

RADBURN, NEW JERSEY AND THE APPLICATION OF ITS  
PLANNING CONCEPT IN GREATER WINNIPEG TODAY

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by

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## CHAPTER I

### INTRODUCTION

For many years there has been discussion concerning the merits and disadvantages of the Radburn Concept of subdivision design. The acceptance of this concept has met considerable resistance on this continent particularly with those most directly concerned with the development process. The criticism includes economic considerations as well as statements to the effect that people simply do not want to live in this type of area, particularly if the front of the house becomes the back, and vice versa!

On more than one occasion, the Radburn Concept has been described as an idea that may be unearthed at regular intervals by planning students as subject material for a masters thesis. Certainly the post-war applications of this concept in Europe and now the trend towards cluster development and planned unit development on this continent, indicate that the Radburn Concept may still have application in the layout of contemporary residential areas. With the belief that the Radburn Concept may still be valid the author of this thesis has examined in detail two Radburn type residential areas constructed a number of years ago in Metropolitan Winnipeg.

Chapter II of the thesis discusses the principles of the Radburn Concept as evolved by Clarence Stein and Henry Wright at Radburn, New Jersey in the late nineteen twenties. Chapter III examines the

subsequent applications of Stein's and Wright's concept with particular reference to pedestrian-vehicle separation in North America, Europe and England. Mention is also made of earlier thought and examples of pedestrian-vehicle separation.

The fourth chapter is a description of two residential areas in Metropolitan Winnipeg that incorporate certain Radburn features in their layouts. The larger of these two areas is called Wildwood and is located in the Municipality of Fort Garry, while the other area is a portion of the Norwood neighborhood in the City of St. Boniface.

Chapter V describes the procedures and results of a questionnaire survey which was undertaken in the two study areas. The primary goal of the study was to determine the residents' attitudes towards the physical design of their residential area. A number of questionnaires were also sent to residents in two selected control areas adjacent to the study areas. The control areas were of similar housing stock and shared the same community facilities but were located in areas of conventional subdivision.

Chapter VI incorporates the results of a residential stability study extending over a thirteen year period (1953-1966) for both Wildwood and Norwood as well as their respective control areas. The source material for this study was Henderson's Directory.

The concluding chapter examines the various elements of the Radburn Concept and their applicability to current subdivision practice in the Metropolitan Winnipeg area.

## CHAPTER II

### THE RADBURN CONCEPT

The Radburn Concept takes its name from a residential subdivision laid out thirty-eight years ago in the Borough of Fairlawn, New Jersey which is located some sixteen miles west of New York City.

The Radburn Concept was evolved by two well known American planners, Clarence S. Stein and Henry Wright. Their ideas were conditioned both by earlier works in the United States and England, as well as the thinking of various other professional planners working in New York at that time.

Originally conceived as a Garden City, Radburn was intended to be built according to some of the principles of Sir Ebenezer Howard. Howard's Garden City concept was advanced in a publication entitled Tomorrow: A Peaceful Path to Real Reform, published in 1898 and re-issued under its more widely known title Garden Cities of Tomorrow in 1902.

Basically, the Garden City as proposed by Howard was a finite community girdled by an inviolate greenbelt. Industry was to be located within reasonable walking proximity to residence, and through the liberal provision of carefully designed open space, throughout the community, a park-like or garden appearance was to be achieved. Howard also considered in detail the economic feasibility of his proposal. In 1903, the

construction of the first Garden City of Letchworth was started. Letchworth, located about thirty-five miles north of London, was designed by Raymond Unwin and Barry Parker. In 1919, a second Garden City was constructed at Welwyn, several miles to the south of Letchworth. Clarence Stein and Henry Wright became familiar with Letchworth and Welwyn on a visit to England after the First World War.

During the period that Stein and Wright were working on the Radburn project, they were also participants in a small but active group known as the Regional Planning Association of America. This group was comprised of about twenty people, a number of whom have earned international reputation in the planning profession. Among its members were such people as Lewis Mumford, Benton MacKaye, Steward Chase, Charles Whitaker, Frederick Ackerman and Catherine Bauer. Clarence Perry and Patrick Geddes also participated at various times in the activities of the association. Many of the ideas that were incorporated in the Radburn Concept were the result of Stein's and Wright's contact with the English Garden City movement, as well as their involvement in the Regional Planning Association of America.

Although the most widely known, the community of Radburn was only one of a series of projects on which Stein and Wright collaborated. Their first project which preceded Radburn was Sunnyside Gardens located in the Borough of Queens, fairly close to downtown Manhattan. The design of this project was severely limited by local regulations which required retaining the original grid iron street pattern. The significant feature of Sunnyside was the turning around of the dwelling units to face an interior green area as shown in Figure 1.

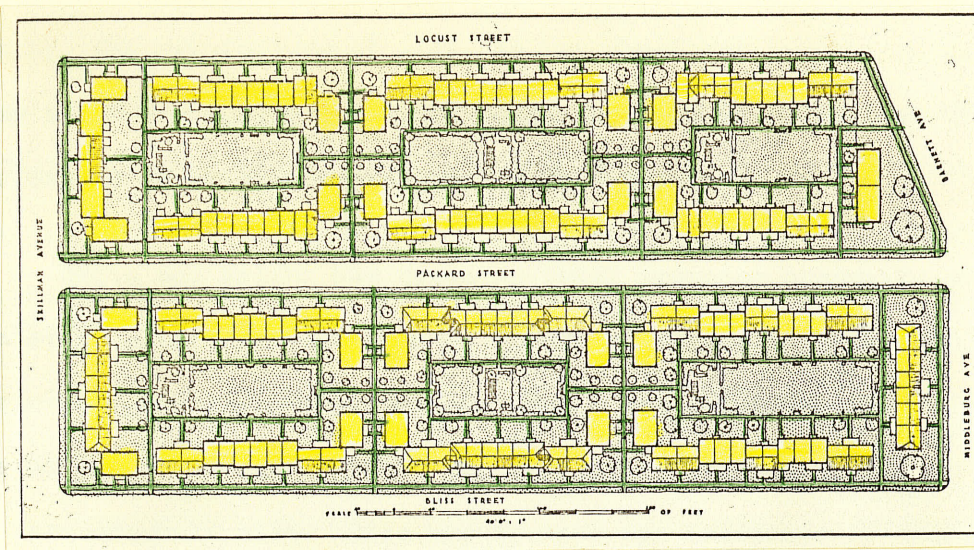


FIGURE 1

PLAN OF BLOCK DEVELOPMENT, SUNNYSIDE GARDENS, 1926.

NOTE DEVELOPMENT OF INTERIOR GREEN AREAS.

ILLUSTRATION FROM C. S. STEIN

TOWARD NEW TOWNS FOR AMERICA,

P. 29.

Plans for the new town of Radburn as a complete community were never fully implemented. It was originally conceived as a complete American Garden City of 25,000 people. Unfortunately, the depression in the fall of 1929 stopped all further work and only a small portion of the intended project was completed.

The Radburn Concept as described by Clarence Stein in his book *Towards* Stein's and Wright's concept of a Garden City varied somewhat from the theories of Sir Ebenezer Howard. The original plans for Radburn did not incorporate a complete external greenbelt, nor was industry incorporated into the design. In Radburn it was assumed that large numbers of residents would find employment in the industrial plants of nearby Patterson, New Jersey. This did not materialize because of a decline in the area's major

Clarence St. Stein, *Toward New Towns for America*, Reinhold Publishing Corporation, New York, 1957. P. 41.

industry, the manufacture of silk, so the completed portion of Radburn became a bedroom suburb for white collar workers in Manhattan. To a large degree it still occupies this function today.

Stein and Wright had drawn up their proposed community on the basis of an ultimate population of 25,000 comprised of three neighborhoods of between 7,500 and 10,000 persons each. The neighborhoods were to focus on the elementary schools and had an overlapping radius of a little less than one-half mile. Here may be seen the influence of Clarence Perry with whom Stein and Wright had contact in the activities of the Regional Planning Association of America. Perry is acknowledged as the founder of the neighborhood concept of planning. He cited a smaller figure for the neighborhood population, i.e. about four or five thousand persons as compared to Wright's and Stein's figures of eight to ten thousand. Because of the premature halt to construction, not even one of the neighborhoods reached completion, though sufficient construction was completed to provide an actual example for what has come to be known as the Radburn Concept.

The Radburn Concept as described by Clarence Stein in his book Towards New Towns for America comprised five distinctive design elements, none of which in themselves were completely new, but applied collectively with skillful design resulted in a community "which was to influence planning thought throughout the world." <sup>1</sup>

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<sup>1</sup> Clarence St. Stein, Toward New Towns for America, Reinhold Publishing Corporation, New York, 1957. P. 41.

The basic element of the Radburn Concept was the superblock which represented a major departure from the standard rectangular block and its gridiron pattern, so typical of city layouts in North America up to that time. John W. Reps in his book The Making of Urban America relates the historical reasons for the predominance of the grid pattern up to that time.

"The overwhelming majority of American towns were begun and extended on the gridiron plan. Much of the early impetus to the grid plan, aside from its intrinsic ease in surveying, its adaptability to speculative activities, and its simple appeal to unsophisticated minds stemmed from the position and influence of Philadelphia, the most important city on the continent, and as a much used point of departure for westward migrations to the interior. Philadelphia lent its plan as well as its capital to aid in the establishment of new towns beyond the Appalachians."<sup>2</sup>

A later plan which also influenced large numbers of people to plan 19th century North American communities on a gridiron basis was the Commissioners Plan of New York City applied to the Island of Manhattan in 1811.<sup>3</sup>

The superblock as evolved by Stein and Wright was the first attempt to rationalize street patterns according to the implications of the automobile. Vehicle registrations in the United States at the time Radburn was designed in 1929 numbered over 20,000,000, and yet road design had literally not passed out of the horse and buggy stage.

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<sup>2</sup> John W. Reps, The Making of Urban America, Princeton University Press, Princeton, New Jersey, 1965. P. 294.

<sup>3</sup> Ibid P. 298.

Despite its new application to the problems of the motor age, the superblock did exist at the time of early settlement in North America and may be seen in the Dutch Plans of Nieuwe Amsterdam (New York) which were drawn up prior to 1660.<sup>4</sup>

The second element involved the development of a hierarchy of vehicular roads. Design standards for roads in the Radburn Plan were based upon the intended function of the route rather than the assumption of a standard right-of-way allowance which was characteristic of the gridiron pattern. In Radburn, service lanes were for direct access to buildings with widths of only eighteen to twenty feet. The collector roads which surrounded the superblocks had widths of about sixty feet. The main through roads connecting with other communities had widths of about ninety feet.

The third element which will be discussed in greater detail in the following chapter was complete separation of the pedestrian from the motor vehicle or as complete separation as possible. This was achieved by horizontal separation except where the two systems intersected. In these instances vertical separation was provided in the form of over and underpasses. The major example of this technique which influenced the designers was Central Park in New York City, planned by Olmstead and Vaux in 1856.

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<sup>4</sup> Stein, op. cit., P. 45



The fourth element involved the provision of open space park land as the backbone to each superblock. The open spaces of each superblock were tied together by the path system which resulted in a continuous pedestrian network extending throughout the community.



FIGURE 2  
VIEW OF INTERIOR PARK SPACE, RADBURN, NEW JERSEY,  
OCTOBER, 1963  
PHOTOGRAPH TAKEN BY THE AUTHOR

The fifth element was the reversal of the conventional house plans to face their gardens and paths which linked each dwelling unit to the central green area. Living rooms and sleeping rooms were oriented to the pedestrian paths. The service rooms were placed towards the access roads. This reversal of dwelling unit orientation was conceived by Henry Wright who relates the origin of this concept in an article in the September, 1930

Stein, op. cit., p. 48.  
Geddes Smith, "A Town For The Motor Age", Survey Graphic, 1930, cited by Clarence S. Stein, Towards New Towns For America, Rheinhold Publishing Corporation, New York, 1957. p. 44.

issue of the "Western Architect" entitled "The Autobiography of Another Idea".

"In 1902, as an impressionable youth just out of architectural school .... at Waterford .... Ireland .... I passed through an archway in a blank house wall on the street to a beautiful villa fronting upon spacious interior gardens. That archway was a passage to new ideas .... I learned that the comforts and privacy of family life are .... to be found .... in a house that judiciously relates living space to open space .... being capable of enjoyment by many as well as by few." <sup>5</sup>

A sixth, but usually unnoted element of Radburn was the inclusion of various types of dwelling units. The individual neighborhoods contained single family detached homes, two family attached homes, some row housing, and three storey walk-up apartment blocks.

A concise description of Radburn was written by Geddes Smith which stated:

"A town built to live in today and tomorrow. A town 'for the motor age'. A town turned outside-in without any back doors. A town where roads and parks fit together like the fingers of your right and left hands. A town in which children need never dodge motor-trucks on their way to school. A new town, newer than the garden cities, and the first major innovation in town planning since they were built." <sup>6</sup>

The interior park areas contained a number of recreational facilities including two swimming pools, tennis courts, and various tot lots. The park land and facilities were maintained by the Radburn Association. This association was comprised of all the residents living in Radburn

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<sup>5</sup> Stein, op. cit., P. 48.

<sup>6</sup> Geddes Smith, "A Town For The Motor Age", Survey Graphic, 1930, cited by Clarence S. Stein, Towards New Towns For America, Rheinhold Publishing Corporation, New York, 1957. P. 44.

and is a non-profit, non-stock organization empowered to levy annual charges. The power to assess maintenance charges was provided through restrictive covenants placed on each deed. Although the depression caused considerable problems in the operation of this system, it appears that since the last war it has operated quite satisfactorily.

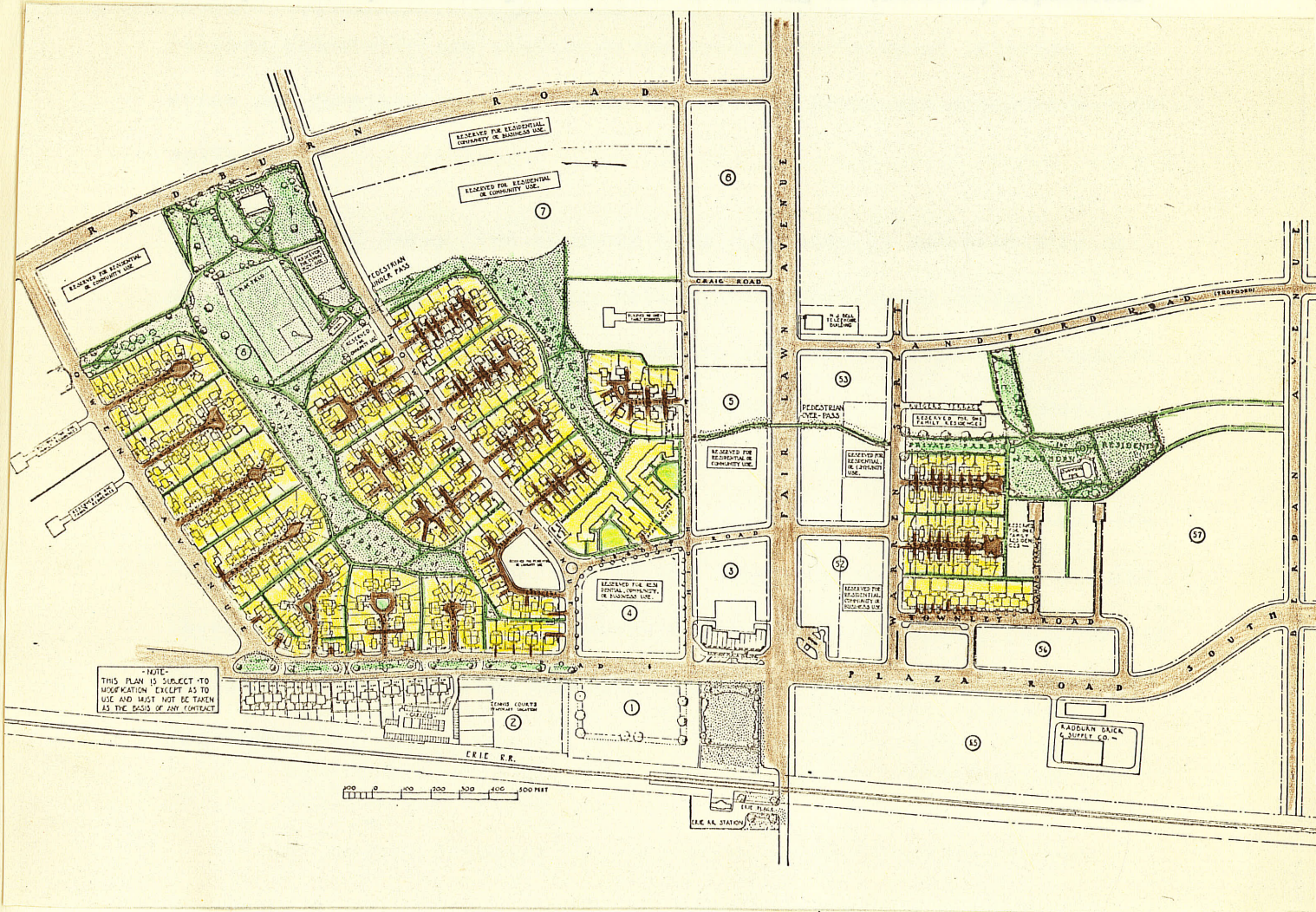


FIGURE 3

PLAN OF RADBURN AS CONSTRUCTED SHOWING RELATIONSHIP OF PARK SPACE TO DWELLINGS AND PEDESTRIAN AND VEHICLE CIRCULATION SYSTEMS. ILLUSTRATION ADAPTED FROM C. S. STEIN TOWARDS NEW TOWNS FOR AMERICA, P. 49.

Please Note - Throughout the thesis the following color coding has been used:

Public open space - light green  
 Pedestrian paths - dark green

Private residential property - yellow  
 Vehicle rights-of-way - brown

In summary the basic elements of the Radburn Concept are, the use of superblocks, hierarchy of streets according to function, separation between pedestrian and vehicle circulation, provision of interior open space and reversed dwelling units to face the parks and pedestrian path system.

Two of these five elements have subsequently achieved firm acceptance as basic principles in residential subdivision design. Virtually all modern subdivisions on this continent utilize the superblock coupled with a hierarchy of streets. The remaining three elements, pedestrian-vehicle separation, interior open space, and reversed frontages, have only been applied in relatively few instances in North America and with varying degrees of success. It is the intent of this thesis to examine these three elements of the Radburn Concept with particular reference to two areas in Metropolitan Winnipeg which have been laid out on Radburn principles.

