FAMILY MOBILITY AND EDUCATIONAL PLANNING

by

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ABSTRACT

Mobility and increasing urbanization have resulted in a pattern of differential growth rates among school enrollments. This has necessitated that educational planners develop an understanding of family mobility in order to better predict student populations and maximize the use of existing school facilities. In the past, such predictions have not usually incorporated factors which account for changes in the separate components of population.

An examination of elementary school enrollments in Vancouver evidenced the need for a more detailed understanding of migration. The present study set out to establish the impact which various migration patterns exerted on elementary enrollments in the Vancouver School District and in three areas within the school district, which illustrated different migration patterns. Secondly, the reasons why families with elementary school children move into and out of specific school areas in the city were analyzed from data collected by means of a questionnaire. A chi-square test was used to establish the significance of differences in the responses of each group.

The migration streams differed significantly in

terms of the reasons stated for moving and the factors of importance in the choice of a new home. Significant differences in the latter were mostly reflected in school areas characterized by different migration streams.

The study demonstrated that educational planners should be aware of the migration patterns affecting each school area in their district in order that they may calculate, and wherever possible, influence the impact of changes in any factors which influence mobility.

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INTRODUCTION

Differential growth rates of student populations within different sections of the metropolitan area, largely the product of migration, have created a number of problems for planners of elementary educational facilities.

Migration has fluctuated from year to year, making predictions difficult. In the past, educational planners have usually assumed that migration would continue unchanged. The student population projection techniques employed have consequently not included any means of analyzing migration or changes in it.

Net movements of students from one school area to another have caused imbalances in the demand for existing facilities. Classrooms in some sections of the city have been underutilized. whereas, elsewhere, there has been a demand for additional educational facilities.

Net losses of students via migration from an entire school district have, in the case of Vancouver City, been associated with an increase in the per pupil costs of education. According to one school board member, administrative and maintenance costs have not decreased in proportion to the net decrease

in the number of students due to migration. The student population determines the provincial grants to a local school board.

The purpose of this thesis was to examine the factors affecting the movement of families from different areas of origin into Vancouver City school areas and within the city. This involved an analysis of the reasons for the movement of families and of the residential features considered important in the choice of a home.

Three migration streams were studied: movement from areas outside the metropolitan area into Vancouver City; movement from the Lower Mainland (Metropolitan Vancouver exclusive of Vancouver City) into Vancouver City; and, movement within Vancouver City. Families moving from Vancouver City to the Lower Mainland were sampled, but the number of responses was too small to allow a separate analysis of this migration stream. Families moving from areas within the city to areas outside Metropolitan Vancouver were not sampled as their addresses were too difficult to obtain.

In addition to an examination of the factors affecting the movement of families from different origins into Vancouver City areas, the thesis involved an analysis

in single school areas of the reasons for moving out and the residential features considered important in the choice of a home. This analysis was performed on school areas characterized by different migration streams: Lord Roberts (the West End), characterized by a migration of families from areas outside Metropolitan Vancouver; Lord Kitchener (the Dunbar area), by a migration of families from other areas in the city; and Lord Tennyson (East Kitsilano), by a migration of families to other areas in Vancouver City.

A questionnaire was mailed to families who had moved either into or out of the three school areas over a two and one-half year period. The questionnaire was designed to determine the reasons for moving and features important in the choice of a residence for the different migration streams, and for families moving in and out of the three school areas which were sampled. Additional factors, such as housing type and tenure, socio-economic and demographic characteristics were explored for both migration streams and the school areas.

The study depicted significantly different reasons for the movement of families from various origins into city school areas, and significant differences in the features considered important in the choice of a

residence by families from different origins. There were also significant differences in the importance attached to specific residential features among school areas characterized by different migration streams. The features which were statistically significant for the three school areas sampled were often the same as those which were statistically significant for the migration streams which characterized the school areas. However, there were others which were not.

The significant differences found among the migration streams in respect of the reasons for moving and the features important in the choice of a residence indicate that planners of educational facilities should take a more comprehensive approach to the prediction of student populations, incorporating in their predictions the factors which affect migration patterns. It is important that an analysis of such factors be done on a school area basis as the survey results depicted significant differences among school areas which did not correspond with the migration streams characterizing them, and vice versa. In order to incorporate into the prediction of school enrollments the residential features contributing to the migration into and out of some school areas of families with elementary school age children, school planners will have to calibrate the features which were specified by the respondents to be significantly important.

The factors which contribute to the out-migration of families from specific school areas and from the entire school district are the means by which the educational planner can shape migration streams. Although the educational planner is not delegated the power to suggest zoning, deal directly with traffic problems, or implement programs, for example, it is essential that he has a voice in the decision to implement such policies and programs, which have an impact on student population levels.

