGHBOURHOOD

<table>
<thead>
<tr>
<th>Facility</th>
<th>1,000 Persons (acres)</th>
<th>3,000 Persons (acres)</th>
<th>5,000 Persons (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playground Area9</td>
<td>2.75</td>
<td>4.00</td>
<td>6.00</td>
</tr>
<tr>
<td>Neighbourhood Park10 (Area in normal housing development)</td>
<td>1.50</td>
<td>2.50</td>
<td>3.50</td>
</tr>
<tr>
<td>Neighbourhood Park11 (Area in multi-family development where no private yards)</td>
<td>2.00</td>
<td>4.00</td>
<td>6.00</td>
</tr>
</tbody>
</table>


9 National Recreation Association Standard, See Planning the Neighbourhood Unit, op. cit., p. 48.

10 Committee on the Hygiene of Housing, A.P.H.A. - op. cit., p. 49.

11 Ibid.
2. The Community Centre

The community centre serves many of the recreational requirements of the neighbourhood. The term 'community centre' has a variety of connotations in Canada.

It is usually interpreted as being a single building, which must serve a panoramic function. Under one roof provision must be made to meet the educational, social and recreational needs of the entire community.

Included under these broad headings are library facilities, clubrooms for men and women, teenagers and children; equipped with gymnasium, bowling alleys, swimming pools, auditorium, separate accommodation for nursery schools, health services and children's activities, all requirements of an efficient community centre ... and every allowance should be made for growth and change.12

The elements listed above may not be found in the existing neighbourhood because (1) the listed elements overlap with the element of the neighbourhood's school; (2) people in the area are not interested in certain activities; (3) the neighbourhood does not have enough population to provide such equipment.

Co-operation between school and community centre is needed. The school gymnasium, stage, library and playing field should be available to everyone in the area after school hours and the community centre should set aside special periods

for school use such as swimming pool, hall, tennis courts and other playing equipment.

F. SCHOOL

Perry's neighbourhood consisted of an elementary school, church, community hall, open space, residences and local shops, all of which were organically inter-related by a street system. The size of the neighbourhood was determined by the optimum size of the elementary school and all the other functions were indirectly related to the school as well. The school is the key factor in the neighbourhood design concept. The starting point in analyzing Perry's neighbourhood theory should be the school. The relationship between school and other functions of the neighbourhood was shown in Figure 2, p. 26. The street will bring all the supplies from outside the neighbourhood and all the students within the neighbourhood to the school.

1. The Goals of the Neighbourhood School

First: the neighbourhood school provides the cheapest, safest and fastest means of transporting the child from home to school. The farther a school is from the home, the more time is spent in the transportation process, the more streets, especially major streets, must be crossed by the walking child, and the more the parents are obliged to transport the child with expensive public transportation.
Second: many educators believe schools should be small.\(^\text{13}\)

Third: "Educators believed that children benefitted from the security that came from learning and living in the same familiar environment".\(^\text{14}\) They felt that children should be able to have their classmates as playmates after school and that they should be able to return to school for after-school classes and programs.\(^\text{15}\)

Fourth: This major purpose is quite complex but best summarized by saying that educators want a close relationship between the school and the family. The neighbourhood school should, and often does, serve as an invitation to parents to know, confide in, and work with its staff. This offers a good chance for constructive community pressures on the central school administration and the political authorities for local school improvements. Thus the neighbourhood school


can reflect the values and goals of the community it serves, and can gain the community's loyalty and support. Stated from a different perspective, the neighbourhood school is a reflection of the belief that education should be locally controlled.


(a) The transportation problem: this is governed by three factors; time and walking distance, safety, and cost.

i. Time and walking distance. Most educators say an elementary school child should not spend more than thirty minutes getting to school and that a secondary school child should not spend more than an hour. Taking these as criteria, a child can walk or bike considerably more than three quarters of a mile.\(^{16}\) The size of the neighbourhood could be larger than the one with a quarter-mile radius suggested by Perry.\(^{17}\)

ii. Safety. It is quite important to keep the child from accidents but it appears unreasonable to assume that the danger of accidents increases directly with the number of major intersections he crosses. Experience proves that the child's safety is more related to the types of traffic


\(^{17}\) Perry, op. cit. p. 53.
situations he confronts rather than the distance he walks. For example, a child is safer crossing a major intersection with traffic controls than a minor intersection without controls. How to control the traffic for the pedestrian should be considered by the traffic engineers and the planners. If safety is paramount, the best solution is to drive the children from home to school by private car, public transportation or a school bus.

iii. Cost. It is reasonable to ask why spend money transporting children to school? Why not spend money for the more important factors of education, such as salaries, buildings, books? The neighbourhood school is a better solution than school buses. Now, most of the existing neighbourhood schools of lower income residents are very limited in environment, library equipment and teachers. For the time being, to transport the child to a good school instead of staying in the poor neighbourhood school which could not be developed up to the standard in a short time, and could be considered as a temporary solution but not the basic one.

(b) The School Size Problem

The second goal of the neighbourhood school is to keep the school small -- the ideal size for the elementary school unit is 400 pupils. If there is a location drawing 2,000 pupils, it is quite easy to build five separate
buildings at the one location or one building divided into five divisions. The school is similar to an industrial plant. If organized carefully with equipment, teachers, administration, etc., it does not matter how large it is. It can still be very good.\textsuperscript{18} One authority on the subject has said, "When a school plant is actually planned in every detail to care for the enrollment it houses, the question of optimum size is settled",\textsuperscript{19} and therefore the school should emphasize the location where it can best offer a chance to the child to learn and exercise — for example, located near a zoo, museum, athletic centre or library.

(c) Child Security

The third goal of the neighbourhood school is providing the child with a sense of security by having the school as a part of the home environment. Yet two recent studies,\textsuperscript{20,21} have pointed out that lower-class students


\textsuperscript{20}Seaton, \textit{ibid}.

\textsuperscript{21}Engelhardt, \textit{ibid}. p. 53.
feel quite insecure in school, indeed feel alienated in school, even though the school is close to home. The feeling of security or insecurity is a feeling which depends upon the attitude of the lower-class home toward education and the attitude of the schools toward the lower-class child.²² Children coming from different backgrounds have different feelings toward school. The children from the lower class feel insecure and the children from the middle or higher class feel secure. The feeling of insecurity is not therefore because of the location of the school.