## CHAPTER III

## PEDESTRIAN-VEHICLE SEPARATION

Although this concept has not been implemented in many residential projects on this continent, there is increasing awareness of the necessity for separation in more densely developed downtown areas. Pedestrian-vehicle separation is not a recent innovation in the planning of urban communities. Certainly the most complete and effective separation between pedestrians and vehicles occurred in Venice, which dates back to 452 A.D. In this case, the vehicles were water borne. It should also be noted that Venice is one of the few cities in the western world where motor traffic is completely banned within the central area. The preceding chapter mentioned that Stein and Wright obtained inspiration from the path system of Central Park which had

"complete separation of various kinds of traffic achieved by a system of bridges and archways so that pedestrians, horse back riders and carriages would each be provided with paths and drives at different levels."<sup>7</sup>

Of further interest is a quotation by Camillo Sitte which expressed a contemporary concept of pedestrian-vehicle separation in 1904.

"... a thorough classification of traffic types and street types is called for, as are statistics concerning pedestrian and vehicle traffic. If needed, there should be provided special paths, bridle paths, streets for commercial traffic ..."<sup>8</sup>

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<sup>7</sup> John W. Reps, op. cit., P. 333.

<sup>8</sup> Camillo Sitte, Der Statebau 1904 as cited by G.R. and C.C. Collins Camillo Sitte and The Birth of Planning (1965) cited by G.A. Atkinson, Radburn Layouts in Britain: "A User Study", Official Architecture and Planning. (March 1966) P. 380.

Collins went on to say that "Unwin knew of Sitte's work. He was influenced by it in his designs for Hampstead and in writing his Town Planning in Practice (1909)." <sup>9</sup>

There are three basic possibilities for pedestrian-vehicle separation, namely: horizontally, vertically and in time. The Radburn Concept utilizes horizontal and vertical separation. Time separation dates back to the Roman period when wheeled vehicles were banned from certain commercial precincts during the daytime.

In the modern context, the necessity for pedestrian-vehicle separation extends beyond the simple though very relevant arguments of safety. Table I, prepared by Paul Ritter is an excellent summary of the various factors that are present in the man-vehicle relationship.

<sup>9</sup> Atkinson, loc. cit.

TABLE I  
RELATIONSHIP BETWEEN MAN AND THE MOTOR VEHICLE

|                 | MAN  | MOTOR VEHICLE   |
|-----------------|--|---|
| Size            | Small (toddler to adult variation)   | Big (Honda to trailer transport variation)  |
| Tactility       | Soft   | Hard  |
| Speed and Range | Slow and small   | Fast (potentially) and great  |
| Momentum        | Slight, safe   | Great, dangerous (potentially)  |
| Movement        | Organic  | Organic tendencies through driver only.   |
| Rythm           | Organic patterns, spontaneous.   | Mechanical patterns, pre-determined lines.  |
| Routes          | No site lines, surprise, sudden changes.   | Site lines and curviture and junctions according to speed and formulae.   |
| Ecological      | Harmonious, basically in smell, sound, feel and waste products.  | Gasoline fuel disruptive to lives. Poisonous (carbon monoxide) carcinogenic agents, sulphur tri-oxide, ozone, eye, throat and nose irritation serious, destructive of plant life and many crops (smog). |
| Sociological    | Needs security conducive to friendship and co-operation within narrow field and as a general characteristic. | Allows meetings of distant friends but where present, is conducive to antisocial behaviour and disruptive of co-operative tendencies particularly while driven.   |
| Damage          | Care increases with damage. Injury and death irrevocable and therefore tragic. Average life, long.           | Care decreases with damage. "Injury" and "death" means insurance, junk yard and new vehicle. Average life, short. 10  |

<sup>10</sup> Paul Ritter, Planning For Man and Motor, Pergamon Press, Oxford, 1964, P. 10.



This table demonstrates very clearly the need for pedestrian-vehicle separation. Major efforts are now being directed to achieve separation in the redevelopment taking place in the central areas of our larger cities. For example, downtown Montreal will have a pedestrian network extending over one hundred and twenty acres by 1970. Yet separation has been ignored with but a few exceptions in post war North American residential construction. The most complete applications of the Radburn Concept in Canada have been at Kitimat, British Columbia and Flemingdon Park in Toronto. It should be noted that Stein was retained as a consulting planner for Kitimat.

An interesting and relatively unknown application of the Radburn Concept occurred in Montreal in early 1940 (see Figure 4). Known as Cite Jardin this project was conceived by a lawyer and a priest who had no formal design training and were unaware of the Radburn Concept. Their design turned out to contain all of the Radburn features except for reversed houses.

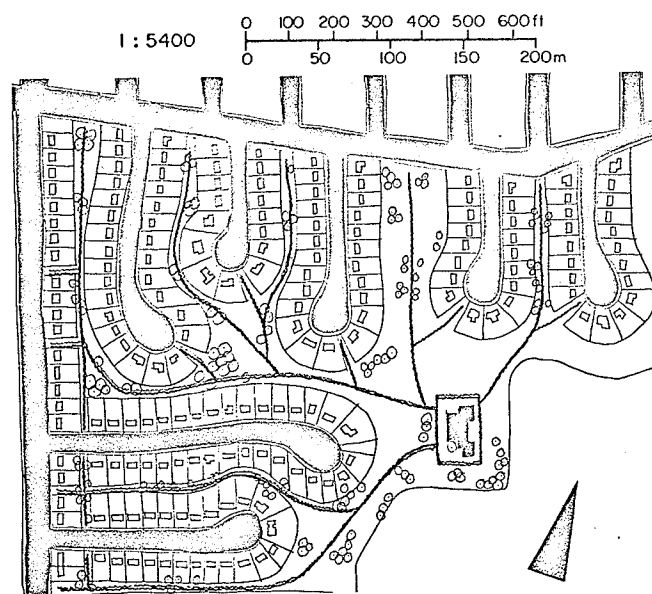


FIGURE 4

PLAN OF CITE JARDIN, MONTREAL, CANADA, 1940  
ILLUSTRATION FROM RITTER, OP. CIT. P. 271.

Although Wright and Stein were the first to initiate pedestrian-vehicle separation in North America after the advent of wide spread motor vehicle usage, independent thought was being applied to the problem in France by Le Corbusier at about the same time. His plans for Ville Contemporaine in 1922 and the Plan Voisin proposals for Paris in 1925 contained provision for pedestrian-vehicle separation, albeit on a gigantic scale.

Ritter has stated that Scandinavian interest in Radburn planning was awakened when Professor Stein Eiler Rasmussen received one of the original Radburn sales brochures (see Figure 5) from a lay friend in the

United States. Rasmussen was a professor at the Royal Academy of Fine Arts, Copenhagen and it is claimed that the brochure greatly influenced his teaching.

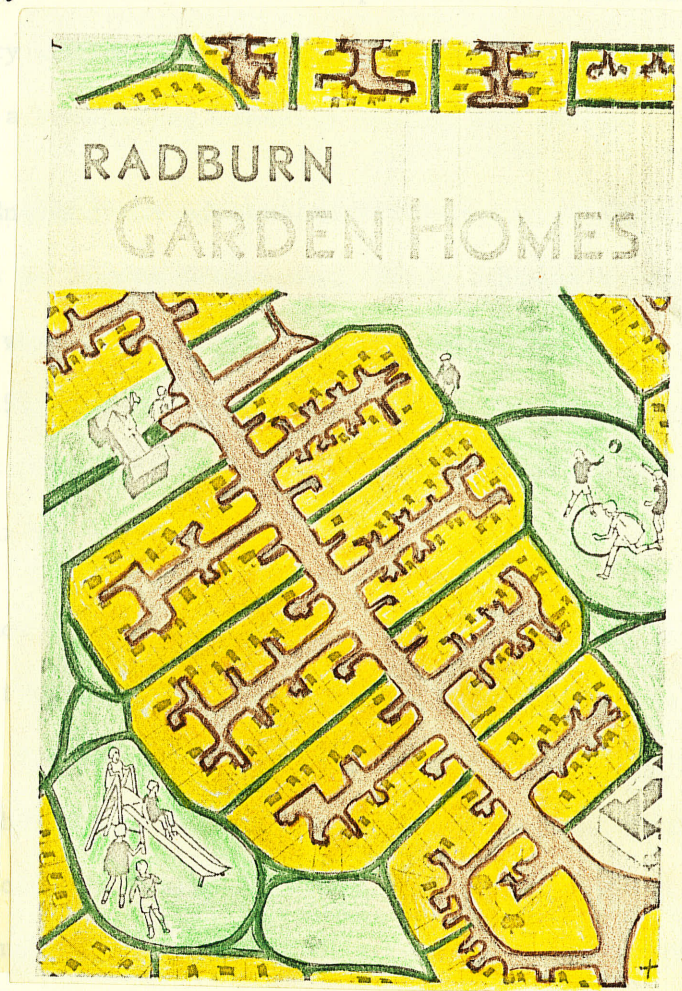


FIGURE 5

COVER OF RADBURN BROCHURE SENT TO RASMUSSEN IN COPENHAGEN IN 1930.  
ILLUSTRATION FROM RITTER, OP. CIT. P. 320

In subsequent years, the Scandinavian countries were to be among the most advanced in the application of pedestrian-vehicle separation, and other elements of the Radburn Concept in the construction of their residential environment. One of the most widely known examples is the

G. A. Ackinson, "Radburn Layouts in Britain: A User Study" *Official Architecture and Planning*, Volume 27, March 1966, P. 380.

town of Vallingby, Sweden. This suburb of Stockholm has a population of 23,000 and was planned by Sven Markelius of the Stockholm Planning Commission. Pedestrian-vehicle separation has been achieved throughout the community and again it should be noted that Clarence Stein was involved in a consulting capacity during the design stage.

In England the advocacy for Radburn planning was to come from such persons as Gordon Stephenson, Percy Johnson Marshall, and Sir Donald Gibson. It was Gordon Stephenson who persuaded Clarence Stein to come to England in 1949 and write the book Toward New Towns for America. For part of this period Stein lived in Raymond Unwin's old house, Wyldes in Hampstead Garden Suburb.

Gordon Stephenson first saw Radburn during its construction in 1929 while studying town planning at the Massachusetts Institute of Technology. Another Englishman who had become familiar with Stein's work was Arthur Ling who used the Roosevelt administration sponsored New Towns including Greenbelt, Maryland, as the subject of his diploma thesis at London University. Lewis Mumford's widely read book Culture of Cities, published in 1938 also brought the Radburn Concept to the attention of British Town Planners and architects.

"J. M. Davis planned the first Radburn layout in Great Britain at Queens Park, Wrexham, in 1950-1952. T. L. Womersley at Northhampton (1952) and later at Sheffield (1953 onwards), and Ling at Coventry (1951-1956) developed the idea further for public authority housing. Radburn schemes in the new towns of Basildon Stevenage, Hemel Hampstead and Cumbernauld followed ... " 11

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<sup>11</sup> G. A. Atkinson, "Radburn Layouts in Britain: A User Study" Official Architecture and Planning, Volume 27, March 1966, P. 380.

In the United States there are a number of recent large scale residential projects which are incorporating pedestrian-vehicle separation in their layouts. Two in particular which have aroused widespread interest are Reston, Virginia and Columbia, Maryland.

The remainder of this thesis will concentrate on the examination of two. Another example designed on the Planned Unit Development Concept and utilizing Radburn features is located on the Irvine Ranch in California and is shown in Figure 6.

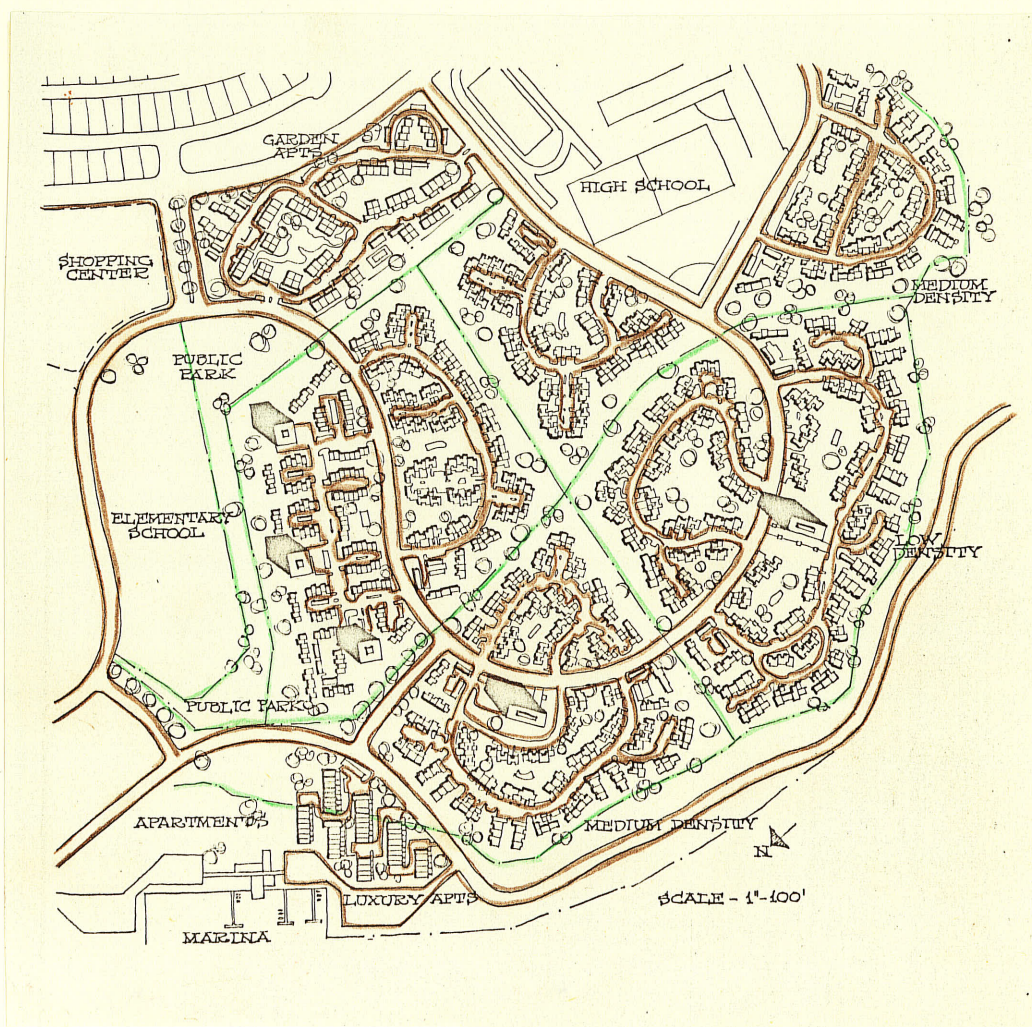


FIGURE 6

LAND PLAN FOR THE BLUFFS, IRVINE RANCH, CALIFORNIA,  
DESIGNED BY RICHARD LEITCH, AS SHOWN IN HOUSE AND HOME,  
FEBRUARY, 1967, P. 85.

These recent examples seem to indicate that the Radburn Concept may have an increasing influence in the designs of many subdivisions during the remainder of this decade and into the nineteen seventies.

The remainder of this thesis will concentrate on the examination of two residential areas in Metropolitan Winnipeg which have incorporated in their layouts certain elements of the Radburn Concept, including pedestrian-vehcile separation.

## CHAPTER IV

### WILDWOOD AND NORWOOD

Metropolitan Winnipeg has two residential areas that incorporate Radburn features in their designs. The larger area, called Wildwood, is located in the Municipality of Fort Garry. The second area is a portion of a neighborhood known as Norwood, and is located in the City of St. Boniface. For the purpose of this study, the areas selected for analysis were only those portions of the two subdivisions which actually are laid out with Radburn features. In the case of Wildwood, the study area was limited to the 75 acres bounded by Collins Street on the west, Oakenwald and North Drive on the north, St. Johns Ravenscourt School to the east and South Drive. Within this area there are 286 single family dwelling units.

The Norwood study area was limited to the area bounded on the north by Highfield Avenue, on the east by Birchdale Avenue and by Lyndale Drive to the south and west. This area contains 157 single family dwellings on 37 acres of land including 5.8 acres used for Nordale School. The locations of the two study areas in relation to each other and the rest of the central metropolitan area is shown in Figure 7.