Organization of the Study

The study consists of four parts: Chapter I, a portrayal of migration and its impact on student enrollments; Chapter II, a literature survey of the theories of migration; Chapter III, the methodology of the study; Chapters IV, V, and VI, survey results, discussion of results and implications for planning.

Chapter I deals with the impact which migration has had on Canadian city populations, and more particularly, with the problems which this has created in planning educational facilities. The methods used by educational planners to project student populations are delineated, and the inadequacies of these methods in dealing with migration are noted. Vancouver City is used to demonstrate the necessity of analyzing migration before projecting student populations and the problems which migration has created for planners of elementary school facilities.

Chapter II is a synthesis of what other studies have depicted to be the reasons for movement of families from various origins into city areas, and the factors which they consider important in their choice of a residence.

In Chapter III the hypotheses to be tested are delineated, as well as the means for testing the hypotheses. The basis for the sample and problems in sampling are discussed. In addition, the extent to which the responses are representative of the sample and the migration characteristics of the school areas are presented.

Chapter IV deals with the survey results: the reasons why families from different areas of origin moved from their previous residences, and the features important in their choice of a home; the reasons why families moved from specific school areas, and the features considered important in the choice of a home by families moving into specific school areas. The results of the study are discussed in Chapter V, and are portrayed to be possibly specific to this sample. A comparison is made between the school areas and the migration streams in respect of the reasons for moving and the features important in the choice of a residence. The implications of the results for planning of elementary school facilities are discussed in Chapter VI.

CHAPTER I: OVERVIEW OF THE PROBLEM

I. Impact of Migration on Populations Within the Metropolitan Area

One of the most important problems facing educational planners is that of matching facilities to the requirements of students. With an increase in urbanization, the problem has become increasingly difficult to manage.

Associated with urbanization have been rapid increases in student populations in metropolitan areas, and more importantly, differential growth rates of student populations within different areas of the metropolitan environment. These changes have necessitated that educational planners understand the specific components of population growth, and the manner in which these components affect, and are affected by, the urban environment.

Migration has a great impact on the growth rates of metropolitan areas. An analysis of the latest available census data for Canada indicates that between 1951 and 1961, net migration accounted for over 60 percent of the population growth in Calgary, Vancouver, and Victoria (Stone, 1967). It also contributed to greater growth rates for suburban areas than for other parts of the metropolitan areas. Stone states that

"86 percent of the differential in population growth between the central cities and the remainder of the... MAs may be attributed to the direct impact of net migration" (Stone, 1967, p. 159).

Educational planners are also interested in the varying age structure of the population in various parts of those metropolitan areas which are characterized by differential growth rates. For example, in the years 1951-61, the net migration gains to the central city were highest in the age group characterized by recently married or single persons (20 to 24 years). On the other hand, the net migration gains to the remainder of the metropolitan areas were concentrated among those age groups weighted with families having young children (24 to 29 years). Stone attributed these changes in the composition of the urban population to the increasing tendency for migration to be into locations outside the central city, and to the increasing tendency of families with young children to re-locate in the suburbs.

The results of a study of net migration within Metropolitan Toronto have reinforced Stone's findings (Simmons, 1971). An analysis of the age and sex characteristics of people moving from one census tract to another over a fifteen year period demonstrated a tendency for those migrating into the city to be young (15 to 19),

and to settle in apartment areas of the central city. Increases of 200-300 percent in the population of the apartment area in the central city were noted. Older people, however, tended to move from the central city to the suburban areas. Out-migration to the suburban areas began with the 20 to 24 age group and continued for the 25 to 29, and 30 to 34 age groups. Of the three age categories, the last showed the strongest movement to the suburban areas.

Variations in the strength and age-structures of migration streams have upset attempts to match educational facilities to the needs of students. In Calgary, for example, migration to the suburban areas, in conjunction with a declining birth rate, has resulted in insufficient classroom space in the suburbs and excessive space in the cities.

> "To avoid the expensive construction of new schools in outlying areas...the city's board of education has made controversial proposal to bus children into the rapidly emptying classrooms of the inner city.
>
> The city schools have too much space because of a declining birth rate and a migration to the suburbs.
>
> At last count, the city's 150 elementary, junior high and high schools had closed more than 400 vacant classrooms, some of which might never be used again" (Dennett, 1973, p. 5).

Similar problems have been encountered by the City of Edmonton and the City of Vancouver (Dennett, 1973, p.5; Cole, 1972, p. 1).