(d) Parent Support of Schools

The fourth goal of the neighbourhood school is a close relationship between the school and the family. Schools need the support of the students' parents, but there is no evidence indicating that physical proximity is a necessary condition for this support. Supervising needs physical proximity -- the good supervising that should come from specialists or authorities. The education of children needs the co-operation of teachers and parents. The teachers teach the children at school; the parents teach them at home. They teach at different times and places but can communicate by phone or letter. There is no necessity for physical proximity.

4. Re-evaluation

The four arguments that the four purposes of the neighbourhood school do not have a very strong base and the elementary school is not an appropriate factor to determine the size of neighbourhood. In addition, authoritative opinion indicates that schools should be located in a pleasant environment.\(^{23}\)

The writer thinks that the size of a neighbourhood should not be determined by an elementary school. Even the time and distance of travelling to a school are not critical factors and most parents will pay bus fare. It does not, however, justify the fact that a neighbourhood should not or could not have a good elementary school located at the neighbourhood centre. Everyone agrees that a school located in a depressed neighbourhood is not good for the children. The city should try to renew these depressed areas. No area starts depressed from its founding, and the centre of the neighbourhood, if it is a well-designed neighbourhood, should be a pleasant location for an elementary school.

G. THE PEOPLE AND THE ENVIRONMENT

According to their needs, people do change their environment by introducing new designs, operations or new

\(^{23}\)Engelhardt, ibid.
ideas. They may also move to a new environment. As long as an environment is organized it molds people into a certain way of life. The life pattern of the people is determined by their community structure which having organic functions provides jobs, stores, recreational facilities and other kinds of services for the people such as schools, hospitals, transportation, water, power, gas and sewers. Any scheme of an urban unit should be based on the life pattern of the people.

The economic factor is very important to an urban environment. The rate of economic growth is the rate of community growth, and vice-versa.

The physical environment is another important factor. Some may argue that nowadays people may change any physical environment to whatever they want it to be. That is true if it is worth a lot of money to change it. The most critical thing in the physical environment is the distance one has to travel to get to the place of destination. Therefore an important consideration in an environment is the road or street system.

People are social beings; when they get together, they will have social relationships. People living in
different environments will have different kinds of relationships. For example: rural people need to help each other in their work; after work, they associate with each other in recreation -- chatting, dancing, drinking, and games. Urban people have a different pattern of social activities. They work for different organizations or different departments of the same organization. Because most of them have received specialized training, they associate with each other, instead of by profession, by interest or organizations which are related to their personal roles, such as the Rotary Club, or the like.

The goal of Perry's neighbourhood theory, as mentioned in the first chapter, is to provide a physical environment which will regenerate and maintain primary, face-to-face social contacts and associations within the city. Perry derived his neighbourhood unit scheme, an environment for urban people, from his theory. The scheme is very well organized. People living in Perry's neighbourhood have all the necessary facilities such as school, community centre, churches, park, playgrounds, and shops. The result of Perry's neighbourhood might not be successful in its social aspect, but not because the scheme did not provide a good environment. Rather, it is because the community structure leads people to have different kinds of relationships.

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CONCLUSION

Except for the social aspects (deficiencies), it is concluded that there are no other defects in Perry's neighbourhood unit. The arguments to support this conclusion are listed as follows:

1. People living in different areas have different social relationships. Why should urban people have the same social relationships as rural people? Perry's imposition on urban people of a face-to-face relationship is a mistake.

2. The ethnic group, no matter whether there is a neighbourhood scheme provided or not, will cluster themselves into certain areas. This is a social problem which should not be used to attack Perry's neighbourhood unit.

3. According to Christaller's space theory, urban planning has to have a hierarchy system. A neighbourhood unit can be easily adopted in the hierarchy. If it can be used easily, why should we destroy the theory?

4. In its application, the planner can vary the scheme to fit into the master plan of the whole urban area. As the writer mentioned in the first chapter, a theory is a guide in doing actual work. How to use it is a planner's job. A failure in applying it is not the theory's fault.
5. Perry's ideas have been used for more than thirty years and "from Canada to Mexico, the basic Perry neighbourhood unit, with only minor modifications, has served as the development module." That the theory has been applied for so many years and in so many countries, proves its value.

CHAPTER III

A NEIGHBOURHOOD SURVEY IN THE RENFREW HEIGHTS
AREA OF VANCOUVER, B.C.

Introduction

A survey is a scientific method of collecting, analyzing and interpreting data on a specific subject which is to be studied. A survey must be organized very carefully, and the different processes concerned with collection, classification and interpretation of data must be carried out objectively and sincerely, with integrity and without bias. This technique helps the researcher to examine a particular concept or to investigate a specific problem in detail. "Studies must be impartial: the task is neither to prove that a particular policy is correct, nor to suggest that a particular objective would be desirable; this may emerge from the studies."¹ The analysis of data from the survey only reveals facts. "The man who classifies facts of any kind whatever, who sees their mutual relation and describes the sequences, is applying the scientific method."² The data themselves are not science; the methods of classifying, interpreting and applying are science.

In order to accomplish an effective survey, the problems to be solved must first be identified. This requires the clear formulation of the objectives of the survey, an explicit statement of the problem in meaningful terms and the rigorous exclusion of subjects marginal to the central theme of the investigation.\(^3\)

The survey can be done by observation, questionnaires, interviews, and by the study of existing sources of information. The problem and the object of the survey will determine which method or combination of methods ought to be used.

Sampling is an important technique within the survey model, and involves two important and interrelated aspects: (1) the size of the sample; and (2) the selection of the sample. A sample must avoid bias in the selection of the population and must not be influenced by human preference. As Dr. Jackson indicates, "each unit enjoys an equal or known chance of selection. No section or group can be favoured, the sample should be representative".\(^4\)

A. Reasons for the Survey in the Renfrew Heights Area

The object of this survey is to attempt to verify the proposed hypothesis, that is "that the application of Perry's

\(^3\)Jackson, *Surveys for Town and Country Planning*, p. 20.

\(^4\)Ibid., p. 62.
neighbourhood unit concept in Vancouver is not successful in its social aspects but is successful in its physical aspects."

After an intensive investigation, the writer determined that there were no neighbourhoods in Vancouver which were designed exactly according to Perry's neighbourhood unit concept, but that there were several neighbourhoods which were developed using some of Perry's ideas, such as Renfrew Heights, Fraserview, Skeena Terrace, and the Strathcona Public Housing areas. Of these areas, there is a section of Renfrew Heights which conforms very closely to Perry's neighbourhood unit concept, namely that area bounded by the Grandview Highway on the north, Rupert Street on the west, Boundary Road on the east, and Twenty-second Avenue on the south. (see Appendix 1, Map 1, Page 87). It is this area, hereafter described as the Renfrew neighbourhood, which has been chosen to test the hypothesis.