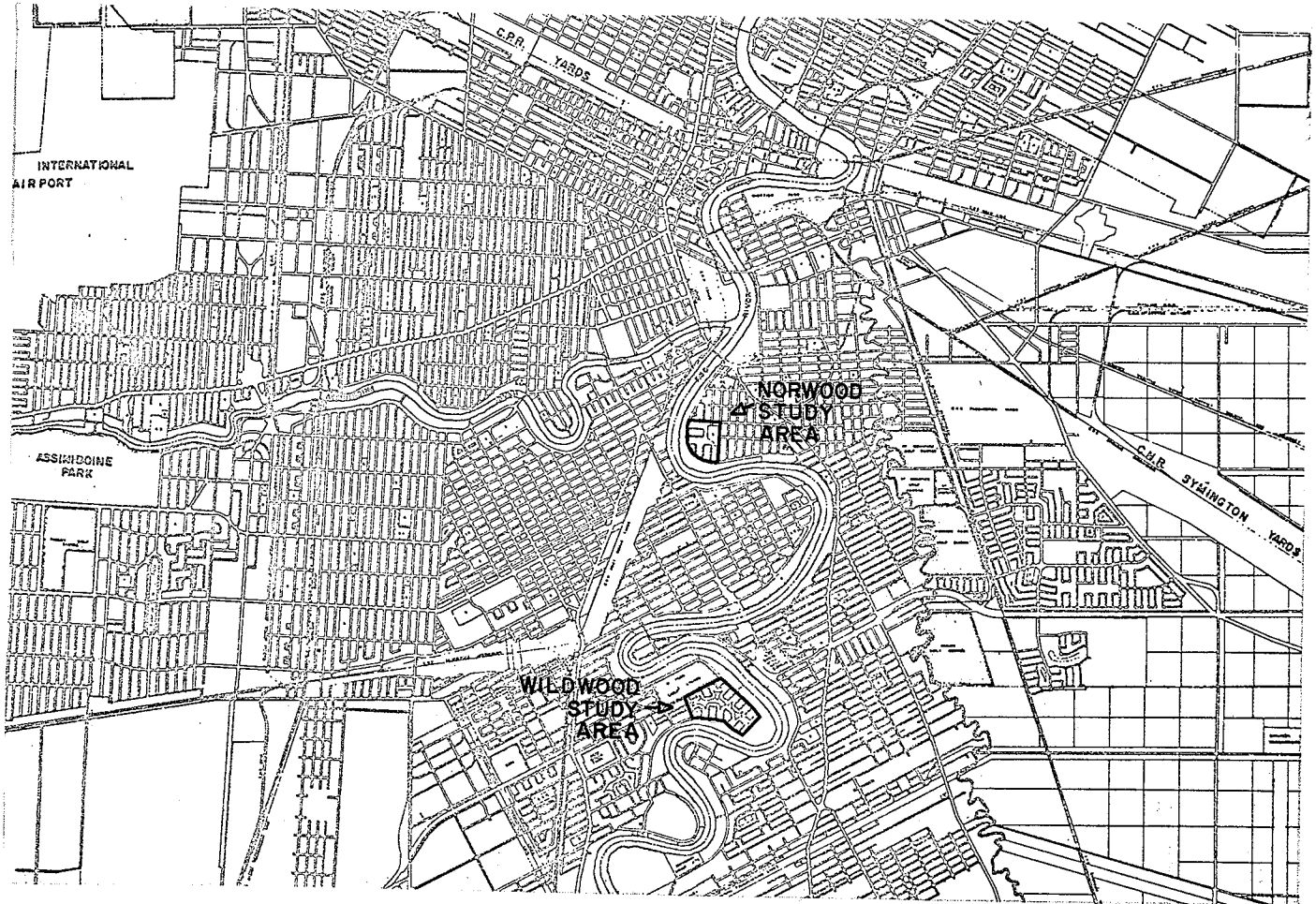


FIGURE 7

## LOCATION OF WILDWOOD AND NORWOOD STUDY AREAS

History of Development, Wildwood

Wildwood is the older of the two study areas, having been developed primarily for returning veterans from the second World War. Construction commenced in the first weeks of April, 1946, and with the exception of a small amount of subsequent infilling, was completed by late 1947.



The site for the subdivision was heavily wooded, and care was taken to preserve the natural tree cover during construction. The developer of Wildwood was the late Mr. H. J. Bird, of Bird Construction Ltd. Mr. Bird's firm had constructed large numbers of defence installations, including most of the British Commonwealth Air Training Fields in Western Canada during the period 1940 to 1945. Many of the prefabrication and mass building techniques developed in wartime were applied for the first time to civilian housing construction in Wildwood. It is interesting to note from a news article appearing in the Minneapolis Tribune describing the construction of Wildwood that in a special demonstration of these techniques at Wildwood, two homes were erected in 58 minutes. Such was the extent of prefabrication.

The general planning and housing design for the Wildwood project was carried out by the architectural firm of Green, Blankstein and Russell.

Shortly before Mr. Bird passed away he was a guest at a meeting of the Manitoba Chapter of the Town Planning Institute of Canada where he recounted the origin of his concept that resulted in Wildwood. He said that the greatest influence was a residential area that he had observed while flying into New York during the war. It is likely that the area Mr. Bird saw from the air was Radburn, New Jersey. But Mr. Bird did not become familiar with the Radburn Concept until after the planning for Wildwood was completed.

At the time of construction, Wildwood was Canada's largest housing project.<sup>12</sup>

There were five basic house plans in Wildwood starting with a four room single storey design and ranging up to a seven room two storey design. Table II shows the numbers and percentage allocations of the various house sizes within the Wildwood study area, which originally had 252 dwelling units.

TABLE II  
NUMBER AND PERCENTAGE OF VARIOUS HOUSE SIZES  
IN THE WILDWOOD STUDY AREA (1946 DATA)

| NUMBER OF ROOMS | BEDROOMS | NUMBER OF DWELLING UNITS | PERCENTAGE OF TOTAL DWELLING UNITS |
|-----------------|----------|--------------------------|------------------------------------|
| 4               | 2        | 38                       | 15%                                |
| 5               | 2        | 50                       | 20%                                |
| 6               | 3        | 133                      | 53%                                |
| 7               | 4        | 31                       | 12%                                |
|                 | Total    | 252                      | 100%                               |

13

<sup>12</sup> Margaret Laidlaw Hood, *Western Business and Industry*, Volume 22, No. 4, April 1948, P. 42.

<sup>13</sup> These figures were compiled from the original plans of Wildwood which were available through the kindness of Green, Blankstein, Russell & Associates.

Note: For a comprehensive account of the development of Wildwood the reader is referred to a personal scrapbook compiled by the late Mr. H. J. Bird. This document was recently donated to the Library of the Metropolitan Corporation of Greater Winnipeg and is available for reference in the library. The scrapbook contains a number of magazine and newspaper articles describing the development of Wildwood.

It should be noted that only 12% of the homes in Wildwood had four bedrooms. The reason for this was to keep housing costs at a minimum, but in subsequent years there have been a large number of additions made to the two and three bedroom dwellings. Since 1961, the earliest year for which data is available, there have been 23 additions to dwelling units. In field surveys of the area, it is apparent that a considerable number of additions and alterations were also undertaken in the 1950's. This might be expected as the majority of the original home owners would reach their maximum space need demands in the period 1950 to 1960. This preference to altering the existing dwelling unit, to accommodate the desire for more living space rather than moving to another location is evidence that the residents of Wildwood are partial to their environment.

#### History of Development, Norwood

The Norwood study area was constructed on the site of the Norwood Golf Course in the early 1950's. The original plan for Norwood was a simple extension of the grid pattern already existing in the older parts of the area.

The proposed resubdivision which was actually constructed provides a good example of the economics that may be derived from better design. Figure 8 shows the original subdivision and the proposed resubdivision as illustrated in the "Annual Report 1948" of the Metropolitan Plan - Greater Winnipeg. In the original subdivision on the land included in the study area, there are 179 lots. In the subsequent proposed subdivision plan there are 163 lots and space for a 5.8 acre school site.

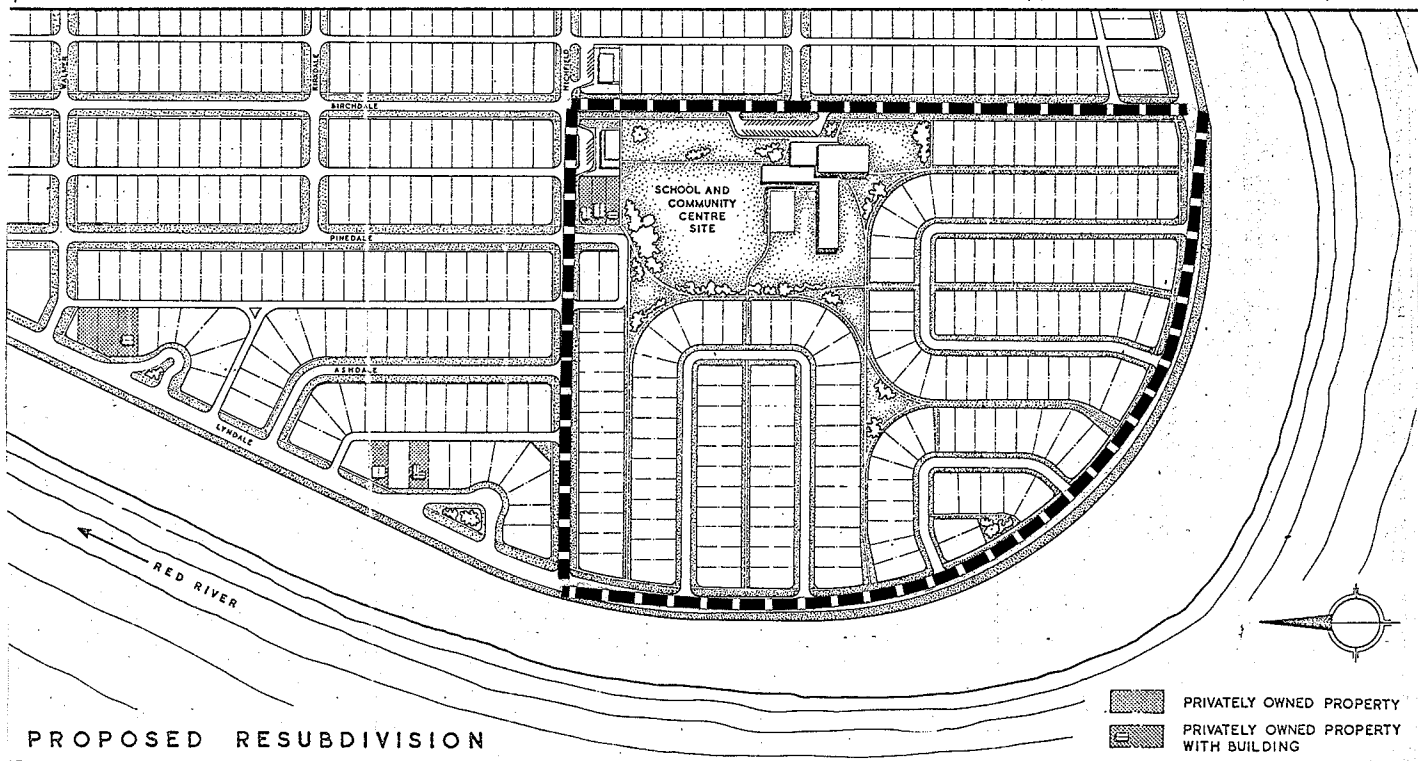
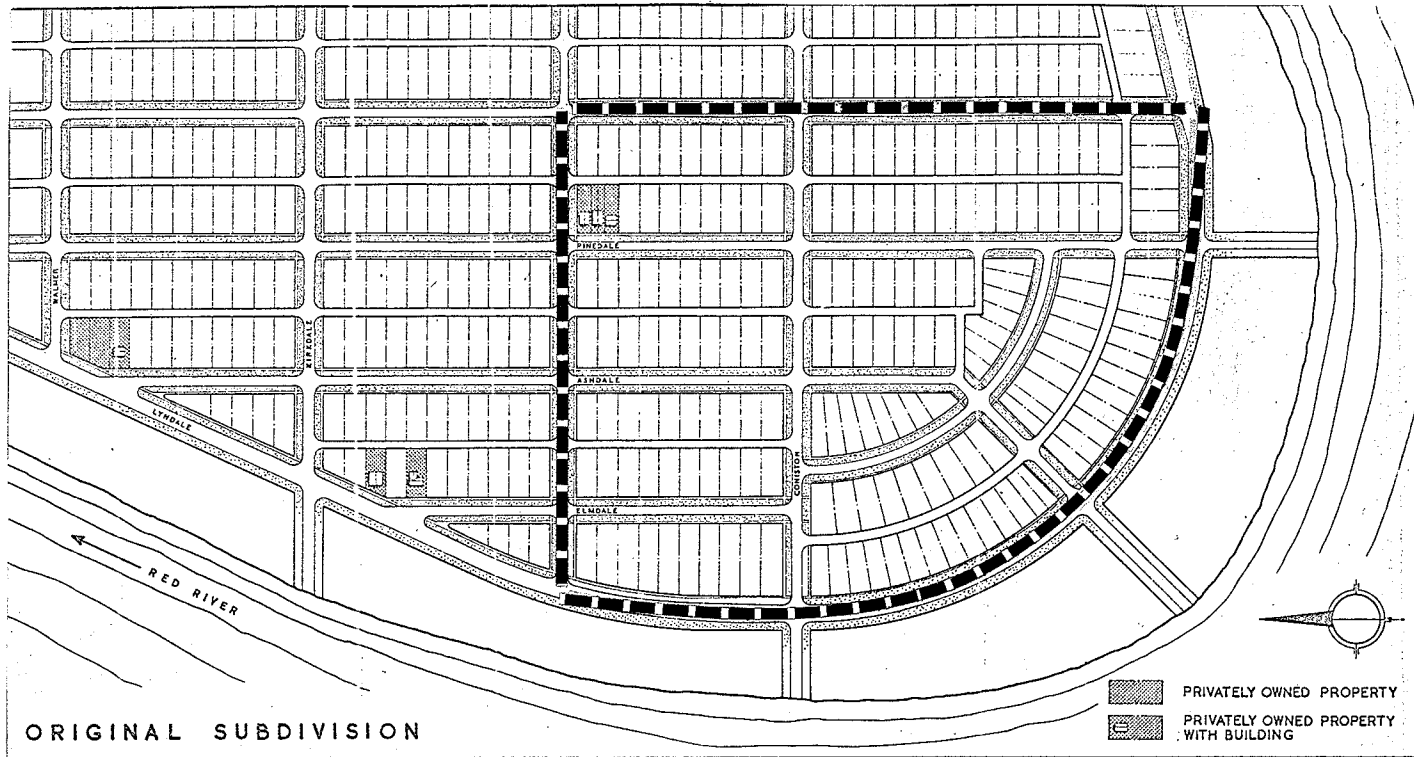


FIGURE 8

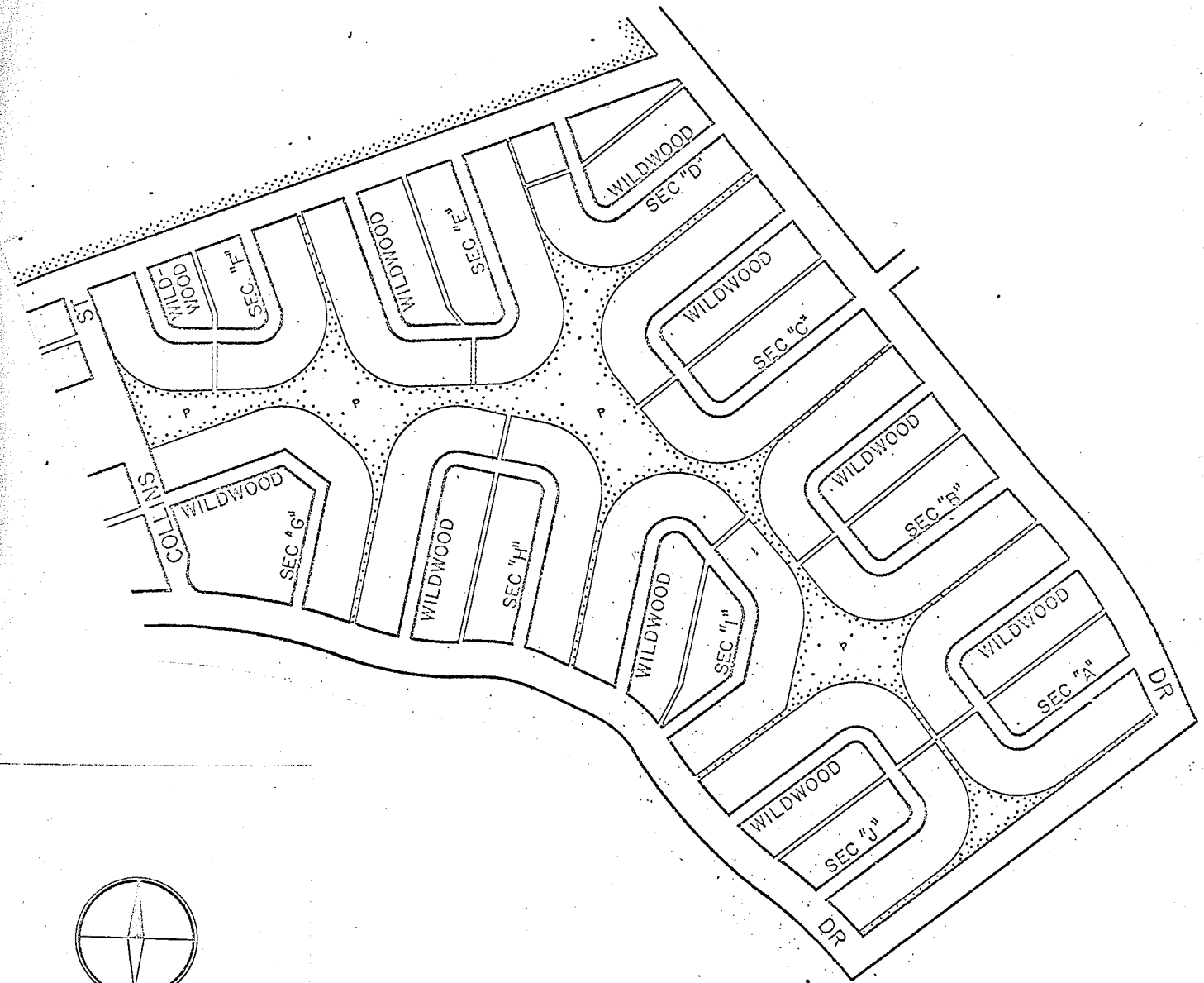
ORIGINAL AND PROPOSED RESUBDIVISION PLANS OF NORWOOD STUDY AREA. THE LAYOUT AS IT WAS SUBSEQUENTLY BUILT FOLLOWS VERY CLOSELY THE PROPOSED RESUBDIVISION PLAN WITH THE EXCEPTION OF SEVERAL FEATURES MENTIONED ON PAGE 29 OF THE TEXT. PLANS TAKEN FROM THE "ANNUAL REPORT 1948" OF THE METROPOLITAN PLAN - GREATER WINNIPEG. P. 24.

If the school ground area is subtracted from the original subdivision within the study area, there would have been 137 lots available which is 26 fewer than in the resubdivision. An approximate calculation of street length, disregarding the lanes, shows that within the study area the original subdivision included about 9,400 lineal feet of street, whereas the proposed resubdivision which was actually constructed had 8,160 lineal feet. This represented a saving in street length of about 13%.

It should be noted that the resubdivision as shown in the bottom half of Figure 8 is somewhat different from the study area as it was actually constructed and is shown in Figure 10 page 31. For example, the proposed retail facility on the southwest corner of Pinedale and Birchdale was never constructed owing to local opposition against the establishment of any form of commercial activity. Another change was the location of the school, from the centre of the school ground to the northeast corner of the site. Also, the proposed community centre facility was located three blocks north rather than adjacent to the school as shown on Figure 8.

#### Wildwood, Norwood and Radburn Compared

To assist in a physical comparison of these residential areas, three plans have been prepared at the scale of 400 feet to the inch. These plans of Wildwood, Norwood and Radburn are located on pages 30, 31 and 32 respectively.