II. Methods for Projecting Student Populations

Although migration has a great impact on the growth rates and population patterns of urban areas, it has tended to be either ignored or dealt with in a simplistic and inadequate manner by educational planners. School planners have tended to resort to techniques which estimate indirectly the future population levels of students, and do not estimate specific changes in the components of population, or the forces affecting changes in these components.

One of the more common techniques used in projecting student populations is that of extrapolating from census data which indicates age-specific populations of children of school ages. This method assumes that the major forces determining student populations, such as migration rates, will continue to change at the same rate that they have in the past.

A second method, less commonly used because it tends to be more unreliable than the preceding technique, is that of analogy. It is based on the assumption that the growth patterns of two similar communities will have developed historically, in terms of the population structure, in the same manner. Its unreliability stems from the fact that, in general, communities are not accurately comparable.

A third method, the relating of school enrollments to the total population, is used when data on the total populations of municipalities are available from other sources. A ratio of the student populations at particular grade levels to the age-specific population of the municipality is determined, for example, by projection from past census data or by analogy with other school districts. This method differs from the preceding two in that it is the ratio of the student population to the total population which is determined and not the student populations themselves. The method is unreliable for cities which are experiencing either rapid growth or declines in student populations as it assumes that the components of population change such as migration rates are constant. The specific components of change are not generally treated as independent variables.

Probably the most common method used to project student populations is the "average-survivor ratio" technique (Council of Educational Facility Planners, 1968). This method, also based on analysis of past census data, differs from the preceding in that birth rates are modified in the light of new trends, and are, in fact, an essential component of the technique. Birth data for a given year are compared with school enrollments five and six years later, in kindergarten and grade

one, respectively. Grade one enrollments are compared with grade two, and so on. Average survivor ratios obtained from an analysis of the average number of children surviving from one grade to another over a period of time are used to project the enrollments for each grade level. Like other techniques, this one assumes that, except for the birth rate, that which has happened in the past will continue to occur in the future. Consequently, changes in the net migration rates of students are not normally an essential part of this technique.

A fifth method used for long-range planning is the saturation analysis, a technique which ascertains the ultimate enrollment resulting if all land within a school district were developed. This involves an evaluation of such factors as land use patterns, the number of acres likely to be used for residential development, the type and number of specific dwelling units, and the probable changes in density ratios due to the aging of communities. Such an evaluation necessitates collaboration with city planning officials who suggest zoning changes and other measures affecting residential patterns, as well as detailed analysis of the manner in which housing variables and other elements affect potential enrollments.

Saturation analysis, a long-range projection method based on an analysis of the interrelationships between the physical environment and factors such as migration and birth rates, is the only one which attempts to anticipate changes in population by taking into consideration alterations in the components of population change. The average-survivor ratio technique does incorporate changing birth rates, but this is the only component of population change which is taken into consideration. All the methods (with the exception of saturation analysis) assume that migration will remain unchanged.

III. Vancouver as a Case Study

A. The Necessity of Analyzing the Separate Components of Population Change

The necessity of separately analyzing the trends of each of the components of population change can be demonstrated by an examination of the impacts which both birth and death rates have on school populations. For example, in Vancouver City, there was an increase of over 1000 students in 1966 due to an increase in the birth rate some five years earlier, and an increase of over 1000 students due to net migration during the 1956-66 school period (Table 1).

Table 1

Effect of Different Factors on the Enrollment in Elementary Schools in Vancouver City

Year	Net Changes Due to Differences in Birth Rates and Retention at Grade 7	Net Changes Due to Migration
1966	+1031	+1081
1967	+481	-171
1968	+561	-659
1969	+46	-334
1970	-310	-216
1971	-782	-918
1972	-1186	-1100