B. The Planning of This Survey

The method of survey used here combines direct observation, the use of questionnaires and interviews, and the study of existing sources of information. The writer first observed the Renfrew area by driving around it, studying the history of the community and the school, and by interviewing such key people

5Mr. Wiesman, Assistant Planner, and Mr. J.B. Chaster, Planner for Vancouver City, provided a great deal of assistance here.
as Mr. J. Smith, the Principal of the Renfrew Elementary School. In view of the fact that the initial observations were only superficial, that existing literature related to the area was very meagre, and that there was little time for intensive interviewing, a questionnaire was developed and applied.

In order to obtain a representative cross-section of the area, a random sampling technique was used (see Appendix 2, Map 2, Page 88) to determine where the questionnaires would be distributed. These questionnaires were divided into 9 parts (see Appendix 4, Page 91, 92). Questions one and two are designed to determine the stability of living in the Renfrew Neighbourhood. Questions three and four are designed to determine public opinion about the street system of this area. Question five looks for specific reasons why people choose to live there. The last four items are organized in a tabular form, each includes four or more questions which are related to different aspects of the neighbourhood, such as the school, church, park and stores. Answers to these last four items were used primarily to give support to Question five.

A letter was attached to each questionnaire explaining the purpose, function, scope and the reasons for choosing this area. For the convenience of the recipients a return envelope, addressed and stamped, was enclosed.
Questionnaires were distributed to 105 of the 625 houses in the area. Sixteen replies were received, representing a return of fifteen per cent of those distributed. Since this return was considered low, it was decided to follow up the questionnaires by interviewing another twenty-four residences, also chosen on a random basis to give a sample of forty, representing 6.3 per cent of the total area under study. The locations of the individual replies and interviews are outlined on Map 2 of Appendix 3, page 88.

C. The Renfrew Heights Community

1. The development

No detailed literature could be found on the history of this area. However, a newspaper article was found which stated the following:

Town planning is emphasized in the lay-out of 601 homes for rent to veterans in the Renfrew Height housing project being built by Central Mortgage and Housing Corporation.

Site of the homes is 120 acres, formerly uncleared land, largely city owned between Grandview Highway, Rupert Street, Boundary Road and 22nd Avenue.°

The development was started in 1948 and most of the housing completed in 1949. The original plans for the area included fully paved streets and boulevards. An adequate commercial and shopping zone, with recreation centres, churches

°Vancouver Daily Province, "New Renfrew Scheme is Planned 'Town',' October 2, 1948, p. 12.
and schools, was to be constructed when the houses were built. Provision had been made for park and playground areas, emphasizing safety considerations for the children. These plans have only been partially carried out since there are presently no commercial facilities within the area. However the original street plan has been followed and there are no grid roads or through streets in the area.

The Renfrew Elementary School, located at the corner of 22nd Avenue and Rupert Street, was built in 1928. Later, in 1954, a separate annex to this school was built in the center of the neighbourhood on a lot which had been previously set aside for this purpose.7

There is a small community hall, built in 1958-59, beside the Renfrew school annex, located at the intersection of Falaise Avenue and Worthington Drive. This hall was built by the Vancouver Parks Board at the request of the people of Renfrew Heights. A United Church is located at the north end of Falaise Park.

2. The Existing Conditions in 1965.

There are presently 625 houses in the Renfrew neighbourhood. These encompass 8 different basic types of houses with many small variations in detail. The area has 357 two-bedroom

7Information from the Vancouver School Board.
houses, 228 three-bedroom houses and 8 four-bedroom houses. There are also 8 houses specially designed for paraplegic veterans\textsuperscript{9} and 24 miscellaneous houses which were built around 1937 to 1945,\textsuperscript{10} before the main development took place. The houses are wood construction and generally well maintained. Most of the lots are small, about 33 feet wide by 100 feet in length.

Three green belt parks run from the northwest, northeast and southeast to the center where the school annex is located. Most of the park area has only lawn and a few trees and lacks design and planting.

The internal street system follows Perry's concept closely. It facilitates circulation within the neighbourhood but discourages through traffic. However most of the houses have no garages and cars are parked along the curbs, creating some traffic difficulty, although generally the traffic within the area is light and the area itself is very quiet. The area is bounded on all sides by arterial streets which provide good access to the area. The land use of Renfrew Neighbourhood is shown on Map 3 (Appendix 3 Page 89).

Two shopping zones are located outside the area, at the southwest corner and on the east boundary. In addition to the

\textsuperscript{9}Ibid.
\textsuperscript{10}Interviews with residents of the area.
United Church within the area, there is a Pentecostal Church across Boundary Road and an Anglican Church one block further east at the intersection of Laurel and Smith Street.

D. The Findings and their Interpretation

1. The Stability of the Renfrew Neighbourhood

The degree of stability of an area is an indicator of the success of its planning. Stability is dependent upon the period of residence and the ownership of the house. The longer the period of residence the greater is the stability of the district and the more people who own their homes the higher is the stability. The results of the survey indicate:

   a. Period of Residence:
      
      0 - 5 years .......... 30%
      6 - 10 " .......... 33%
      10 years and up ..... 37%
      
      Average 9.2 years

   b. Ownership:
      
      Rent ................. 33%
      Own .................. 67%

The findings indicate that seven out of ten families have lived there more than six years, and 67% own their own home. It is evident that the Renfrew neighbourhood is very
stable and can be considered quite successful if stability is used as a measure of its success. However, the success of a design is not only dependent upon the stability, but also upon other factors such as the street system, the parks and the schools.

2. The Street System

a. The Function of the Street

Generally the function of a street is to provide access and communication, and the more direct is the street, the more convenient is the communication. However, according to Perry's theory the street system in a neighbourhood has an extra function, that is, to discourage through traffic and thus reduce noise and accidents.

b. The Survey Findings

From the survey results, the writer found that most of the residents prefer the existing Renfrew street layout to the gridiron street pattern. Furthermore most of them like the safety and quietness of the neighbourhood.

The results from the questionnaires are:

<table>
<thead>
<tr>
<th>Renfrew Residents' Preference</th>
<th>Renfrew Street Layout</th>
<th>Gridiron Street Layout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like</td>
<td>80%</td>
<td>30%</td>
</tr>
<tr>
<td>Dislike</td>
<td>20%</td>
<td>70%</td>
</tr>
</tbody>
</table>
These data indicate that the existing street layout is successful and support this aspect of Perry's concept. The only disadvantage with this type of street layout is that it can be complex and confusing to strangers in the area.