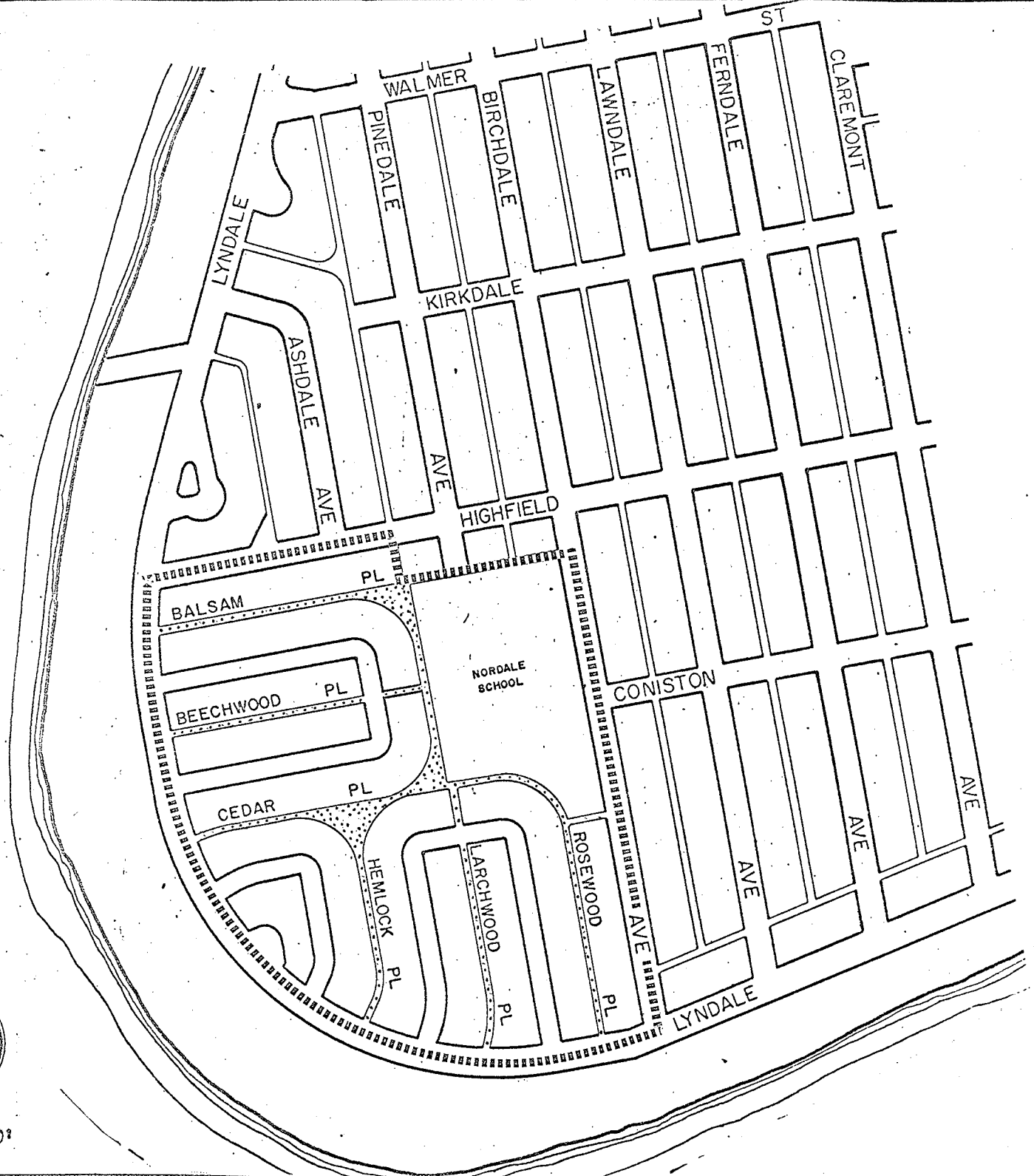


1" = 400'

|                          |             |
|--------------------------|-------------|
| Gross Area               | 74.67 acres |
| Interior Park Area       | 8.78 acres  |
| Public Right-Of-Way      | 16.79 acres |
| Net Acreage              | 49.10 acres |
| Number of Dwelling Units | 286 D.U.'s  |

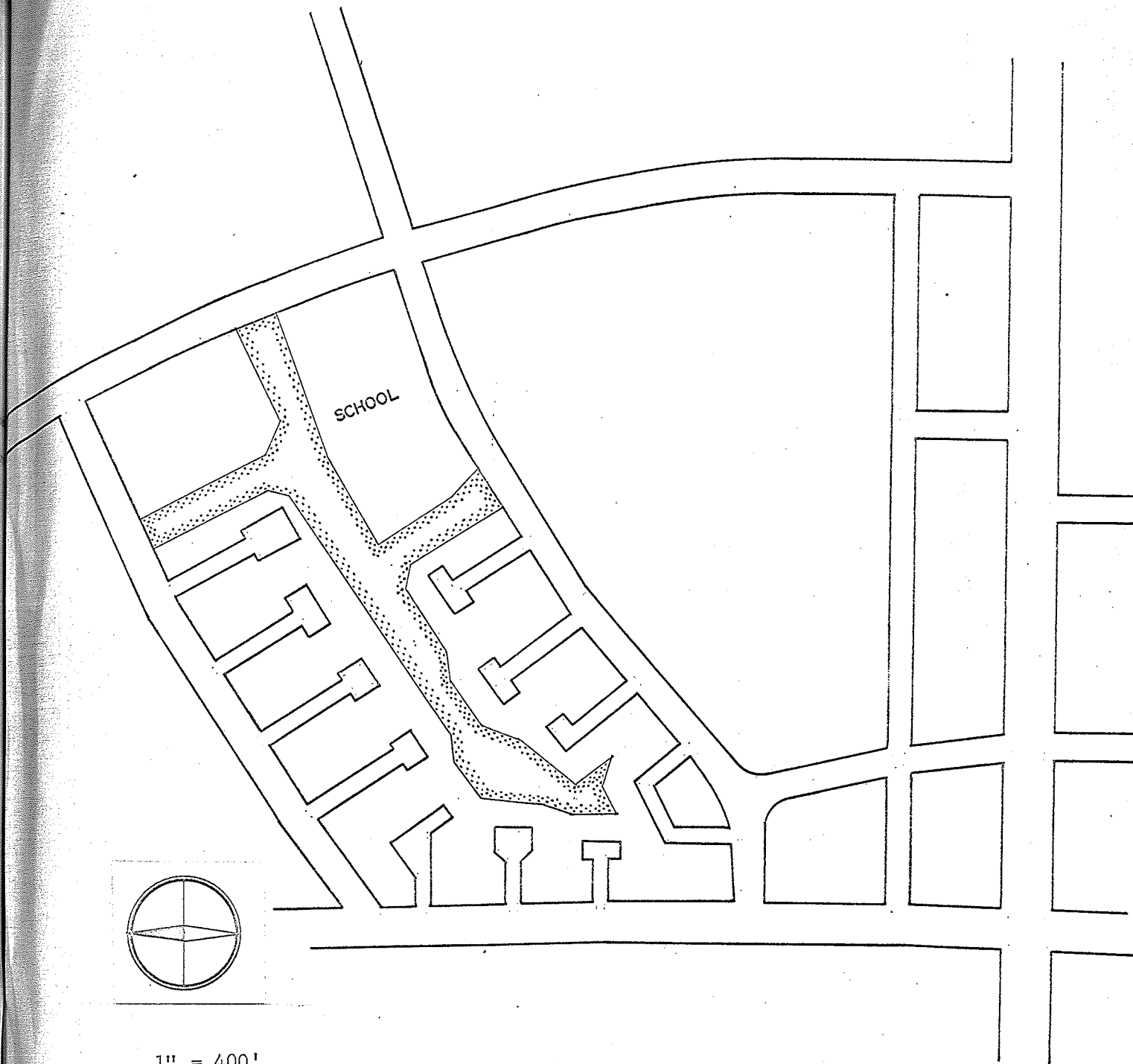
FIGURE 9

# PORTION OF NORWOOD — ST. BONIFACE



|                          |             |
|--------------------------|-------------|
| Gross Area               | 36.52 acres |
| Interior Park Area       | 2.83 acres  |
| Public Right-Of-Way      | 8.45 acres  |
| School Grounds           | 5.88 acres  |
| Net Acreage              | 19.36 acres |
| Number of Dwelling Units | 157 D.U.'s  |

FIGURE 10



|                          |             |
|--------------------------|-------------|
| Gross Area               | 45.54 acres |
| Interior Park Area       | 6.39 acres  |
| Public Right-Of-Way      | 10.54 acres |
| School Ground            | 5.51 acres  |
| Net Acreage              | 23.10 acres |
| Number of Dwelling Units | 235 D.U.'s  |

FIGURE 11



Tables III and IV on page 34 provide a direct comparison of the allocation of space for various functions within the three areas. The study areas in Wildwood and Norwood have been restricted to a single superblock, as this is really the extent of Radburn type planning in these two areas. To achieve comparability, the area analysis of Radburn has also been limited to one superblock.

To what extent do Wildwood and Norwood satisfy the five elements of the Radburn Concept? The following comparisons and observations are based upon an area analysis of space use as well as personal observations made by the author. During the research stage of the thesis, Wildwood and Norwood were visited frequently at various times during the day and throughout the year. The author has also spent several hours examining Radburn, New Jersey in October of 1963.

The first element of the Radburn Concept is the superblock, which is utilized in both Wildwood and Norwood. Wildwood has the largest superblock with an area of 74.7 acres, followed by Radburn with 45.5 acres. Norwood is the smallest with an area of 36.5 acres.

All three examples have a hierarchy of streets. In the case of Wildwood, the local access streets have 33 foot rights-of-way and the circumferential road has an 80 foot right-of-way. In Norwood the local access roads have 50 foot rights-of-way and Lyndale Drive has an 80 foot right-of-way. At Radburn the cul-de-sacs have a width of 30 feet, while the circumferential road is about 50 feet wide.

TABLE III  
COMPARISONS OF LAND USE ALLOCATIONS IN RADBURN,  
WILDWOOD AND NORWOOD SUPERBLOCKS

| USE                                   | RADBURN     |       | WILDWOOD       |       | NORWOOD     |       |
|---------------------------------------|-------------|-------|----------------|-------|-------------|-------|
| Gross Area                            | 45.45 acres |       | 74.67 acres    |       | 36.52 acres |       |
| School Site                           | 5.51 acres  | 12%   | Not Applicable |       | 5.88 acres  | 16%   |
| Public Right-of-Way (Vehicle Roads) * | 10.54 acres | 26.5% | 16.79 acres    | 22.5% | 8.45 acres  | 27.5% |
| Net Area (for housing)*               | 23.10 acres | 57.5% | 49.10 acres    | 66.0% | 19.36 acres | 63.0% |
| Interior Park Area                    | 6.39 acres  | 16%   | 8.78 acres     | 11.5% | 2.83 acres  | 9.5%  |

TABLE IV  
COMPARISONS OF LAND USE AREAS PER DWELLING UNIT IN  
RADBURN, WILDWOOD AND NORWOOD

|                                    | RADBURN     | WILDWOOD    | NORWOOD     |
|------------------------------------|-------------|-------------|-------------|
| Total Dwelling Units               | 235         | 286         | 157         |
| Dwelling Units Per Gross Acre *    | 5.9         | 3.8         | 5.1         |
| Dwelling Units Per Net Acre        | 10.2        | 5.8         | 8.1         |
| Average Lot Area Per Dwelling Unit | 4250 sq.ft. | 7500 sq.ft. | 5350 sq.ft. |

\* Indicates school site areas for Norwood and Radburn have been deleted to allow direct comparison with Wildwood which does not incorporate a school site in its superblock.

In Radburn, 26.5% of the gross area, excluding the school site, is taken up by streets. In Wildwood, this figure represents 22.5% of the gross area and in Norwood, excluding the school site, 27.5% of the gross area is used for streets. The larger percentages of road area in Norwood in comparison to Wildwood may be attributed to the smaller amount of interior green space and wider vehicle rights of way in Norwood. (see Figure 22, Page 49) In Radburn it is probably a reflection of the use of cul-de-sacs and their associated maneuvering space requirements, as well as the considerably higher overall density.

Interior open space in Radburn amounts to about 16% of the gross area excluding the school grounds. The equivalent figures for Wildwood and Norwood are 11.5% and 9.5% respectively. In Norwood there is very little open space if the school yard is excluded in comparison to Wildwood and Radburn. In fact, interior green space is limited to the areas of the pedestrian paths and three small triangular areas formed at the path junctions. Even though these areas are small in size, they are quite successful spaces. One has a sense of pedestrian scale and the building set back lines bordering these spaces are curved rather than straight. The area also shows sensitive landscaping. The most pleasant space occurs at the junction of Cedar Place and Hemlock Place illustrated in Figure 12.



FIGURE 12

NORWOOD - JUNCTION OF PATHS AT  
CEDAR PLACE AND HEMLOCK PLACE  
PHOTO BY THE AUTHOR

This space might be further enhanced by the addition of a small play area for pre-school children.

A common observation of people living in Wildwood and Norwood is that small children persist in frequenting the vehicle access lanes for much of their play. This cannot be prevented completely as children are naturally attracted to activity, particularly of the variety generated by delivery vehicles and garbage trucks. The lanes also offer hard surfaced areas for wheeled toys. On the other hand a thoughtfully designed play facility containing a hard surfaced pad for wheeled toys might influence children to seek play on the pedestrian side of the dwelling units. Such an area might include some mounding for the dual purpose of buffering noise as well as adding some relief to the generally accordant terrain of Norwood and Wildwood. In the last few years, there have been major

innovations in play equipment for children. These are simple to construct, virtually maintenance free, and most important of all, encourage the expression of imagination in play activity which the traditional swing, teeter-totter and sand box approach do not necessarily provide.

In Wildwood, the interior park space extends for about one half mile through the centre of the superblock. The interior area is articulated in a series of open and closed spaces that have the effect of drawing one on through the block. Each space is different because of the varying shapes of the bays. From the interior park there are eighteen secondary paths that extend to the homes located toward the periphery of the block. As in Norwood, most of the edges of the park are on a curve rather than a straight line. The curving prospects of the building facades and the serial articulation of closed and open spaces could never be achieved if the needs of motor traffic were to be provided for in the same space. Wildwood is an excellent example of the possibilities inherent in a design layout orientated toward the human being as well as the motor vehicle.

In Radburn, the interior space is more open and regular than in Wildwood. The areas bordering the dwelling units are heavily treed, but the centre has been left comparatively open in comparison with Wildwood. Figures 13 and 14 show the character of the interior green areas in Radburn and Wildwood respectively.

This openness at Radburn assists in providing the pedestrian with a sense of orientation. For example, the school is visible from almost

anywhere in the interior park area. In Wildwood it is difficult to retain your sense of orientation while walking through the park, but the value of orientation in a wooded pedestrian area such as this is debatable.



FIGURE 13

RADBURN, INTERIOR PARK SPACE,  
NOTE OPEN VISTA TOWARDS  
SCHOOL PARTIALLY VISIBLE  
THROUGH TREES. PHOTO BY  
AUTHOR.



FIGURE 14

WILDWOOD, INTERIOR PARK SPACE  
NOTE EXTENSIVE TREE COVER  
PHOTO COURTESY M.R. FORBES

At Radburn, Stein and Wright were favored with a site that already possessed relief, but pains were taken to further enhance the site by mounding excavated soil. Figure 15 shows a man-made depression containing a path bordering the interior park. This depression reinforces the visual separation between the private lawn and the public green area to the left of the photograph. In Wildwood and Norwood, there is a distinct lack of demarcation between the public and private space in the interior areas.



FIGURE 15

RADBURN - ILLUSTRATION OF SENSITIVE LANDSCAPING  
 THE PROVISION OF SLIGHT RELIEF ACCENTS  
 SEPARATION OF PUBLIC AND PRIVATE DOMAIN  
 ALONG PATH. ALSO NOTE SCALE OF STREET  
 LIGHT. PHOTO BY AUTHOR.

In comparing pedestrian-vehicle separation, we come to one of the fundamental differences between Radburn and the two examples in Winnipeg.

In Radburn complete pedestrian-vehicle separation has been achieved through the use of cul-de-sacs for vehicular access to homes within the superblock. In Wildwood and Norwood complete separation has not been achieved because of the use of bays for vehicular access to the dwellings. When using bays there is a point of intersection at the inner end of each bay between the pedestrian path leading through the centre of the bay to the park, and the road, as illustrated in Figures 18 and 19 on page 42.

It is interesting to note that cul-de-sacs were included in the original design for Wildwood but loop streets were finally adopted throughout on "the recommendation of the Metropolitan Plan in 1945"<sup>14</sup>

Figure 16 which is taken from a newspaper article contained in the Bird Scrapbook, shows the preliminary subdivision proposal for Wildwood in 1945.

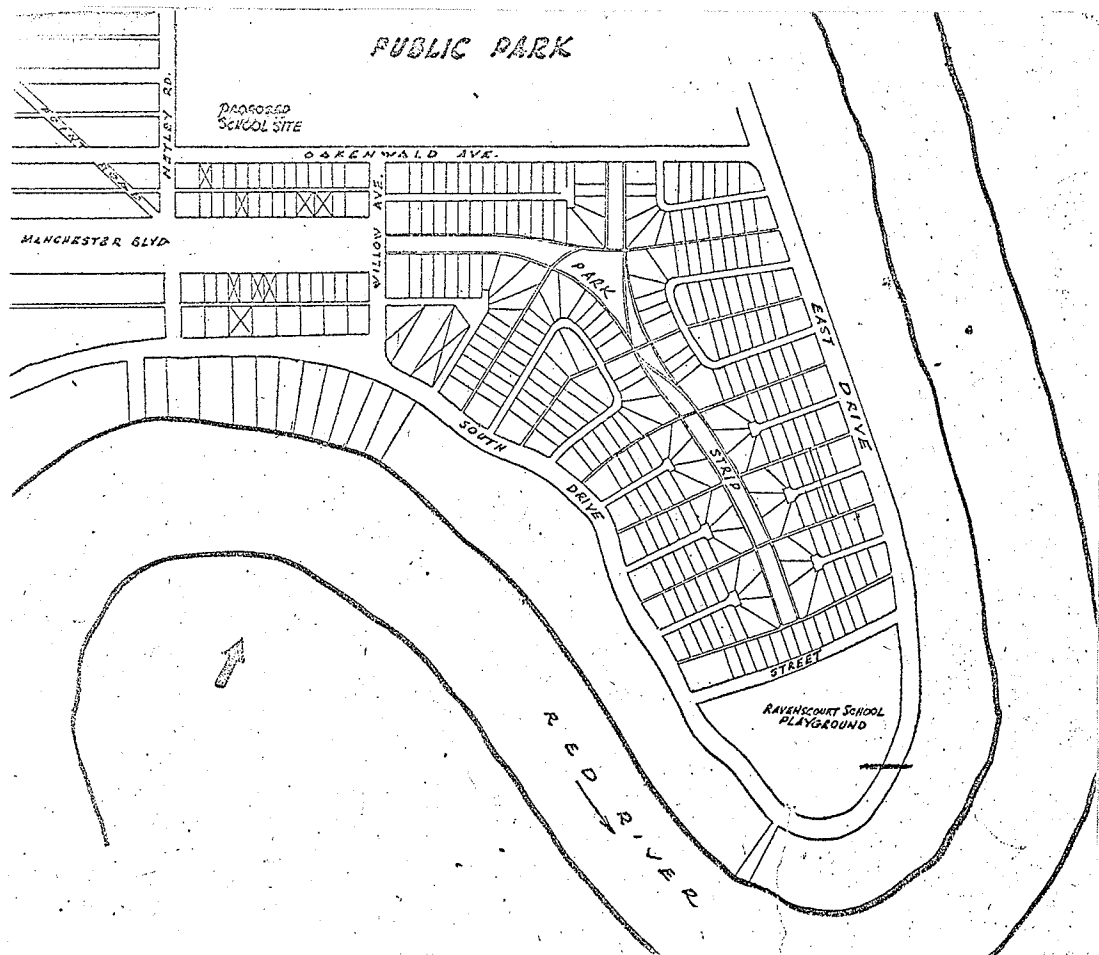


FIGURE 16

A PRELIMINARY SUBDIVISION PROPOSAL FOR WILDWOOD  
WHICH INCORPORATES SIX CUL-DE-SACS AND A  
SMALLER AMOUNT OF PARK SPACE.

<sup>14</sup> Annual Report 1949 Metropolitan Planning Commission, Winnipeg Town Planning Commission. P. 23.



The final choice in favour of loop streets instead of cul-de-sacs was probably influenced to a considerable extent by snow clearing requirements. It has often been stated that in regions of heavy snow fall, clearing is hampered by the use of cul-de-sacs, which require extensive maneuvering of heavy equipment. With the bay or loop system a continuous run for a plow or grader blade is possible. While this argument in favour of loops may have been relevant in the past, there are indications that new developments in snow removal techniques may remove this disadvantage of the cul-de-sac. For example the availability of "Payloader" type equipment makes it feasible to consider snow removal rather than just plowing. Also the development of effective snow melting machines could significantly reduce the advantage of bays or loops over cul-de-sacs with respect to snow clearing problems.

It is true that traffic volume at the upper end of bays or loops is very light and consequently the danger of conflict between pedestrian and vehicle is minimal. But the problem with this intersection of path and road is not so much the crossing of the two systems as the opportunity it affords children to utilize the back lane for the remainder of their walk home from school. Prior to the road crossing, the child is channeled along a narrow path between two buildings and then suddenly the space opens up at the road crossing. The much wider hard surfaced road will present a much more inviting route for the remainder of the trip home than the pedestrian path between the fronts of the houses. Another factor that may influence the choice of the back lane is the mother's

insistence that the child use the back entrance of the house. With a cul-de-sac system this choice of route is not provided and the child is channeled to his house without crossing vehicle routes.



FIGURE 17

RADBURN - EXAMPLE OF PEDESTRIAN UNDERPASS CONNECTING TWO SUPERBLOCKS.  
PHOTO BY AUTHOR.



FIGURE 18

WILDWOOD - INTERSECTION OF PEDESTRIAN PATH AND ROAD AT UPPER END OF BAY.  
PHOTO BY AUTHOR.

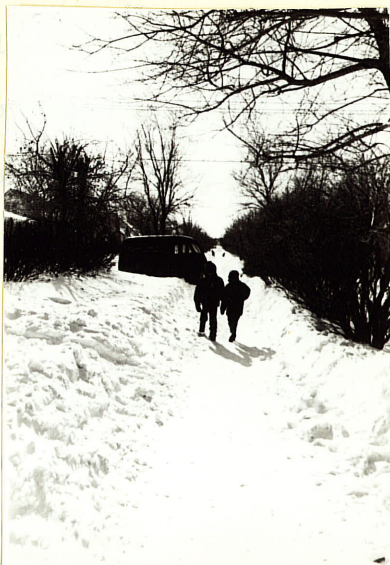


FIGURE 19

NORWOOD - CHILDREN RETURNING FROM SCHOOL AND APPROACHING PEDESTRIAN-VEHICLE INTERSECTION.  
PHOTO BY AUTHOR.

The foregoing observations are based upon a number of field trips to Wildwood and Norwood at school closing times. It may be said that if the child finds the vehicular route more inviting why should the designer try to inhibit this opportunity for exploration? The reply is that while children will inevitably play in the roads on occasion, the possibility of accidents between children and vehicles is related in the long term to exposure and the designer should attempt to reduce this hazard as much as possible.

In Norwood it is possible for all of the children to reach the school by using the path system. In Wildwood the school facility is located one block west of the study area. Children must cross Collins Street and Point Road on their trip to school. Collins Street appears to be unnecessary from the point of view of traffic circulation. It would seem sensible if at least the park strip in the centre of Manchester were to be directly connected to the interior park within the Wildwood superblock. This would be accomplished by closing the section of Collins Street between the two pavements comprising Manchester Street. It is understood that this has already been suggested by residents in the area.

It was mentioned earlier in this chapter that Norwood has the least amount of interior park space. This factor may relate to the perspective with which the residents of each of the three areas view their immediate neighborhoods. In both Wildwood and Radburn, there is a very strong sense of neighborhood identity within the superblocks which is reflected in the joint interest that each member has in the interior

park area. Each home is directly connected by a pedestrian path to the common area. This sense of attachment is reflected in the formal organizations that have existed within Radburn and Wildwood since their construction.

In Norwood this sense of neighborhood identity is not confined to the Radburn type superblock, but extends to adjacent areas laid out on the conventional grid pattern. The school ground which represents the major open space in Norwood is utilized by the entire neighborhood. Another factor which might influence this broader sense of neighborhood in the Norwood study area is the community recreation facility two blocks to the north.

In Wildwood there is a sub-neighborhood or grouping of dwelling units in the form of sections. The identity of each section is recognized in a social sense in that each section has a representative on the local community organization.

The final element of the Radburn Concept is reversed frontages. This is an aspect of the Radburn Concept that is often criticized. The most common observation is that the major entrance is the back door, and that no matter how much effort is devoted to cleaning up, there is always some degree of clutter at the rear of a home. In Radburn it has been stated that some of the dwellings do not have a front entrance, in that both sides of the home are used for backyard activities. An example of this may be seen in Figure 20 which shows laundry hung out to

dry on the pedestrian side of a house in Radburn.

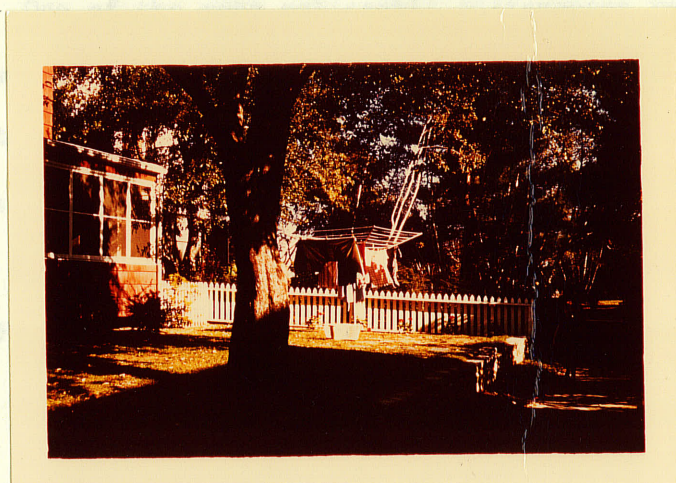


FIGURE 20

RADBURN - WASHINGTON AT FRONT OF HOUSE FACING  
PEDESTRIAN PATH, AN EXAMPLE OF CONFUSED  
FUNCTION.

PHOTO BY AUTHOR

In Norwood and Wildwood the house designs are conventional in that they face the pathway as if it were a road and backyard activities are restricted to the vehicle access side, which is the predominant visitor approach.

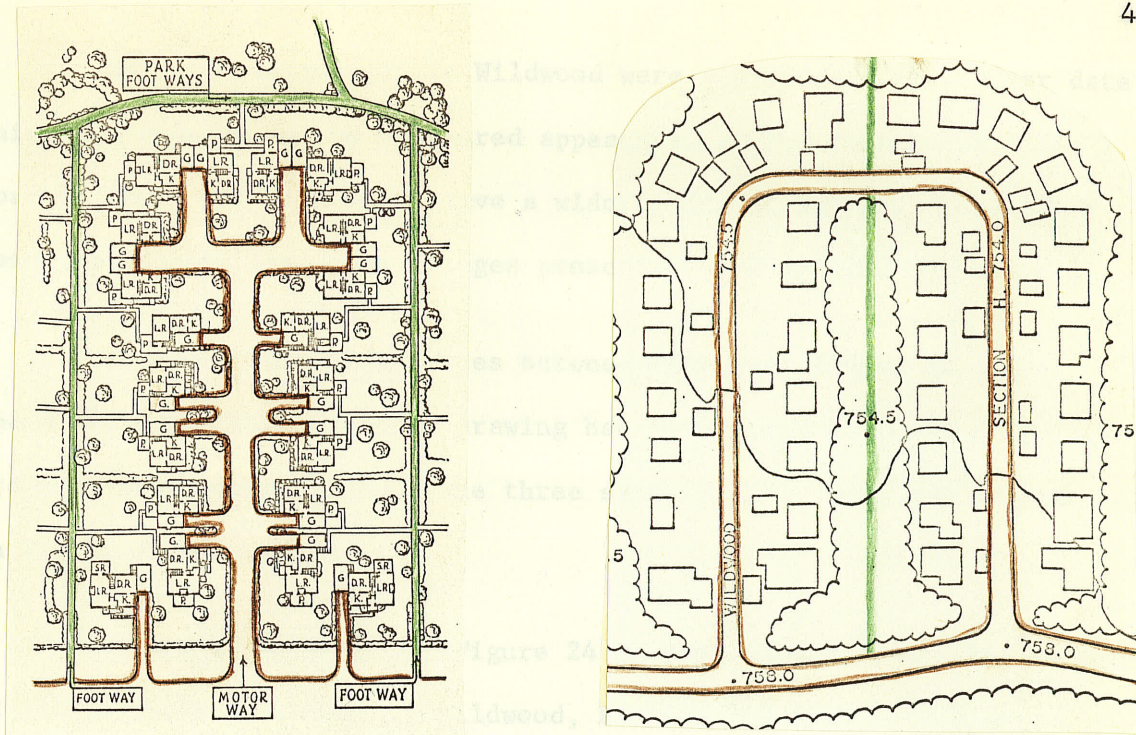
Perhaps in future developments designed on the Radburn Concept thought could be given to a side entrance that would be approached from both the park and the lane. This criticism of Wildwood, Norwood and Radburn results from the fact that the house designs are too conventional. Dwelling design and in particular, the entrance ways suitable for conventional subdivision are not applicable to a Radburn layout.

Figure 21 shows the placement of dwelling units in each of the three areas. One of the most noticeable differences relates to setback. In both Wildwood and Norwood setbacks from the pedestrian walkways are 50 feet and 40 feet respectively. These setbacks are uniform throughout the two areas. In Radburn setbacks have been varied to provide a sense of enclosure along the pedestrian paths leading to the park area. For example, in Figure 21A the first and last dwellings adjacent to the paths have shorter setbacks than those in between.

It was noted previously that the curving frontages adjacent to the inner park areas of Wildwood and Norwood provide pleasant prospects of the facades. As may be seen in Figure 21 this only occurs on the exterior sides of the bays at the park end of each bay. The views down the rows of dwelling units from the circumferential roads reveal straight rows of houses with no variation. (see Appendix B Figure 35, Page 92)

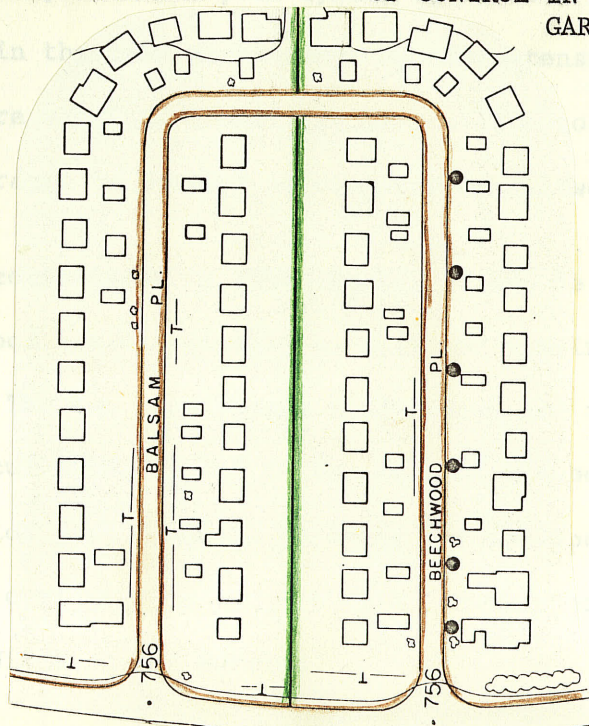
In terms of aesthetic appearance the areas tend to look like conventional streets without pavements. If the first houses along each path had been moved inside the setback line towards each other as they are in Radburn, these entrances to the path areas of Wildwood and Norwood might give a greater sense of pedestrian scale.

The placement of garages shows up in Figure 21. In all three areas there is a deficiency of vehicle space both for maneuvering and parking. The areas were constructed before the advent of the two car family. In Radburn the garages are attached but in Norwood and Wildwood they are, for the most part detached structures.



A. RADBURN - NOTE VARIATION IN HOUSE SETBACKS ALONG FOOTWAY TO CREATE GROUPINGS

B. WILDWOOD - NOTE REGULAR SETBACK LINE OF HOUSE FRONTS, BUT LACK OF CONTROL IN THE PLACEMENT OF GARAGES



C. NORWOOD - NOTE REGULAR SETBACKS OF HOUSE FRONTS AND GARAGES

FIGURE 21

A COMPARISON OF TYPICAL DWELLING UNIT GROUPINGS IN RADBURN, WILDWOOD AND NORWOOD SHOWING SETBACKS AND GARAGE PLACEMENT.

Many of the garages in Wildwood were constructed at a later date which contributes to the cluttered appearance of the loop roads. In Norwood where the loop roads have a wider right-of-way and there is an observed setback line, the garages present a more ordered appearance.

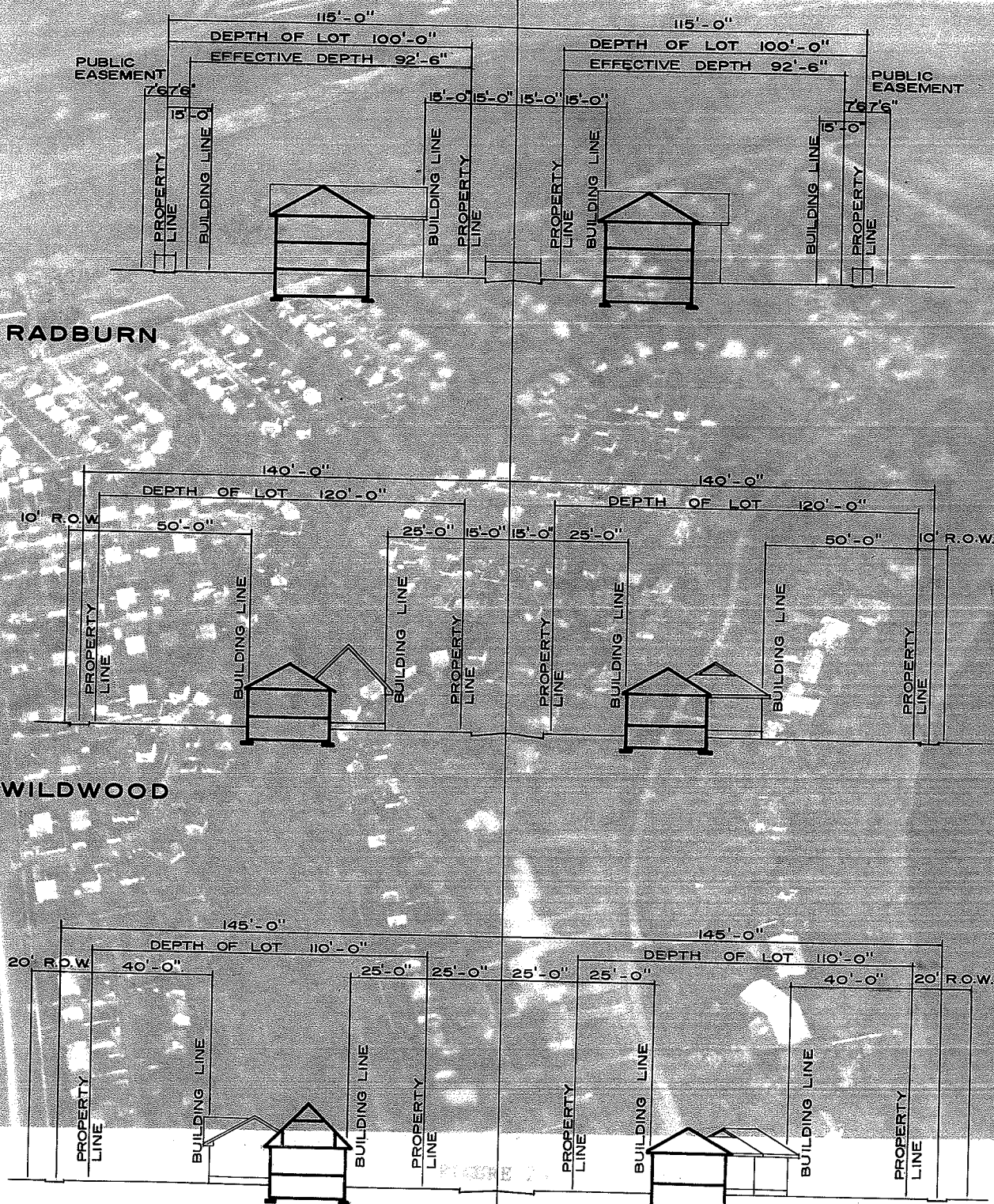
To illustrate differences between setbacks, widths of access roads and pedestrian paths, a drawing has been prepared showing typical traverse sections of each of the three study areas. This may be seen in Figure 22 on page 49.