3. The External Relationships of the Renfrew Neighbourhood

The success of an area is not only dependent upon its internal organization, but also upon its convenient external relationships, which can be measured by accessibility, convenience to public transit, and time-distance factors related to the mode of transportation. The external relationships are shown by activities such as employment, major shopping and recreation. Question 6 attempts to determine these relationships for the study area. The results of question 6 are shown in Figure 4 (page 60), Figure 5 (page 61), Figure 6 (page 62), and relate to employment, major shopping and major recreation respectively.

Figure 4 shows the mode of transportation to work and the corresponding travel times for working people in the neighbourhood. It was found that 62 per cent of those working travel by car and 38 per cent travel by bus. The average travel time by car was seventeen minutes while by bus it was thirty-seven minutes.
Figure 4. The Mode of Transportation and Travel Time to Work for the People of the Renfrew Neighbourhood.
Figure 5. The Mode of Transportation and Travel Time to Shopping Facilities for the People of the Renfrew Neighbourhood.
Figure 6. The Mode of Transportation and Travel Time to Recreational Areas for the People of Renfrew Neighbourhood.
Figure 5 indicates that fourteen per cent of the people walk to shopping locally and take an average of seven minutes to reach the stores; twenty per cent of the people go by bus and reach the shopping center in an average of thirty-five minutes; sixty-six per cent go by car and take an average of fifteen and one half minutes.

The survey shows that forty-two per cent of the people do not go out for recreation. However, Figure 6 demonstrates that of those who do go out for recreation, twenty-nine per cent walk to the recreation location; forty-two per cent drive, and twenty-nine per cent take the bus. Either walking or driving brings them to the destination within twenty minutes while most of the trips by bus take forty-five minutes.

4. The Educational Aspect

The convenience of school facilities to homes is quite important, especially for elementary schools where the children are in the younger age groups. Perry's concept visualizes the school as being within an easy walking distance of all the area that it serves.

Renfrew Elementary School and its annex serve an area bounded on the north by the Grandview Highway, on the east by Rupert Street, on the west by Boundary Road, and on the south by
Twenty-fifth Avenue, that is, an area about one third larger than the Renfrew Neighbourhood development itself (Figure 7, page 65).

Eighty-three per cent of the households have students, of which forty-six point one per cent attend the elementary school, thirty point nine per cent attend the junior high school and twenty-three per cent attend the senior high school.

5. The Church

Although there is a United Church in the neighbourhood and several other churches just outside the area, the religious activity seems very slight; 73.3 per cent of the people do not belong to a church; of those who do go to church half of them go occasionally and half of them go regularly once a week. The walking distance from home to church is generally not more than fifteen minutes. Figure 8, page 66) shows the findings. The decline of religious activity is a social problem which is not caused by lack of churches but may be caused by the new urbanized life.

6. The Local Community Center

The Renfrew Heights Community Center is located at 292 East 22nd Avenue. This Center serves a large area which is bounded by Kingsway on the south, First Avenue on the north
Figure 7. Travel Times to School for the Student of the Renfrew Neighbourhood.
Figure 8. The Travel Time to Church for the People of Renfrew Neighbourhood.
Fraser Street on the west and Boundary Road on the east. The Renfrew Community Center was built by five or six local associations and officially opened on September 12, 1964. It has an indoor swimming pool, gymnasium, auditorium and seven or eight other rooms for games or teaching. Some people living in the Renfrew Neighbourhood study area go to this center once or twice a week. The Center is an average 14.4 minutes walk from the study area (See Figure 9, p. 68).

Falaise Hall is the Community Hall serving Renfrew Neighbourhood. Originally it was built in 1956 as a field house for Renfrew Park, and has only a director's room, a caretaker's suite, and public washrooms. The auditorium and kitchen were added in 1958-59 and the dressing rooms in 1963-64. Falaise Hall is a place for people to be sociable but does not have much in the way of activities. There are dances in the hall once or twice a month and this is the only activity now carried on. Most older residents join this activity but many new residents did not even know that Falaise Hall was in the area.

7. Local Community Store

The Renfrew Neighbourhood area does not have a store within its territory but has stores on its periphery. People living in this area can buy their daily goods from local stores, within a maximum of fifteen minutes walking time. The average
Figure 9. The Travelling Time for People Visiting Renfrew Neighbourhood.
travel time for local shopping is seven minutes (see Figure 10, p. 69a). Some people do not use the local store, but instead order from a big company with a daily delivery to the door. Some do not patronize this convenient and generally cheaper service because they prefer an immediate choice of a wider variety of goods. The local stores still serve 73.4 per cent of the people in the area on an average frequency of three times a week.

Another significant feature of local shopping is that the small grocery store has declined and larger stores have come on to the scene. The larger food stores, such as Safeway, Kellers and Skidmore, have more variety on their shelves and better quality at a fair and reasonable price. People now can fill most needs locally and do not need to go downtown to shop.

The Renfrew Heights area does not have a store within its area, but rather the local stores have developed around the surrounding area. This result demonstrates that Perry's neighbourhood unit scheme provides shopping facilities in its periphery, which is both correct and practical.

8. Local Park and Playground

The Renfrew Neighbourhood area has two parks: one is Renfrew Park and the other is Falaise Park. The latter was
Figure 10. The Travel Time to Local Stores for the People of Renfrew Neighbourhood.
separated into two parts, one back of the school and the other to the east of it. There is no unusual design or landscaping in the park. Falaise was planted with trees last year. People living in the area have a good-sized park and playground but are not very much drawn to the park although the children do go there to play every day in the summer, not because of the scenery but because of the playground where they can play baseball. Forty-seven per cent of the neighbourhood people use the local parks. Figure 11 (page 71) shows the frequency with which the people use the local parks.