Figure 23 on page 50, Figure 24 on page 51 and Figure 24A on page 52 are aerial photographs of Wildwood, Norwood and Radburn respectively. The two photographs of Wildwood and Norwood illustrate their proximity to the Red River. The pedestrian path system is visible in Norwood but is partially hidden in the view of Wildwood by the extensive tree cover. If the photographs are examined closely it is possible to see the more ordered arrangement of garages in Norwood as compared to Wildwood.

From the comparisons in this chapter it may be seen that the Wildwood and Norwood areas basically satisfy the requirements of the Radburn Concept. The two significant differences are the use of bays or loops instead of cul-de-sacs, and in the case of Norwood, the lack of a significant interior park space as backbone for the superblock. The following chapter contains the results of a questionnaire filled out by the residents of Wildwood and Norwood.



Φ OF LANE



AIR PHOTOGRAPH OF WILDWOOD PARK, OCTOBER 1966 LOOKING EAST.  
 EXTENSIVE TREE COVER AND THE TERRAZZIAN PATTERNS ARE  
 VISIBLE THROUGH THE CENTER OF THE SUPERBLOCK. SCALE: ONE INCH EQUALS 50 FEET

**FIGURE 22** TYPICAL TRAVERSE SECTION OF RADBURN, WILDWOOD, AND NORWOOD.  
 THE PROPOSED SYSTEM OF COLLINEAR STREETS TO EXTEND  
 THE PEDESTRIAN PATH SYSTEM IS INDICATED IN RED

PHOTO BY G. SUCHAROV



FIGURE 23

AIR PHOTOGRAPH OF WILDWOOD PARK, OCTOBER 1966 LOOKING EAST.  
NOTE EXTENSIVE TREE COVER AND THE PEDESTRIAN PATHS BARELY  
VISIBLE THROUGH THE CENTRE OF THE SUPERBLOCK. THE  
PROPOSED CLOSING OF COLLINS STREET TO EXTEND  
THE PEDESTRIAN PATH SYSTEM IS INDICATED IN RED.  
PHOTO BY B. SUCHAROV



FIGURE 24

AIR PHOTOGRAPH OF NORWOOD STUDY AREA, OCTOBER 1966, LOOKING EAST.  
NOTE ORDERED APPEARANCE OF LANES RESULTING FROM STANDARD  
SETBACKS OF GARAGES. ALSO SMALLER AMOUNT OF INTERIOR GREEN SPACE.  
PHOTO BY B. SUCHAROV



FIGURE 24A

AIR PHOROGRAPH OF RADBURN, 1955, LOOKING NORTHEAST.  
NOTE INTERIOR PARK SYSTEM LEADING TOWARDS THE LOCAL  
SHOPPING CENTRE IN LOWER RIGHT HAND CORNER. RED  
ARROW INDICATES PEDESTRIAN UNDERPASS CONNECTING TWO  
SUPERBLOCKS. PHOTO BY LITTON INDUSTRIES - AERO SERVICE DIVISION.

## CHAPTER V

### ENVIRONMENTAL SURVEY - WILDWOOD AND NORWOOD

In an attempt to determine the reactions of the people who actually live in Wildwood and Norwood, to their unique surroundings, a questionnaire survey was carried out in October of 1966. The survey was extended to two areas adjacent to the Wildwood and Norwood superblocks in January of 1967 to obtain data on areas of conventional type subdivision.

The object of the questionnaire study was twofold. The first consideration was to determine the reactions of the people living in the Radburn type areas to such features as reversed frontages, separation of pedestrian and vehicle routes, and to see if the residents felt their children were safer living in this type of area.

Respondents to the questionnaire were encouraged to write down any changes they would like to make if they had the opportunity to redesign their areas. While the responses to this particular question were very diverse, and did therefore not lend themselves to statistical presentation, the most frequent and thoughtful replies are presented in this chapter.

The second purpose of the questionnaire was to gather information which was not unique to the Wildwood and Norwood study areas. This data could then be compared with data compiled from the questionnaire surveys of the control areas which are laid out on conventional patterns of subdivision. Samples of the questionnaires sent to the Norwood and Wildwood

study areas and their respective control areas are included in the appendices.

The procedure followed in each survey area was to mail a questionnaire to every dwelling unit within the study area. The recipient was asked to fill out the questionnaire and told that someone would call at his home during the next several days to collect it. If the resident was not home at the time of the first pick up, a call back was made during the next several days. This procedure resulted in the following percentage return in each of the areas under study.

TABLE V  
PERCENTAGE RETURN ON RESIDENTIAL QUESTIONNAIRE  
IN THE FOUR STUDY AREAS

| STUDY AREA            | NUMBER OF DWELLINGS<br>AND QUESTIONNAIRES MAILED | NUMBER<br>RECOVERED | PERCENTAGE<br>RETURN |
|-----------------------|--|---------------------|----------------------|
| Wildwood              | 286  | 173                 | 61%                  |
| Norwood               | 157  | 98                  | 63%                  |
| Wildwood Control Area | 52   | 37                  | 71%                  |
| Norwood Control Area  | 46   | 29                  | 63%                  |

The questionnaires were recovered during working hours with the exception of the Wildwood Control Area where they were collected in the evening. This may account for the 10% increase in recovery from this area.

The areas of conventional subdivision that were selected as control areas were located adjacent to the two principal study areas. This was to facilitate direct comparisons with the two Radburn type areas. The dwelling units of both control areas were constructed at the same time and are of the same type and quality of construction as their respective principal study areas. They also share the same school, recreation and commercial facilities. The control area selected for Wildwood extended along both sides of Manchester immediately west of Collins Street as well as that section of Oakenwald Street between Collins Street and Point Road. The Norwood control area incorporates both sides of Pinedale Avenue between Highfield Street and Walmer Street. The extent and location of the two control areas are outlined in Figure 24B.

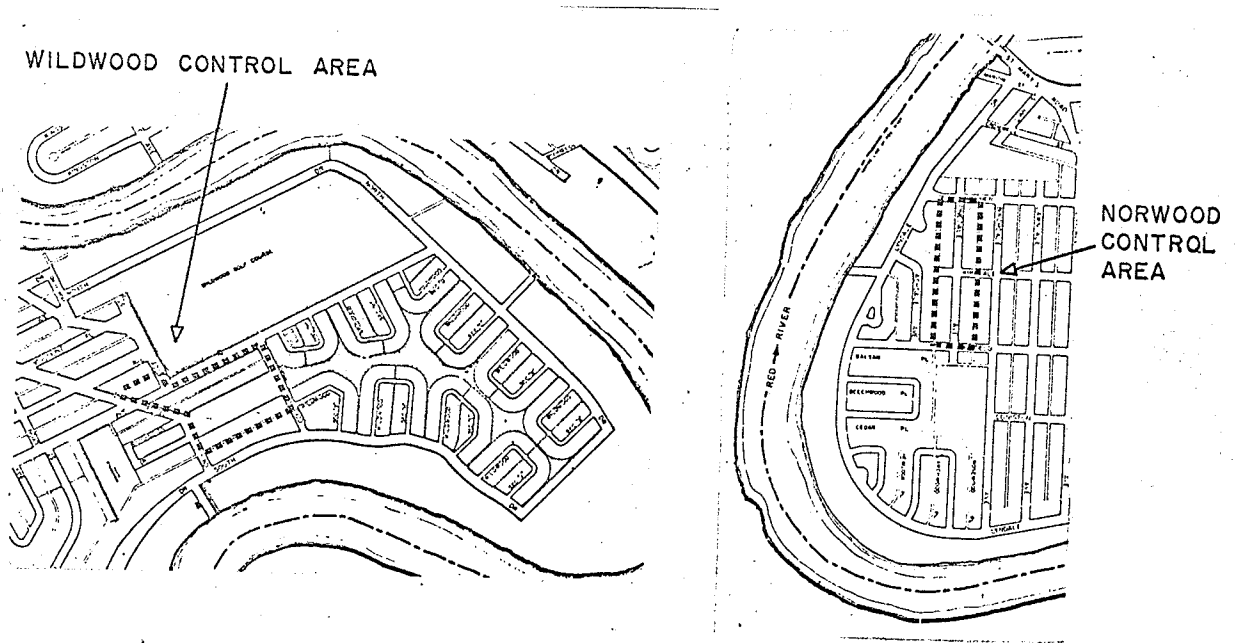


FIGURE 24B

LOCATION AND EXTENT OF THE WILDWOOD AND NORWOOD CONTROL AREAS

The first question on the questionnaire asked how many persons there were in the family. From the replies, an average number of persons per dwelling unit was determined. The average number of persons per dwelling unit was multiplied by the total number of dwelling units to determine the approximate populations of the four areas.

TABLE VI  
NUMBER OF PERSONS PER DWELLING UNIT AND APPROXIMATE  
TOTAL POPULATIONS OF STUDY AREAS

| STUDY AREA            | PERSONS PER<br>DWELLING UNIT | NO. OF<br>DWELLING UNITS | APPROXIMATE<br>TOTAL POPULATION |
|-----------------------|------------------------------|--------------------------|---------------------------------|
| Wildwood              | 3.93                         | 286                      | 1,125                           |
| Norwood               | 3.91                         | 157                      | 615                             |
| Wildwood Control Area | 3.69                         | 52                       | 192                             |
| Norwood Control Area  | 4.15                         | 46                       | 190                             |
| Radburn, New Jersey   | 3.9 *                        | 235                      | 920                             |

From the above total populations the net and gross population densities of Wildwood, Norwood and Radburn have been determined as follows.

\* The number of persons per dwelling unit for Radburn has been assumed to be 3.91, which is the average of the Wildwood and Norwood figures.



TABLE VII

NET AND GROSS POPULATION DENSITIES OF WILDWOOD,  
NORWOOD AND RADBURN EXPRESSED IN PERSONS PER ACRE (P.P.A.)

|          | APPROXIMATE<br>TOTAL POPULATION | GROSS AREA | NET AREA | GROSS DENSITY | NET DENSITY |
|----------|---------------------------------|------------|----------|---------------|-------------|
| Wildwood | 1,125                           | 74.67      | 49.10    | 15.1 p.p.a.   | 22.8 p.p.a. |
| Norwood  | 615                             | 36.58 **   | 19.36    | 11.8 p.p.a.   | 31.5 p.p.a. |
| Radburn  | 920 *                           | 45.45      | 23.10    | 20.3 p.p.a.   | 40.0 p.p.a. |

From the net density figures in Table VII it may be seen that Radburn has nearly twice as many persons per net acre as Wildwood, while the figure for Norwood is about halfway between the two at 31.5 persons per acre, net.

From question two it was determined that the percentage (of total population) of public school age children (14 and under) in the Radburn type areas, where children can use the path system to and from school, exceeds that of their respective control areas by 4 to 8%.

The third and fourth questions asked how long the respondent has lived in his present home and the neighborhood respectively. From the data, it was hoped to compile the degree of mobility for each area.

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\* The number of persons per dwelling unit for Radburn has been assumed to be 3.91, which is the average of the Wildwood and Norwood figures.

\*\* Gross Area includes 5.88 acres of school yard.

After collating the initial results it was decided that if this type of analysis was to be meaningful, another source of data would have to be used. As a result, a detailed analysis including not only length of residence, but also stability, mobility, average length of residence, and a destination study of the in city moves out of the study areas was carried out using thirteen years of Henderson's Directories. This study comprising a 100% sample is contained in the following chapter.

In question five, an attempt was made to determine how well persons in the neighborhood knew each other. People were asked if they felt people in their neighborhood knew each other Quite Well, Fairly Well, Not Very Well, or Not At All or Very Slightly. In retrospect it must be acknowledged that this was a poorly worded question, and the validity of the results are doubtful. A question phrased in this way allows too much room for individual interpretation and more meaningful results might have been obtained if specific questions concerning the degree and frequency of social contact between the residents were asked. Research into this aspect of the neighborhood environment would be more effective if an interview was utilized rather than a questionnaire.

As a result of the lack of definitude in the choices for answering this question, the results have been grouped into positive and negative responses. A positive response is one that replied either Quite Well or Fairly Well, while a negative response is regarded as an answer indicating Not Very Well or Not At All or Very Slightly.

In the case of Wildwood and the Wildwood Control Area, there was some difference. For example, 89% of the residents of Wildwood felt that they knew their neighbors Fairly Well or Quite Well, while in the Wildwood Control Area only 74% felt this way. In the case of Norwood and the Norwood Control Area, the figures were 88% and 89% respectively.

The results from question six which asked, If you had your choice would you continue to live in this neighborhood? were almost identical in all four areas.

TABLE VIII  
DESIRE TO REMAIN OR MOVE

| STUDY AREA            | WOULD STAY | WOULD MOVE OR DON'T KNOW |
|-----------------------|------------|--------------------------|
| Wildwood              | 87%        | 13%                      |
| Wildwood Control Area | 94%        | 6%                       |
| Norwood               | 94%        | 6%                       |
| Norwood Control Area  | 90%        | 10%                      |

A more accurate response to this question could probably be determined if a home interview study were carried out.

The following questions were not directed to the residents of the control areas as they relate directly to the Radburn Concept of subdivision and are therefore only applicable to the Radburn and Wildwood study areas.

Question eight involved the frequency of use of the pedestrian path system within the superblock. Residents were asked if they used the sidewalk system Frequently, Occasionally, or Almost Never. Table IX shows the results of this question.

TABLE IX  
PEDESTRIAN PATH SYSTEM - FREQUENCY OF USE

|                   | WILDWOOD | NORWOOD |
|-------------------|----------|---------|
| Used Frequently   | 50%      | 42.5%   |
| Used Occasionally | 41.5%    | 40.0%   |
| Used Almost Never | 8.5%     | 17.5%   |

These results indicate that the Wildwood population use their pedestrian system rather more frequently than does the Norwood population. There are perhaps two reasons influencing this factor. The interior space in Norwood is much smaller than in Wildwood and does not have the same degree of sylvan setting. A second reason is the lack of a destination or magnet to influence the residents to walk along their paths. In Wildwood there is a small shopping centre located at Point Road and Oakenwald which to some extent attracts people in Wildwood to walk there by way of the path system. If the proposed limited commercial facility planned for Norwood had been constructed, Norwood residents might have been encouraged to make greater use of their path system.

Question nine related to the element of the Radburn Concept often regarded as one of the most controversial. That is the reversal of the frontages. Despite the fact that many residents commented critically on the detailed design arrangements of their homes and particularly the handling of the major and minor entrances, the majority were in favor of having a home which faced a pedestrian green area with vehicle access at the rear of the property. In Wildwood and Norwood 86% and 88% respectively said that they would continue this arrangement while 14% and 12% respectively felt they would prefer the conventional arrangement with vehicle access to the front of the house.

Recipients of the questionnaire were asked in question ten if they would continue the separation between walking areas and vehicle routes if they had the opportunity to redesign their neighborhood. To this question 97% in Wildwood and 93% in Norwood responded in the affirmative. Taking this question further, the residents were asked if they felt that children could play in greater safety because of the way their neighborhood had been laid out. In Wildwood 92% of the respondents felt that children were safer because of the layout while in Norwood 94% replied in the affirmative. It should be pointed out that a large number of the respondents felt that even though the area was inherently safer, children were still exposed to danger through their insistence on using the lanes as play areas.

It was originally hoped to be able to include information on pedestrian-vehicle accidents, particularly concerning children living

in the study areas and control areas. Unfortunately, detailed accident records of such incidents were not available, so it was necessary to rely on the memories of the residents for this data. In the last question, it was asked if the residents could recall any accidents between children and vehicles and that they record the date, location and the approximate age of the child.

It is very interesting to note that in Norwood no one could recall a single accident involving a child and a vehicle. In Wildwood, however, 21 respondents each recalled an incident, none of which was fatal. Of these 21 reported accidents, it appears that approximately 9 of them were separate incidents. Because of the lack of firm data, it is difficult to draw definite conclusions in this area. Of the 9 accidents noted in the Wildwood returns, 7 happened in the bays and 2 on the circumferential road. It might be noted that a contributing factor to the Wildwood accident rate may be the poor sight distances caused by the crowding of the garage structures. In Norwood garages are set well back from the lane pavements affording more visibility to the driver, than in Wildwood.

The general comments consisting of written statements on the back of the questionnaires which the respondents were encouraged to make were very interesting and as mentioned before, are difficult to categorize. The fact that people take the time to sit down and write extensive comments, either positively or negatively about the design of their neighbourhood may be significant in itself.

The residents of Wildwood appeared to be much more ready to volunteer additional comments, suggestions and criticisms on the questionnaires. About 21% of the Wildwood return contained additional comment, whereas in Norwood only 6% bothered to add their own observations to the questionnaire. In the Wildwood and Norwood control areas, additional comments were made to 11% and 9% of the questionnaires respectively.

In Wildwood some of these replies ran to several hundred words covering a wide range of aspects. The majority of the comments were favorable towards the basic concept of the layout, but were critical of the house plans, particularly entranceways and the cluttered appearance of the vehicle access roads. There were a number of people who desired underground wiring and a further development of play facilities in the interior park areas.

In the Wildwood control area one lady commented that "she preferred not to live in the park area, because of the lack of privacy in both the front and rear yard areas". As lack of space precludes an elaborate inventory of the written comments on the questionnaires, they have been bound together as an appendix and will be filed with the library copy of this thesis.

If the survey was to be repeated, there are several changes in technique that would be incorporated. For example, it is felt that a personal interview technique might yield better results than a questionnaire.

A questionnaire must be of limited length to ensure a complete response and does not allow for the rephrasing or a reinterpretation of the questions, which is possible if an interview technique is used.

There is also a tendency for some respondents to written questionnaires to try to give the answer they think the person asking the question wants to hear. With a personal interview it is possible to exercise some control over this tendency by asking for various reasons.

Another change in the survey technique would be to include interviews with a number of persons who had lived in the study areas for a number of years but subsequently moved to other parts of the metropolitan area. These people would have the benefit of experiencing both types of areas, and it would be interesting to know the determining factors in their decisions to leave Wildwood and Norwood.

From the questionnaire results it appears that the residents living in Wildwood and Norwood are appreciative of the advantages of the Radburn features in their neighborhoods but there are a number of detailed design features they would like to change.

During the collection of questionnaires in the conventional control areas, a number of residents were asked verbally if they would prefer to live in the Radburn type area. The majority indicated they thought they preferred living in a conventional area "with streets at the fronts of the houses." It would appear from this reaction that people do not generally recognize the benefits of the Radburn pattern



until they have had the experience of actually living for a period of time in this type of subdivision.

## CHAPTER VI

### POPULATION CHANGE IN WILDWOOD AND NORWOOD

The purpose of this chapter is to determine if the physical design of the study areas exerted any measurable effect on residential stability or mobility and the destination of in-city moves.

The basic data for this study was compiled from fourteen years of Henderson's Street Directory. All moves from the 523 dwelling units comprising the two study areas and their respective control areas were recorded for the period 1953 through 1966 inclusive. The moves were noted as I.T. moves, meaning in-town moves, or O.T. moves, which represented moves to destinations outside the metropolitan area. In the case of in-town moves the address of the resident's new location was recorded, which enabled the in-town mobility patterns to be mapped.

If it was not possible to locate a resident in the subsequent year's issue of the Directory it was assumed that he constituted an O.T. or out-of-town move. Although the Henderson's Directory is quite accurate, it is not possible to account for persons who died or moved in with another family. For the purposes of this study it was felt that the numbers represented in these two categories would be quite small, and as there is no apparent method of isolating them, they have been included in the O.T. moves.

The year 1953 was selected as the base year for several reasons.

First of all, it discounted the effects of the 1950 flood which had a particularly severe effect on Wildwood. It also allowed for a settling in period of several years after the completion of Norwood. A Third factor in favour of a thirteen year period was that it corresponded closely to the time span used in a study of the "Dynamics of Residential Populations In Six Prairie Cities" prepared by R. E. DuWors and J. Beaman of the University of Saskatchewan.

Table X gives the percentage of the original population that still resided in each of the four study areas after the thirteen year period. From this data, stability curves were computed showing the rates of original population decrease in each of the four study areas. (See Figure 25, page 69).

In the case of Norwood and its control area, it may be seen that the section of Norwood designed on the Radburn Concept retained 39% of its original or base year population through the thirteen year period up to 1966. During the same period the Norwood control area, laid out on a conventional subdivision pattern retained only 19% of its base year population. While Norwood seems to substantiate the claim that the Radburn type area influences more people to stay for a longer period of time, the opposite situation occurred in Wildwood and its control area. Wildwood control area retained 40% of its population while the Radburn type area retained 34%.

Two reasons which might have influenced higher stability of the original population in Wildwood control are the presence of several

TABLE X.

## STABILITY DATA FOR NORWOOD, WILDWOOD AND THEIR CONTROL AREAS

| BASE POPULATION * REMAINING AT THE END OF EACH YEAR<br>FOR THE PERIOD 1953-1966 |          |      |                     |      |         |      |                    |      |
|---|----------|------|---------------------|------|---------|------|--------------------|------|
| YEAR  | WILDWOOD |      | WILDWOOD<br>CONTROL |      | NORWOOD |      | NORWOOD<br>CONTROL |      |
| 1953  | 262      | 100% | 51                  | 100% | 155     | 100% | 51                 | 100% |
| 1954  | 220      | 84%  | 44                  | 88%  | 135     | 88%  | 47                 | 92%  |
| 1955  | 183      | 69%  | 42                  | 84%  | 122     | 78%  | 43                 | 84%  |
| 1956  | 164      | 62%  | 35                  | 70%  | 108     | 70%  | 40                 | 78%  |
| 1957  | 147      | 56%  | 30                  | 60%  | 99      | 62%  | 39                 | 76%  |
| 1958  | 132      | 50%  | 29                  | 58%  | 92      | 59%  | 35                 | 69%  |
| 1959  | 125      | 47%  | 29                  | 58%  | 86      | 56%  | 31                 | 61%  |
| 1960  | 117      | 45%  | 29                  | 58%  | 79      | 51%  | 27                 | 53%  |
| 1961  | 111      | 42%  | 27                  | 54%  | 75      | 48%  | 23                 | 45%  |
| 1962  | 107      | 41%  | 25                  | 50%  | 72      | 46%  | 21                 | 41%  |
| 1963  | 102      | 39%  | 23                  | 46%  | 68      | 44%  | 16                 | 31%  |
| 1964  | 98       | 37%  | 22                  | 44%  | 64      | 41%  | 14                 | 27%  |
| 1965  | 91       | 35%  | 21                  | 42%  | 62      | 40%  | 11                 | 21%  |
| 1966  | 90       | 34%  | 20                  | 40%  | 60      | 39%  | 10                 | 19%  |

\* The Base Population is considered to be the 1953 population of the respective study areas as listed in Henderson's Directory.

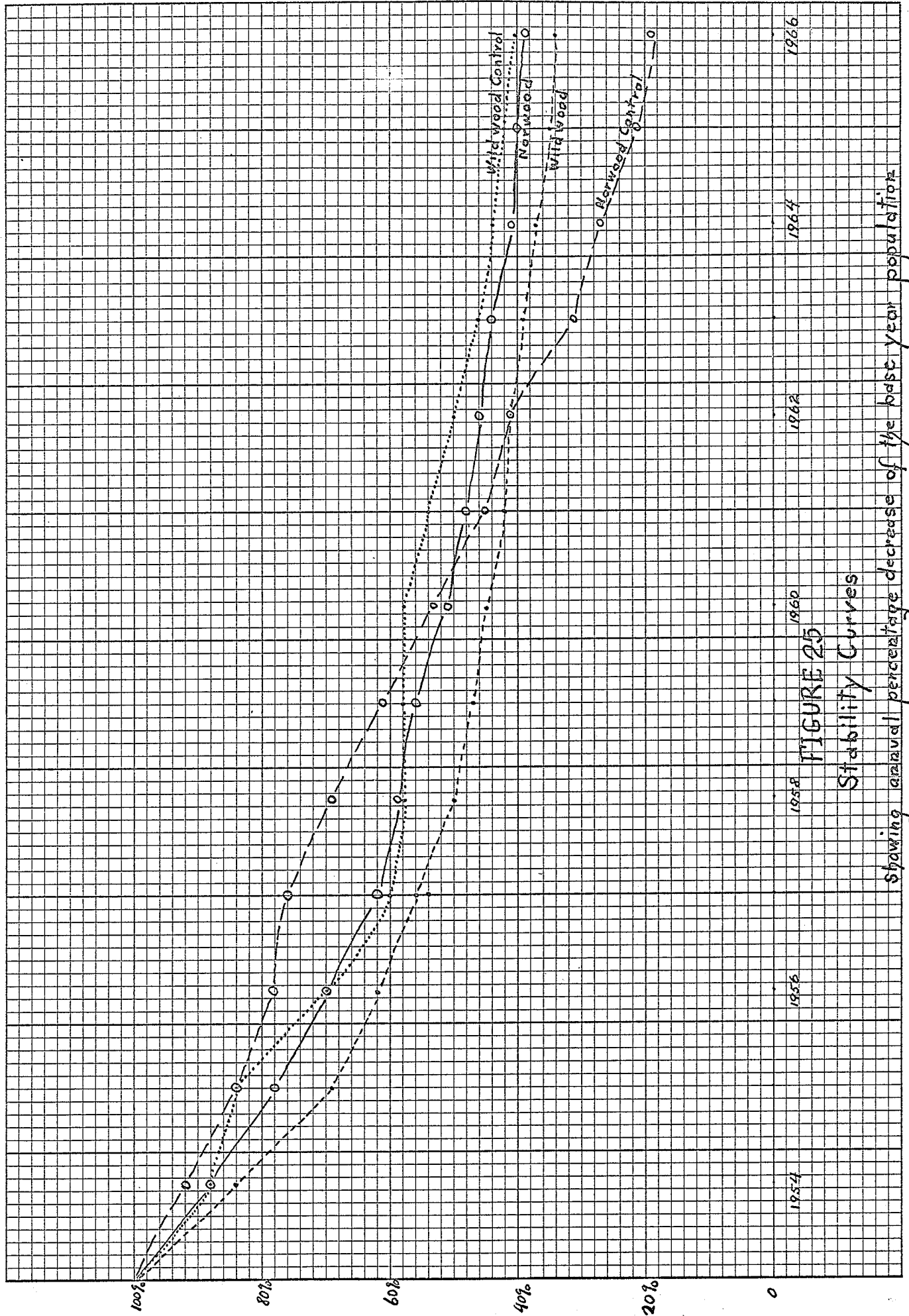


FIGURE 25  
Stability Curves

Showing annual percentage decrease of the base year population

100

80

60

40

20

0

69

dwellings that are somewhat older than the majority of homes in the area. From the slopes of the graphs, it may be seen that the curves flatten out as the areas get older. The presence of several older homes whose residents have lived in the area for a long period of time appears to have significantly reinforced the stability of Wildwood control.

Another factor in Wildwood control was the heavily treed area in the centre boulevard of Manchester Street. A number of residents expressed their appreciation of this feature during the questionnaire pick ups. If the impact of this feature had been suspected earlier, another control area for Wildwood would have been selected.

A general observation that can be made from this graph is that the three areas which had park or open space features in close proximity to the residences retained from 34% to 40% of their base year populations, while the one area that lacked this feature in its layout retained only 19% of its base year population. This indicates that the existence of open space in close proximity to dwelling units may influence some residents to remain there for a longer period of time. To be conclusive, a number of refinements would be necessary, including comparisons of incomes and occupation.

If the slopes for the period 1960 to 1966 are examined, it may be seen that the two control areas lost 33% and 18% of their base year populations during this period, while the study areas laid out on the Radburn Concept lost only 11% and 12%. The base year populations in the

Radburn type areas have stabilized sooner than their respective control areas.

Tables XI and XII show the total moves both in-town and out-of-town in each year for the four areas during the period 1953-1966. The percentage figures listed under the heading "mobility" are cumulative through the thirteen year period and are expressed in relation to the total number of dwelling units in each area. For example, if an area was comprised of 10 homes, but there were 20 moves out of the area during the thirteen year period, the cumulative mobility by the year 1966 would be 200%. It should be noted that even though the cumulative percentage may be greater than 100%, this does not indicate that every home necessarily changed hands.

The graph entitled Figure 26 on page 74 prepared from this data shows the mobility curves for each of the four areas. There is actually an inverse relationship between the curves in the stability graph and the mobility graph. For example, despite the fact that Norwood control, which had the greatest percentage of its base population move out during the thirteen year period, had the fewest total moves or lowest mobility (90%) in relation to its housing stock. At the same time, Wildwood had the highest mobility (136%) while its stability was considerably greater than Norwood control's.

In other words, while more people stayed for the full thirteen years in Wildwood, those houses that changed hands were occupied for much shorter periods of time than the houses that changed hands in Norwood control.

TABLE XI

MOBILITY TABLE FOR WILDWOOD AND WILDWOOD CONTROL, 1953-1966

| YEAR | WILDWOOD             |                     | TOTAL<br>MOBILITY<br>(OT + IT) | WILDWOOD CONTROL AREA |                     | TOTAL<br>MOBILITY<br>(OT + IT) |
|------|----------------------|---------------------|--------------------------------|-----------------------|---------------------|--------------------------------|
|      | OUT-OF-TOWN<br>MOVES | IN-TOWN<br>MOBILITY |                                | OUT-OF-TOWN<br>MOVES  | IN-TOWN<br>MOBILITY |                                |
| 1953 | 0                    | 0                   | 0                              | 0                     | 0                   | 0                              |
| 1954 | 24                   | 18                  | 16.0%                          | 3                     | 3                   | 12%                            |
| 1955 | 27                   | 18                  | 37.0%                          | 1                     | 2                   | 18%                            |
| 1956 | 12                   | 18                  | 48.5%                          | 3                     | 4                   | 32%                            |
| 1957 | 18                   | 16                  | 61.5%                          | 4                     | 2                   | 44%                            |
| 1958 | 13                   | 20                  | 74.0%                          | 2                     | 0                   | 48%                            |
| 1959 | 9                    | 7                   | 80.0%                          | 1                     | 1                   | 52%                            |
| 1960 | 10                   | 16                  | 90.0%                          | 0                     | 1                   | 54%                            |
| 1961 | 12                   | 6                   | 97.0%                          | 2                     | 2                   | 62%                            |
| 1962 | 7                    | 3                   | 100.5%                         | 3                     | 2                   | 72%                            |
| 1963 | 13                   | 7                   | 108.0%                         | 3                     | 1                   | 80%                            |
| 1964 | 18                   | 10                  | 119.0%                         | 8                     | 1                   | 98%                            |
| 1965 | 14                   | 14                  | 129.0%                         | 1                     | 1                   | 102%                           |
| 1966 | 8                    | 10                  | 136.0%                         | 3                     | 1                   | 110%                           |



TABLE XII

MOBILITY TABLE FOR NORWOOD AND NORWOOD CONTROL, 1953-1966

| YEAR | NORWOOD              |                  |                     | NORWOOD CONTROL AREA |                  |                     | TOTAL<br>MOBILITY<br>(OT + IT) |
|------|----------------------|------------------|---------------------|----------------------|------------------|---------------------|--------------------------------|
|      | OUT-OF-TOWN<br>MOVES | IN-TOWN<br>MOVES | IN-TOWN<br>MOBILITY | OUT-OF-TOWN<br>MOVES | IN-TOWN<br>MOVES | IN-TOWN<br>MOBILITY |                                |
| 1953 | 0                    | 0                | 0                   | 0                    | 0                | 0                   | 0                              |
| 1954 | 8                    | 5                | 11                  | 2                    | 4                | 4                   | 8                              |
| 1955 | 6                    | 9                | 10                  | 1                    | 6                | 3                   | 16                             |
| 1956 | 12                   | 16               | 8                   | 1                    | 8                | 2                   | 22                             |
| 1957 | 9                    | 22               | 5                   | 3                    | 14               | 2                   | 32                             |
| 1958 | 6                    | 26               | 11                  | 1                    | 16               | 3                   | 40                             |
| 1959 | 8                    | 31               | 4                   | 1                    | 18               | 3                   | 48                             |
| 1960 | 6                    | 35               | 7                   | 1                    | 20               | 3                   | 56                             |
| 1961 | 4                    | 38               | 9                   | 1                    | 22               | 3                   | 64                             |
| 1962 | 5                    | 41               | 6                   | 0                    | 22               | 2                   | 68                             |
| 1963 | 4                    | 43               | 6                   | 3                    | 28               | 2                   | 78                             |
| 1964 | 4                    | 46               | 3                   | 1                    | 30               | 1                   | 82                             |
| 1965 | 4                    | 48               | 6                   | 0                    | 30               | 3                   | 88                             |
| 1966 | 3                    | 50               | 8                   | 1                    | 32               | 0                   | 90                             |

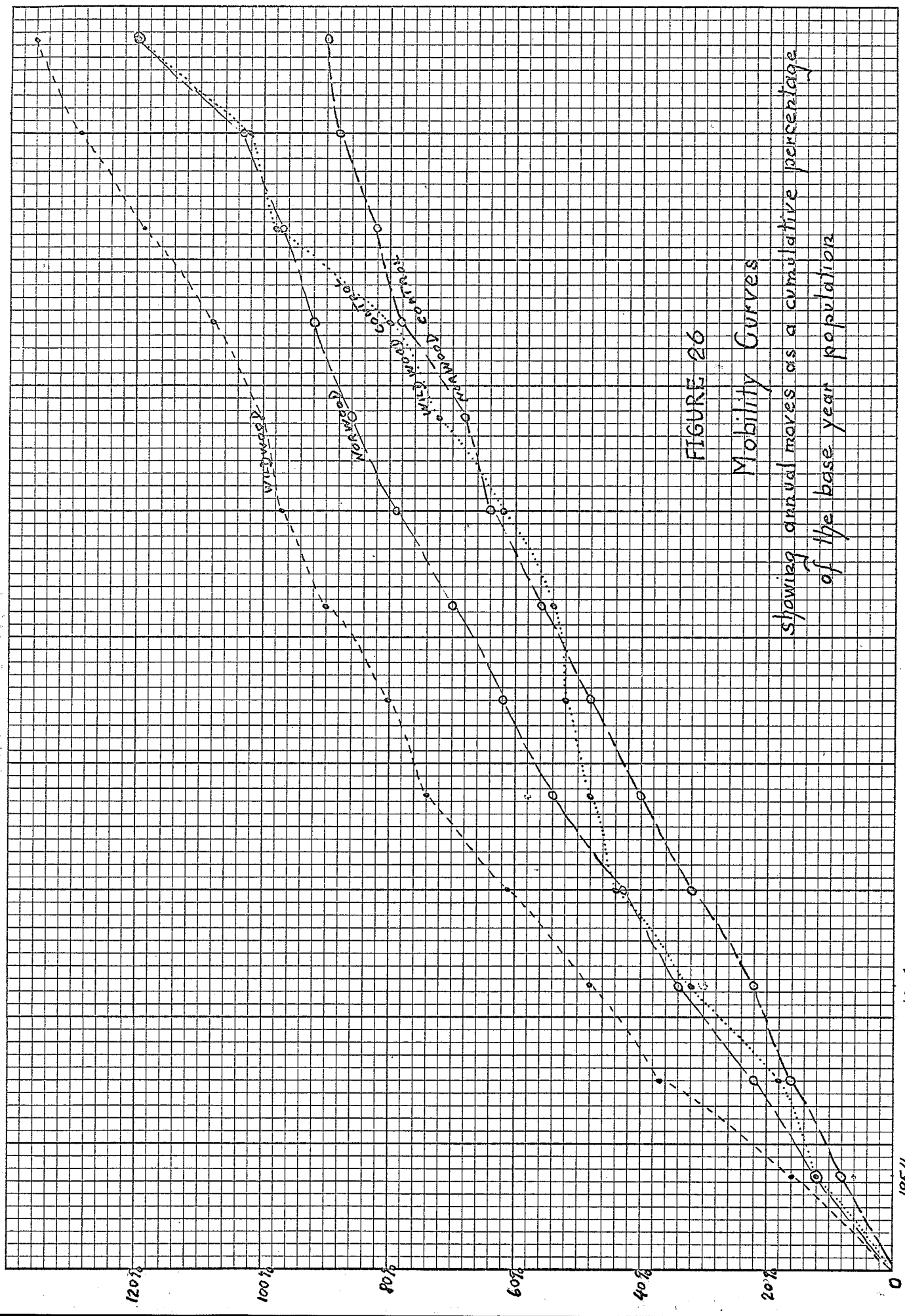


FIGURE 26

Mobility Curves

showing annual moves as a cumulative percentage of the base year population

A possible explanation for the rapid turnover of a portion of the Wildwood housing stock might be found in a study of the occupational characteristics of those who moved. For example, considerable research has been undertaken to determine the mobility of various occupation groups on an inter-city basis by DuWors and Beaman at the University of Saskatchewan.<sup>15</sup> If similar types of analysis could be carried out to determine intra metropolitan mobility as it is affected by occupation, income and ethnic background,<sup>16</sup> a clearer perspective of the actual effects of the physical environment on mobility might be determined.