9. The Visiting Activities

People are social beings, whose social activities reflect their life pattern. The kind of life pattern people prefer is related to geographical, social, economic and political factors. Types of social activities are different for people in different conditions, creating different life patterns. People living in Renfrew Neighbourhood have a very complex pattern of social activities. Synthesizing the survey findings, three major phenomena were found. First, travel time for visiting varies inversely with the number of times that a person visits (see Figure 12, p. 72). Secondly, the closeness of the relationship with friends or relatives is directly proportional to the number of visits (see Figure 13, p. 73). Thirdly, the patterns of the
Figure 11. The Frequency with which the People of Renfrew Neighbourhood Use their Local Park.
Figure 12. The Relationship between Travel Time and the Number of Social Visits per Month for the People of Renfrew Neighbourhood.
Figure 13. The Relationship between the Number of Social Visits per Month and the Intensity of Friendship or Kinship.
location of friends differ from person to person. People do not always consider neighbours as friends. In other words, "friends can be neighbours but neighbours are not necessarily friends". The writer was curious about this comment and asked why this was so. People said that "we know many things about our friends but we know very little about our neighbours. People do not like others to discuss their private affairs, nor do they like to talk about their own to others. It is only once in a while that we get together with our neighbours for a cup of tea. We hardly know each other." Another point is that some people of this area have lived together for more than ten years, and being veterans, have associated with one another. These persons have the "we" feeling and close relationships typical of rural people.

10. Reasons for people choosing to live in Renfrew Neighbourhood

People choose to live in an area for many reasons, including those already mentioned in this chapter. Question 5 attempts to find why the people have chosen to live in the Renfrew Neighbourhood. The results of this question can be classified into two aspects as follows:

a. The social aspect. People thought that being veterans, they would like to be together.

b. The economic aspect. Rent and taxation were lower than other areas.
E. The Interpretation of the Survey Findings and the Hypothesis

The interpretation of the survey findings is as follows:

1. The results show the Renfrew area to be very stable.

2. The findings indicate the existing street system is quite successful.

3. The Renfrew neighbourhood area has easy access and good roads to link it with the surrounding area.

4. The Renfrew Neighbourhood area not only has an adequate elementary school within its boundaries but also has Windermere High School near by. People living in this area have no difficulty with regard to education for their children.

5. Generally speaking, people in this area are not associated to any great extent with the churches.

6. Some people, but not all, use the local community center as a place for social activities.

7. The Renfrew Neighbourhood area has no local store within its area but there are enough local stores in the adjacent area to meet people's needs.

8. The Renfrew Neighbourhood area has a good-sized park and playground, but this is not very well equipped.

9. Many people are inclined not to associate socially with their neighbours.
Many of the people chose to live in Renfrew neighbourhood because they had common interests and wanted to be together; others were attracted by the cheap rent and low taxes of this area over other areas.

From the above interpretation of the survey findings, the Renfrew Neighbourhood area is considered quite successful in its physical aspects, such as the street system, easy access, good linkage with other areas, convenient schools, churches, community center, parks and playgrounds; but it is not considered effective in its social aspects, such as participation in church or community center activities, and only limited social contact between neighbours. From these interpretations of the survey findings, the writer's hypothesis -- "that the application of Perry's neighbourhood unit theory in Vancouver is not successful in its social aspect but is successful in its physical aspect" is proved correct.
SUMMARY AND CONCLUSION

A. The Summary

The purpose of this thesis is to try to prove the presupposed hypothesis "that the application of Perry's neighbourhood scheme in Vancouver is not successful in its social aspect but is successful in its physical aspect".

In order to validate the hypothesis a full understanding of Perry's neighbourhood theory and its scheme is needed. First, the historical aspects were reviewed. Perry was influenced by urban sociologists, the community center movement, and a first hand experience of living in a successful neighbourhood. Second, Perry's theory and its scheme was described, and it was found that its goal is to establish a pleasant, convenient, and healthy residential unit which will generate and maintain, face-to-face social relationships between the people. Third, the diversified variations in the application of Perry's theory and its scheme were summarized.

Perry's concept envisaged a structure involving the neighbourhood and the city. Others have enlarged upon the hierarchy of steps within the overall community structure.
Clarence Stein increased the number of steps in the hierarchy by advocating small neighbourhoods, groups of neighbourhoods or districts, and the city.

Walter Gropius gives an intermediate unit between dwelling and neighbourhood, by advocating that the hierarchy should be dwelling, apartment block or superhousehold, neighbourhood, and town.

The U.S.S.R. has a similar hierarchy to that which Stein has given. It is dwellings, micro-district (the same as the neighbourhood), residential district (three or four neighbourhoods), and the city.

The Witwatersrand University Architectural School in South Africa suggests the most complex system involving dwelling, housing unit, neighbourhood unit, community unit and town.

All the variations suggest different ways of applying Perry's theory. Variations are unnecessary in applying the neighbourhood scheme to a small city, but certain variations are needed in a large city. Planners will make their own decisions in applying Perry's theory.

Criticisms of Perry's theory indicate two main points -- one related to its social aspects and the other to its application. The deficiency of Perry's theory in its social aspect is due to
the mistake that Perry makes in trying to let the urban people have a rural-type social relationship. Perry's scheme actually provides a better environment for a face-to-face social relationship but urban people have a different life pattern, and do not live in the same way as rural people. This is a social problem which perhaps can eventually be solved by sociologists and geographers. The application of any theory should be based primarily on its practicability and feasibility. A theory is only responsible for its consistency within itself, but its realization lies with the planners.

Perry's theory was analyzed and evaluated item by item in order to obtain a better understanding of it and to determine whether it is still useful. A summary of some of the various aspects of the concept are as follows:

1. The Street System
   
   A neighbourhood unit bounded on all sides by arterial streets, with sufficient width to facilitate bypassing, is a very good idea and provides good linkage with other areas. The internal street system, designed to facilitate circulation within the neighbourhood unit and to discourage its use by through traffic, is another good feature which gives a safe and quiet environment.
2. Residential Facilities

A neighbourhood is an area for living and should encompass different kinds of residences to meet the people's needs. A neighbourhood unit scheme should provide a convenient relationship between the residential facilities and other functional units.

3. Church

A residential area should provide the necessary functions for the people. Nowadays the pressures of competition drive people to the breaking point. People go to church to find strength and faith, to conquer their difficulties, and to release their tensions. It is concluded that a neighbourhood should have adequate church facilities.

4. Shopping Center

People have daily needs which can be catered to by having local shops nearby. Formerly, a residential district always had a few corner stores to supply people with daily goods. In the last twenty years, many stores have organized themselves into one area which became a shopping center. Perry had this idea thirty years ago, and this contribution of Perry's theory should be appreciated.