Table XIII shows the relationship between in-town and out-of-town moves for each of the study areas during the thirteen year period. In Norwood and Wildwood the split between in-town and out-of-town moves was almost equal. In Wildwood Control 38% of the moves were to in-town destinations while the similar figure for Norwood

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<sup>15</sup> Richard E. DuWors and J. Beaman "Dynamics of Residential Population in Six Prairie Cities" (paper presented to the Section on Social Change, A.S.A. August 31, 1965.)

<sup>16</sup> For information on the mobility of several selected ethnic groups within the Winnipeg Metropolitan Area the reader is referred to R. D. Fromson's "Acculturation or Assimilation: A Geographic Analysis of Residential Segregation of selected Ethnic Groups: Metropolitan Winnipeg 1951 - 1961" (Unpublished Master's Thesis, The University of Manitoba, 1965.)

Control is 65%. Again this difference, as is mentioned previously, may be attributable to other factors such as occupation, income and ethnic origin.

TABLE XIII  
PERCENTAGE OF IN-TOWN AND OUT-OF-TOWN MOVES  
FOR THE FOUR STUDY AREAS 1953 - 1966

|                  | TOTAL NO. OF MOVES | IN-TOWN MOVES |       | OUT-OF-TOWN MOVES |       |
|------------------|--------------------|---------------|-------|-------------------|-------|
|                  |                    | NO.           | %     | NO.               | %     |
| Wildwood         | 348                | 185           | 53%   | 163               | 47%   |
| Norwood          | 153                | 74            | 49%   | 79                | 51%   |
| Wildwood Control | 55                 | 21            | 38%   | 34                | 62%   |
| Norwood Control  | 45                 | 29            | 65%   | 16                | 35%   |
| TOTALS           | 601                | 309           | 51.5% | 292               | 48.5% |

Another aspect of mobility was the destination of the in-city moves from the Wildwood and Norwood areas to other parts of the metropolitan area. The map (Figure 27) located in the pocket at the back of the thesis shows the destinations of all moves out of these two areas to destinations within the metropolitan area for the period 1953 - 1966.

The largest concentration of in-city moves from Wildwood was located in Fort Garry immediately to the west and southwest of the Wildwood study area. Within a three quarter mile arc of Wildwood there were 51 families who had previously lived in the Wildwood Study Area.

The largest concentration within this area was on South Drive which had fifteen former Wildwood families.

This area, constructed during the 1950's offered Wildwood residents housing of better quality and more square footage without having to break neighborhood ties. It also reflects favorably on the general standard of municipal services, provided by the municipality that this group of persons chose to relocate in close proximity to their former residences.

The next largest concentration of former Wildwood residents occurred in the Fort Rouge-River Heights area where 36 families or 19% chose to relocate. This grouping is probably a reflection of the increased space needs as families acquired more children. The Fort Rouge-River Heights area offers a large stock of older four and five bedroom homes which are still in comparatively good condition and not as expensive as new dwellings of equivalent space.

The Fort Rouge-River Heights area attracted a similar percentage of former Norwood residents. In this case there were 21 moves or 18% from Norwood and again the major reason might be attributed to the supply of larger homes at reasonable cost located in this area.

It is interesting to note that very few former Wildwood or Norwood residents moved into new housing stock located on the outskirts of the metropolitan area. For example, only two Wildwood residents moved to Assiniboia, six to St. James and three to Windsor Park and one to Charleswood. Perhaps the effect of having lived in areas that were well

endowed with natural foliage influenced those who moved out of Wildwood and Norwood to seek locations which had extensive tree cover.

Of particular interest was the fact that 24 moves occurred completely within Wildwood. This represents 13% of the in-city move decisions in Wildwood and reflects the desire of some of the residents to remain in this area despite their change in housing needs.

In Norwood there were 6 moves, or 8% of the total Norwood moves to other homes in the Norwood Study Area.

In conclusion, it may be noted that those who moved out of Wildwood to other homes within the metropolitan area, the majority chose either to relocate in close proximity to their previous dwellings and consequently stayed in Fort Garry or they moved to the Fort Rouge-River Heights area in the City of Winnipeg. In the case of Norwood there was only one identifiable area of concentration which was the Fort Rouge-River Heights area.

## CHAPTER VII

### SUMMARY AND CONCLUSIONS

This study has examined the origin and development of the Radburn Concept of subdivision design. It has also included a detailed analysis of two local applications of this concept in Metropolitan Winnipeg.

The results of the questionnaire study as described in Chapter V indicated that the residents who lived in the two Radburn type areas in Metropolitan Winnipeg expressed a high degree of appreciation for the specific Radburn elements incorporated in the design of their areas. The response in favor of the specific elements of reversed frontages, interior park and pedestrian-vehicle separation varied from 86% to 97%.

The influences of physical design on stability and mobility as described in Chapter VI were more difficult to determine because of other influencing factors such as occupation and income, but it was possible to determine two general desire patterns in the in-city moves out of Wildwood and Norwood. The most significant aspect of these patterns was the small number of families, particularly those from Wildwood, who chose to relocate in new subdivisions in the outlying areas.

Although the residential areas of Wildwood and Norwood appear to have been successful in that they appeal to the residents who live there, it may be asked why there has not been a more widespread application of this concept in Metropolitan Winnipeg since they were built.

There are a number of reasons why the Radburn Concept has been neglected in all but a few developments in the post war period. An economic consideration is that in conventional subdivisions between 5 and 10% of the gross area is usually dedicated for public open space. To achieve a proper interior park system that is connected to all of the housing units by a separate pedestrian path requires from 10 to 15% of the gross land to be dedicated for this non-remuneration purpose. It is also felt by some people that the provision of separate pedestrian paths is not justifiable because of the lack of utilization during severe winter weather; as well the general reluctance of Canadians to walk if they can drive, even for short distances.

Another drawback of the Radburn layout which is often emphasized is the problem of maintenance responsibilities in the interior park areas. Actually, over the past twelve years there has been a considerable change in the attitude towards including communal open space in subdivision developments. For example, the Urban Land Institute of Washington, D.C. recommended to developers in the 1954 edition of the "Community Builders Handbook" that they should not consider communal open space where individual lots are in private ownership.<sup>17</sup> In

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<sup>17</sup> Community Builders Council of the Urban Land Institute, "The Community Builders Handbook" Urban Land Institute, Washington 6, D.C., 1954, P. 68 cited by V. J. Kostka Neighborhood Planning published by the author, Winnipeg, 1957. P. 11.



December, 1966, this same organization published a study on open space communities which stated in the foreword written by Max S. Wehrly, Executive Director of the Urban Land Institute that

"We believe this study clearly indicates to land developers, municipal officials and planning professionals that when an open space community is properly planned and developed, it is highly successful - both in the market place and as a community in which people live." <sup>18</sup>

This study by the Urban Land Institute represents a major step in the encouragement of a more widespread acceptance of the Radburn Concept. Also, it illustrates very clearly the fact that failures of open space communities may more correctly be attributed to mistakes in detail design, or marketing techniques rather than to any inherent shortcomings in the basic concept.

Since the construction of Wildwood and Norwood, there have been few innovations in subdivision design in the Metropolitan Winnipeg area. Land developers must develop their land under the pressure of heavy mortgage carrying charges. Understandably, they are interested in having the least amount of delay between the conception and completion of their projects. Municipalities control the standards of subdivision through by-laws or subdivision agreements. This process tends to encourage the acceptance of precedent and inhibits change or innovation. Any

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<sup>18</sup> C. Norcross, S. Goodkin "Open Space Communities in the Market Place .... a survey of public acceptance" Technical Bulletin 57, Urban Land Institute, Washington, D.C., December, 1966, P. v (foreword)

fundamental changes mean delay and increased costs. The developer, because of his large investment prefers to follow patterns that proved successful in the preceding instance, rather than accept the risks of failure that are a part of experimenting with new techniques.

In the last few years, the significant innovations in subdivision design have occurred only where the developer has had the opportunity to innovate in an atmosphere free of tight by-law restriction and also has had the capital resources to employ a skilled planning and design team to see the project through all the stages from site selection to finished landscaping.

Because of its complexity which necessitates sensitive design techniques, a Radburn type project or for that matter any other form of residential layout requires this comprehensive approach if it is to be fully successful as a desirable living environment and at the same time, provide an adequate economic return to the developer.

It is not the intent of this thesis to maintain that the Radburn Concept represents the only solution, rather that it should be further developed as one alternative choice in a series of design layouts.

The results of the questionnaire study included in Chapter V indicate that the majority of those who have had the opportunity of living in Wildwood and Norwood are favorably inclined towards the Radburn elements incorporated in the design of their neighborhoods, and yet others living just outside these areas expressed the view that these areas are too communal and lack sufficient privacy for their taste.

It is implicit in the planning process that people should be presented with a number of clearly articulated alternatives and then be allowed to choose for themselves the form which they feel best suits their needs. The necessary degree of choice is still lacking and further detailed research in depth is necessary before it will be possible to arrive at a series of alternative design choices in the layouts of residential areas.

There is a temptation for those who develop new living areas to measure the success of a project on the basis of how quickly it sells. While this is certainly important, it does not necessarily provide an adequate basis of evaluation upon which to plan new developments, particularly during a period of housing shortage.

What is really needed is a continuous feedback process between the consumer and the developer, that extends beyond the individual dwelling unit to include the resident's attitudes towards the design form of his community. This thesis perhaps represents a preliminary step in the type of analysis that will have to be carried out on a large scale if people are to be offered meaningful choices in the form of their residential environments.

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A P P E N D I C I E S

APPENDIX A

EXAMPLES OF QUESTIONNAIRES SENT TO RESIDENTS  
OF WILDWOOD AND NORWOOD STUDY AREAS, AND TO  
WILDWOOD AND NORWOOD CONTROL AREAS

Area      Elk.      No.     

RESIDENTIAL STUDY

City Planning Dept., University of Manitoba

Your neighborhood has been selected as a sample area for a research project on Residential environmental design.

*During the next several days a university student WILL CALL AT YOUR HOME TO PICK UP THIS QUESTIONNAIRE. Your assistance in filling out this questionnaire and having it ready for the student will be greatly appreciated.*

9. If you were a planner and had the opportunity to re-design your neighborhood, what features would you change, or add. (use reverse side for answer)

(a) Would you continue having your home facing a sidewalk with vehicle access at the rear of the houses? Yes      NO       
Why?       
    

(b) Would you retain the separation between walking areas, and vehicle routes?  
Yes      NO     

(c) One of the supposed advantages of the Wildwood/Norwood layout is that the children are less exposed to motor traffic. Do you feel that children are safer in your neighborhood because of the way it is laid out?  
Yes      NO     

(d) Can you remember any accident involving children and motor vehicles in your neighborhood? If so please try to recall -  
The location       
Approx. date and year       
Approx. age, and sex of child     

*If there are any additional comments you would like to make concerning your neighborhood, they would be most welcome. Use the reverse side of the questionnaire or attach an additional sheet.*

*This study is for basic research purposes only. If you have any specific questions please direct them to the student when he calls for the questionnaire or call WH 207-11, Ext. 78.*

1. Number of persons in your family?     

2. Ages of children?     

3. Length of time in your present home?      years

4. Length of time in this neighborhood?      years

5. How well do you think the people in your neighborhood know each other?  
Quite well      Fairly well      Not very well       
Well      Not at all or very slightly     

6. If you had your choice would you continue to live in this neighborhood? a. yes       
b. no       
c. don't know     

7. If you answered a. or b. to the above question, state several reasons why you would wish to stay, or move?       
    

8. Do you and your family use the sidewalk system -  
Frequently       
Occasionally       
Almost never



RESIDENTIAL STUDY

Area \_\_\_\_ Blk. \_\_\_\_ No. \_\_\_\_

City Planning Dept.,  
University of Manitoba

Your neighborhood has been selected as a sample area for a research project on Residential environmental design.

During the next several days a university student WILL CALL AT YOUR HOME TO PICK UP THIS QUESTIONNAIRE. Your assistance in filling out this questionnaire and having it ready for the student will be greatly appreciated.

1. Number of persons in your family? \_\_\_\_\_
2. Ages of children? \_\_\_\_\_
3. Length of time in your present home? \_\_\_\_\_ years.
4. Length of time in this neighborhood? \_\_\_\_\_ years.
5. How well do you think the people in your neighborhood know each other?  
  
Quite well \_\_\_\_\_ Fairly well \_\_\_\_\_ Not very well \_\_\_\_\_  
Not at all or very slightly \_\_\_\_\_.

6. If you had your choice would you continue to live in this neighborhood?  
a. yes \_\_\_\_\_  
b. no \_\_\_\_\_  
c. don't know \_\_\_\_\_
7. If you answered a. or b. to the above question state several reasons why you would wish to stay, or move?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. If you were a planner and had the opportunity to re-design your neighborhood, what features would you change, or add. (Use reverse side for answer).
9. Can you remember any accident involving children and motor vehicles in your neighborhood? If so, please try to recall -  
  
The location \_\_\_\_\_  
Approx. date and year \_\_\_\_\_  
Approx. age, and sex of child \_\_\_\_\_

If there are any additional comments you would like to make concerning your neighborhood, they would be most welcome. Use the reverse side of the questionnaire or attach an additional sheet.

This study is for basic research purposes only. If you have any specific questions please direct them to the student when he calls for the questionnaire or call WH 2-0711. Ext. 78.

APPENDIX B  
ADDITIONAL PHOTOGRAPHS ILLUSTRATING VARIOUS RADBURN ELEMENTS  
IN WILDWOOD, NORWOOD AND RADBURN, NEW JERSEY.



FIGURE 28

WILDWOOD - ACCESS ROAD, NOTE LACK OF SETBACKS FOR GARAGES RESULTING IN CLUTTERED APPEARANCE.



FIGURE 29

NORWOOD - ACCESS ROAD, LESS CLUTTERED, SETBACK LINES HAVE BEEN ADHERED TO, BETTER SIGHT LINE DISTANCES FOR DRIVERS THAN IN WILDWOOD.



FIGURE 30

NORWOOD - INTERIOR PARK ILLUSTRATING TRIANGULAR OPEN SPACE IN CENTRE OF SUPERBLOCK.



FIGURE 31

WILDWOOD - INTERIOR PARK - NOTE PEDESTRIAN PATH ALMOST COMPLETELY DRIFTED IN WITH SNOW.



FIGURE 32

WILDWOOD - PEDESTRIAN PATH



FIGURE 33

NORWOOD - PEDESTRIAN PATH LEADING FROM INTERIOR PARK BETWEEN HOUSES TO LARCHWOOD PLACE.



FIGURE 35

NORWOOD - ENTRANCE TO THE PATH SYSTEM FROM LYNDALE DRIVE. NECESSITY OF SIGN INDICATES LACK OF PEDESTRIAN SCALE.

FIGURE 34 - DELETED

\* THIS ILLUSTRATION HAS BEEN DELETED FROM THE APPENDIX AS IT WAS DUPLICATED BY FIGURE 12 PAGE 36 IN THE TEXT.



FIGURE 36

WILDWOOD - NOTE LACK OF DEMARCATION  
BETWEEN PUBLIC PATH AND PRIVATE LAWN

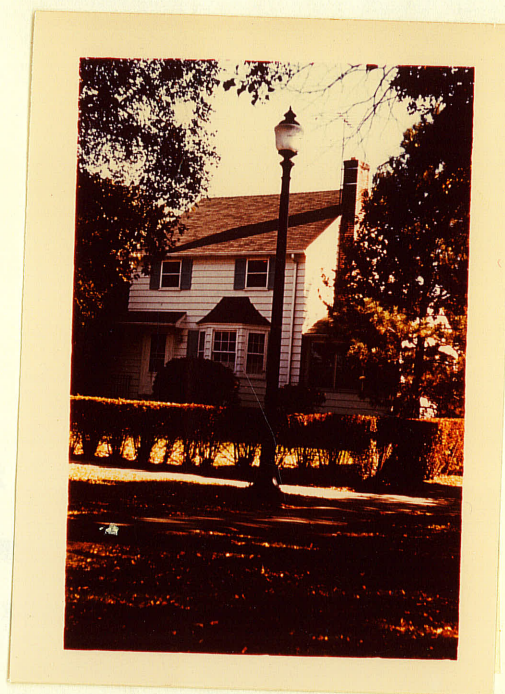


FIGURE 37

RADBURN - PRIVATE LAWN CLEARLY MARKED  
BY HEDGE



FIGURE 38

RADBURN - CHILD RETURNING FROM SCHOOL THROUGH PARK.  
THIS SUPERBLOCK HAS A GROSS DENSITY OF ALMOST SIX  
DWELLING UNITS PER ACRE!

## APPENDIX C

QUESTIONNAIRE RETURNS FROM WILDWOOD, NORWOOD,  
WILDWOOD CONTROL AREA AND NORWOOD CONTROL AREA

All of the returned questionnaires have been bound under separate cover entitled Appendix C. This appendix will be placed in the library. The reason for including the questionnaires as Appendix material is due to the large number of written observations made by the respondents which did not allow for statistical compilation in the text of the thesis.