5. Recreation

Recreation is an important aspect of people's needs.
There are many kinds of recreation, but these can be limited to two particular types, one physical and one cultural. The playgrounds and parks in a neighbourhood provide for physical exercise, and the community center provides for both physical and cultural satisfaction -- indoor games, sports, creative expression in arts and crafts, etc. A community center is a good social center and contributes to the development of cultural pursuits. The community center helps to offset any lack of community facilities in the elementary school, which is located in the same area. Perry suggested clustering all the important functions at the center of a neighbourhood, not only for physical convenience to the people but also for economic reasons.

After the analysis of Perry's neighbourhood theory and its scheme, a survey of the Renfrew neighbourhood of Vancouver City was carried out as an example of the neighbourhood unit concept.

B. The Conclusion

From the above careful study the writer found the following to be true:

1. Perry's Neighbourhood theory and its scheme are consistent within itself.
2. Perry's theory is still applicable and quite useful.

3. The manner in which Perry's theory is applied is very critical to its success.

The analysis and evaluation of Perry's theory and its scheme already supports the first point; the survey of the Renfrew neighbourhood demonstrates that Perry's theory is still useful but some defects caused by its method of application require greater consideration.

Since the application of Perry's neighbourhood theory and its scheme in Vancouver is not successful in its social aspects, should we try to apply this theory and scheme further? Nowadays, people are very busy, independent and self-contained. For example, they work eight hours a day, five days a week regularly; they work for wages and need no help from anyone; and they have sufficient money to meet their everyday needs. These factors allow people to be more independent. People living in an urban area have many and varied interests in recreation. They have varied educational backgrounds; some may have vocational or college education, some may learn social science, some pure science, some engineering. They may have different philosophies or beliefs, and many may believe in God but few go to church; a few of them trust in their own efforts but most depend on fate. Urban people are very complex and
their activities even more complex. A neighbourhood is a residential area for which an environment should be provided to meet these requirements. The way to meet complex requirements is to provide a maximum variety of facilities for them. It is concluded from the case study that Perry's Neighbourhood Unit does provide an adequate range of facilities.

The analysis of the detailed application of Perry's Neighbourhood Unit theory and its scheme can be classified as follows:

1. The Street System

The design of the Renfrew Neighbourhood's street system is overdone and could have been simplified and still have facilitated circulation within the unit and discouraged through traffic. The arterial streets bounding the area would have been better as boulevards, making a green belt to exclude much of the noise of the traffic.

2. Size

Since it is commonly acknowledged that children can spend up to thirty minutes walking to school, then the size of both school and neighbourhood could be larger. If a half mile radius circle is used as the neighbourhood area, this would be four times as big as Perry's suggestion of a quarter mile radius.
A larger area could support better equipment for the school, better facilities in the neighbourhood, such as an indoor swimming pool, gymnasium, auditorium and studio in the community center; golf links in the park, and more equipment in the playground. The better the equipment of the school, the higher the school standard. The greater the variety of the facilities, the more people will use them. In addition, as the size of the neighbourhood increases, population increases, and provides more qualified leaders to generate more social activities.

3. Church

Before starting to lay out the neighbourhood plan the planner should make a survey of the people who will be living in the area and reserve at least one site for a church, even if the survey proves that there is no immediate need.

4. Shopping Center

Shopping centers are becoming larger and more complex than a few years ago. A larger shopping center means a larger trade area. Locating the shopping center on the circumference of the unit, at the traffic junctions and adjacent to similar adjoining neighbourhoods, as Perry suggests, is considered satisfactory for a larger sized neighbourhood.

5. Park and Playground

Parks and playgrounds should be well equipped and
designed, and not simply open spaces. For example, a park should have interesting, winding pathways, beautiful trees, flowers and lawns, clear pools, brooks, waterfalls and fountains; picnic tables, benches, barbecues, fireplaces, etc. Neighbourhood play areas should provide the following:¹

a. a small space for pre-school children — tot lots;
b. apparatus for older children;
c. an open space for informal play;
d. a surfaced area for court games, such as tennis, handball, volleyball, etc.;
e. a playing field for games such as softball, touch football, mass games, etc.
f. a wading pool;
g. a shelter and change building with toilets, washing facilities, drinking fountains, and perhaps an area for quiet games, instruction, crafts, etc; — although these activities are often better carried out in the community center, which should adjoin the playground.

Parks and playgrounds will be used more intensively if a greater variety of interests and activities are provided.

Social contact is more easily generated through recreation than

through associations of working or helping. Recreational facilities are becoming critical factors in a neighbourhood.

One of the grounds on which Perry's theory has been most seriously criticized is that the concept promotes segregation and discrimination on racial grounds. However, there is no concrete evidence to support this criticism. The racial problems are social ones going beyond the layout patterns of communities, and are likely to be as significant with other layout patterns as with his one of Perry's. Prior to a comprehensive investigation of the whole subject, the author had tried to find reasons to oppose Perry. Now it is concluded that Perry's theory is still very useful in our complex, changing urban way of life. The writer does not agree with the social goal of Perry's concept, but supports the theory because it is very functional and provides the maximum possible facilities in a self-contained residential environment. The application of this valuable theory in a satisfactory manner is a critical operation; lack of understanding will introduce bias; improper application will produce a nonfunctional unit; and any over-emphasis or lack of attention in certain of its details will disturb its self-contained character. However, it may be concluded that insensitive application of the theory is not necessarily the fault of the theory itself.
Map 1. Location of Renfrew Neighbourhood, Vancouver, B.C.
Map 2. The Land Use of Renfrew Neighbourhood
Legend.

1. Interview Locations
2. Location of Questionnaire Response

Map 3. The Survey Map of Renfrew Neighbourhood
APPENDIX 4.

A. The letter attached to the questionnaire

Fort Camp,
U.B.C.,
Vancouver 8, B.C.

Dear Sir or Madam:

I am undertaking a study in an attempt to evaluate Perry's Neighbourhood Unit Theory - a standard scheme in designing urban neighbourhoods - as part of the requirement for a degree in Community and Regional Planning at the University of British Columbia. Your neighbourhood is an example of one designed according to Perry's theory. The boundaries of your neighbourhood are: Grandview Highway on the north, Twenty-second Avenue on the south, Rupert Street to the west and Boundary Road to the east. This survey is an attempt to study certain living conditions and the opinions of the people concerning the desirability of living in this area.

The results of this survey will be useful for future residential development in other areas of the Vancouver area.

I would very much appreciate it if you would complete the attached questionnaire and return it in the stamped self-addressed envelope which I have provided. No names or addresses of any individuals answering the questionnaire will be mentioned in the study. It is only meant to show the existing conditions and the attitudes of the residents of this area.

Sincerely,

Frank C.C. Wang,
Graduate Student,
Community and Regional Planning,
U.B.C.
B. Questionnaires of Survey

1. How Long have you lived in the present house? ________.

2. Do you own your house? ________.

3. Do you like the overall street layout? ________.

4. Would you prefer a gridiron street system? ________.

5. Why do you like living here? The reasons are:
   a. Near to place of employment ________.
   b. Near to school ________. c. Near to playground ________.
   d. Near to park ________. e. Near to church ________.
   f. Near to shopping center ________. g. Good environment ________.
   h. Good neighbours ________. i. Convenient public transit ________.
   j. Other reasons ____________________________

6. Please complete the table to indicate:
   a. The names of places where you work, shop and play outside your neighbourhood.
   b. The method of transportation you use.
   c. The time it takes to go there from your home.
   d. The distance from your home.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Employment</th>
<th>Major Shopping</th>
<th>Recreation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Travel time</td>
<td>(Minutes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Method of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Distance (Mile)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. If you have children attending school, please complete the table below:
   a. Name of school
   b. No. of children
   c. Travel time from home to school
   d. Method of transportation
   e. Distance from home to school

<table>
<thead>
<tr>
<th>Elementary School</th>
<th>Junior High School</th>
<th>Senior High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Name of school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. No. of children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Travel time from home to school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Method of transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Distance from home to school</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. If you use the following facilities inside your neighbourhood please complete the table below:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Church</th>
<th>Local Community Center</th>
<th>Local Community Store</th>
<th>Local Park</th>
<th>Local Playground</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Name</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Distance from home (mile)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Method of transportation</td>
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<tr>
<td>D. Travel time from home (minutes)</td>
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<td>E. Frequency (per week)</td>
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<td>F. Reasons:</td>
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<tr>
<td>1. Convenient</td>
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<tr>
<td>2. Good quality</td>
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<tr>
<td>3. Others</td>
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</tbody>
</table>

9. Visits: On the table below please give information about the location of your good neighbors, relatives and friends whom you visit regularly.

<table>
<thead>
<tr>
<th>District of location</th>
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</thead>
<tbody>
<tr>
<td>No. monthly visits</td>
<td></td>
</tr>
<tr>
<td>Travel time from home (minutes)</td>
<td></td>
</tr>
<tr>
<td>Method of transportation</td>
<td></td>
</tr>
<tr>
<td>Distance (miles) from home.</td>
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</tbody>
</table>
   Uses the community as a basic unit in regional planning.

   Recommends over-all standards of maximum population density to meet the worst conditions of land crowding, emphasizing limitation on high densities imposed by provision of adequate facilities and open spaces.

   Historical background, analysis of basic principles involved in site planning, and examples of outstanding neighbourhood plans.


   Moderately technical presentation of basic principles of street and highway design and engineering.

   Outlines desirable organization, programs, special services, housing and equipment for children's centers.

   Safety requirements in locating, planning and equipping school buildings.


Guide to comprehensive community planning. Section 300 is especially pertinent to community services and facilities.


Organizations and services for health programs, especially directed to rural communities.


Gives a complete list of equipment for a park and play area.


Outline of method for careful analysis and appraisal of housing and its environment.


Detailed procedure for appraising the neighborhood environment.


Physiological and psychological factors in the planning of housing --- some neighbourhood and community aspects.
15. __________. Housing for Health. (Papers presented under the auspices of the Committee.) Lancaster, Pa.: Science Press Printing Co., 1941, 221 pp., charts, diagrams.

Standards of housing in relation to health; a collection of papers on different aspects of housing and health.


Summary of basic principles of sanitation in connection with public or individual water supply and sewage installations.


Evaluation of Perry's neighbourhood theory.


Summary of present practices in community heating in England.


Observations and facts regarding the effect of local climatic conditions on housing and site planning.


Solar mechanics and some conclusions regarding orientation based on a variety of research undertakings.


   Analysis and suggested standards for several types of health centers and their relation to the community.

   Standards for shopping centers, size, location, population served and other relations to residential areas.

   Shopping facilities standards for war housing projects.

   Summary of municipal garbage and refuse disposal practices for 25 cities.

   Standard reference on the design, construction and operation of sewage disposal works.

   Analytical discussion of neighborhood from sociological point of view. Article favoring diversification in neighborhoods and against segregation and race discrimination from the social point of view.

   A manual on making and carrying out the small city plan and on the principal elements of the plan.


A study of "The obstacles preventing the realization of 'planned communities' as well as some of their essential requirements".

Technical study of urban population densities in relation to city planning, including discussion of measurement methods. Criteria on desirable city characteristics, health factors and other standards more directly related to New York City requirements.

Proposed standards for community design and operation, including social, recreational and educational facilities in relation to work, shopping and to urban facilities generally. Standards for design of structure and site included.

Deals with the overriding functional requirements. Provides guiding principles under the following headings: Standards, Designs and Siting of Buildings. Appendices give tables, daylight factor protractors.

Methods of sound insulation against outdoor and indoor noises.


46. The Detroit City Play Commission, 1945. Having a system of neighbourhood that includes a minor group of four neighbourhood units and a major group of 7-10 neighbourhood units.


49. Engelhardt, N.L., Planning School Building Programs. New York: Teachers College, Columbia University, 1940, 574 pp., illus., diagrams. Analyzing and forecasting school population, selection of sites, building programs and costs and architectural problems.


   Presenting a new hierarchy of residential system - small housing groups, neighbourhood and a cluster of three neighbourhoods as a community.

   Variations of Neighbourhood unit analyzed.

   Goss's Analysis of New Town neighbourhoods indicating the difference between Perry's and the British.

   Suggesting tall apartment blocks for the city.

   An analysis of Berkeley Public schools.

   Technical discussion of methods of protecting dwellings, particularly in multi-family structures, against noise.

   Applying new educational theory in school building.

   Suggesting 500-200 families as a unit of settlement.
Performance standards for sunlight and daylight penetration.

Profusely illustrated philosophical discussion of city planning principles; specific data on orientation, insolation and their relation to topography and densities.

A new settlement unit on an entirely different scale was suggested.

A detailed survey and analysis of the extent to which school plant planning has been integrated with general city planning.


69. International City Managers' Association, Institute for Training in Municipal Administration, Municipal Fire Administration, Chicago: The Institute, 1946, 667 pp., charts.
Text for in-service training of fire department officers and administrators, containing chapters on: (3) organization for fire protection, (6) department buildings and equipment, (7) distribution of equipment and personnel, (8) fire alarm signaling systems.


A most critical review of Perry's neighbourhood theory.


An analysis of social, economic and physical structure of the city, the effects of the church and the latter's contribution to urban living.


Useful analysis of some 284 subdivision regulations with emphasis on standards.


Recommendations regarding the hygiene of environmental conditions in the dwelling and concerning noise and housing.


Comparative study of various zoning provisions for parking. Gives valuable information on practices in zoning for parking and on physical requirements of facilities.


A careful technical analysis of community habits, particularly in England, but with some reference to experience elsewhere. Includes detailed study of wartime practices at some British manufacturing plants.
   Comprehensive zoning ordinance and map, notable for its provisions for off-street parking.

   A study of the place of the museum in the community -- its use as a social-educational instrument.

78. Margold, Stella K. Housing Abroad up to World War II. Cambridge, Mass.: Massachusetts Institute of Technology, Department of Architecture, 1942, 314 pp. Mimeo.
   Analysis of housing, particularly procedures for planning, controlling and financing group housing in Europe, with brief comparisons with U.S.

   Shopping center in relation to traffic and consumer accessibility.


   General information and principles pertaining to ground water.

   Analysis of factors affecting design of local shopping centers, with examples.

   Indicates relative importance of various conditions and equipment which contribute to or diminish fire hazard.


Includes detailed standards on densities and all residential neighbourhood development aspects. Although it deals mainly with British experience, it offers most useful data.

The problems in planning neighbourhoods -- especially directed toward application of the neighbourhood concept to densely populated metropolitan areas.

Emphasizes neighbourhood concept in reference to urban planning or replanning.


96. and Marguerite P. Williams. New York School Centers and their Community Policy. New York: Russell Sage Foundation, 1931, 78 pp., illus., charts.
The school in the community, its use for extracurricular activities and services; especially directed to the New York schools.

Correlation of housing conditions and standards of health attained.

Principles of density and daylight admission. Description of "daylight protractors" recommended for use in checking adequacy of site plans.
   A full pattern of city development based on neighbourhoods and group neighbourhoods.

   Review of accomplishments in regional development in New York area, notably in fields of circulation and recreation.

   Particularly good sections on planning objectives and on layout of neighbourhood units.

   Critical evaluation of refuse collection and disposal methods, especially from the public health point of view. Reprints available from Connecticut State Department of Health, Hartford.

103. Segoe, Ladislas and Others. Local Planning Administration. Chicago: The Institute for Training in Municipal Administration, 1941, 684 pp., illus., tables, diagrams forms.
   A technical manual on city planning. Comprehensive and detailed.

   An analysis of urban problems, including those of shelter, "neighbourhoods", recreation, industry, transportation and traffic facilities. Recommendations for their analysis and solutions based on proposals formulated by the Congress Internationaux d'Architecture Moderne.

Supports the neighbourhood school idea.

106. South African Architectural Record, September and October, 1943.

A report on the exhibition 'Rebuilding South Africa'.


Standards for number and kind of stores, space requirements, location, form and controls.


Stein, a pioneer in the application of Perry's theories, made certain important extensions to the idea.


A good analysis of community structure and growth, illustrated with 20 case studies.


An easy-to-read pamphlet directed to lay public, giving direction to the replanning of neighbourhoods by community participation.


Series of articles emphasizing incidence of traffic deaths due to inadequately lighted streets.


Standards for educational, recreational and shopping facilities, their integration and relation to the planning of residential areas -- the result of citizen and local agency participation in the formation of "goals" rather than "standards".
Chicago Commons and other settlements have welcomed many church groups to share the use of their buildings.

Recommended standards for lighting in home, office factory and school, with emphasis on health implications.

Essential subdivision standards, recommended regulations and suggested procedure, with illustrations of poor and good subdivisions.

A discussion of operating experiences at community garbage-grinding stations.


Survey of child health progress including standards and recommendations for facilities and services.

Site and unit plans for group housing. Mention of city plan relationship.

Principles of good land subdivision that make neighbourhoods more desirable, with emphasis on good street layout. Well illustrated with diagrams.
   Outline of standards required in eligible FHA projects.

   Suggested principles of planning neighborhoods for profitable investment and appeal to homeowners.

   Discusses briefly the factors to be considered in providing outdoor play apparatus. Gives detailed specifications for sandboxes, swings, slides, climbing structures, etc. Subdivided into: family use areas, preschool areas, recreation area for children and adults. Brief bibliography.

   Principles of design, site organization, open spaces and planting.

   Design criteria and standards for site plans.

   Basic factors considered in the selection of sites for USHA-aided projects -- including relationship to city planning, size of site, traffic and other problems.

   An outline of the important elements in developing site plans.
   Very useful glossary of housing and planning terms.

   Checklist of legal and administrative provisions, and technical design standards to facilitate review of local subdivision controls.

   Specific requirements for design of dwellings, site and nondwelling facilities.

   Extremely valuable practical guide to design of sites, dwellings and community facilities.

   Detailed standards prescribed by FPHA as manual for field workers.

   Considers attendance areas and administrative units and transportation.

   Standards for disposal of domestic sewage in areas not served by sewer systems.
Standards of purity for water used in interstate commerce and recommended for acceptance by state agencies.

136. "Rural Water-Supply Sanitation" (Recommendations of the Joint Committee on Rural Sanitation), Public Health Reports, Supplement No. 185, 1945, 56 pp.
Standards for development of individual water supplies.

137. Hospital Facilities Section. "The Small Health-Centre Hospital", Pencil Points, June, 1946, pp. 74-76.
Design, costs and justification for a local health centre and 10-bed hospital.

Indicating five residential areas of some 1,500-2,000 population each grouped around a town centre with full social facilities.

139. Villeneuve, Marcel. Planning Neighbourhood Shopping Centers, New York: National Committee on Housing, 1945, 33 pp., illus., diagrams.
A study of retail trade requirements and the use of purchasing power as a yardstick in planning to meet them.

Gives a detailed, rational and critical analysis of the great change of urban society.


142. Wheeler, Joseph L. and Alfred L. Githens. The American Public Library Building, New York: Charles Scribner's Sons, 1941, 484 pp., illus., diagrams.
Planning and design of the library with special reference to administration and service. Parts 1 and 2 contain data for determining community relationships.
   Comprehensive study of group housing, especially of relatively low-density group housing. Site plans and floor plans.

   Primarily architectural but with recommendations on site selection and on related play areas.