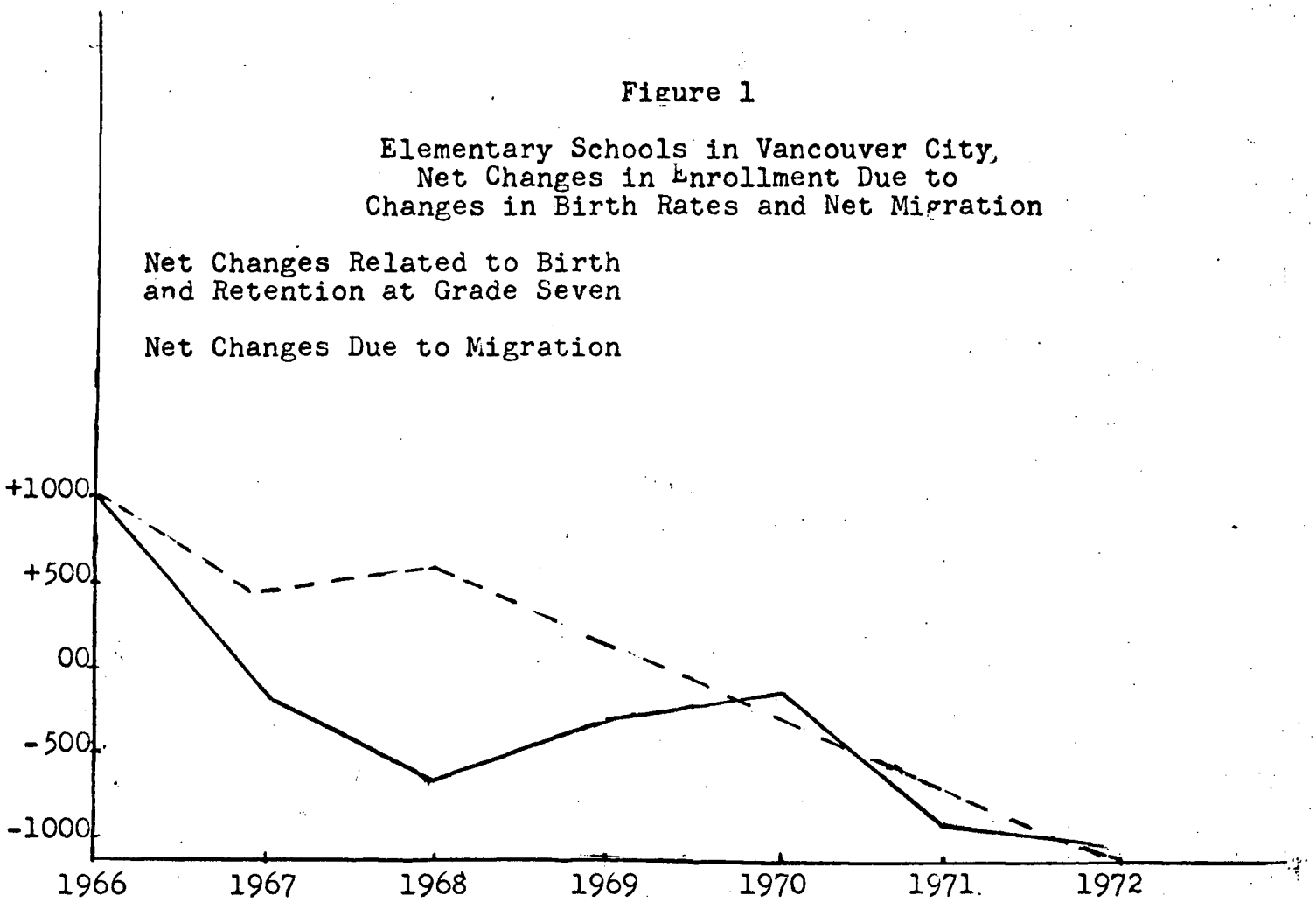
SOURCE: Vancouver School Board

Graphical depiction of the net changes indicates that the transition from an increase in enrollment in 1966 caused by births and net migration to a decrease of a similar magnitude in 1972 was not smooth (Figure 1). Abrupt changes in net migration, for example, occurred between 1966 and 1967, and between 1970 and 1971.

The "average survivor ratio" or "average retention ratio" technique employed by the Vancouver School Board does incorporate changes in the birth rate. Table 2 illustrates the "average survivor ratio" or "average retention ratio" technique used by the Vancouver School Board.

Figure 1

Elementary Schools in Vancouver City,
Net Changes in Enrollment Due to
Changes in Birth Rates and Net Migration



The letter "a", for example, prefixes the number of children born four years prior to 1969 in Vancouver City (6187). The letter "a_1" prefixes the percentage of these births (80.5 percent) enrolling in kindergarten in 1970, while the letter "a_2" depicts the actual number of students enrolling in kindergarten (4978) in 1970. An analagous sequence is represented by the letters "b", "b_1", "b_2", which indicate, respectively, actual enrollment in kindergarten in 1969, the percentage of these enrolling in grade one in 1970, and the actual numbers enrolling in grade one in 1970. The figures for 1971 are projections based on "retention ratios" or "survivor ratios" of the previous year.[1] For example, 103.3 percent[2] of the kindergarten students in 1969 registered in grade one in 1970. It was therefore

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1. The 1970 "retention ratios" are used only to project student populations for 1971. The actual number of students registered in 1971 will be obtained from school enrollment records, "retention ratios" will be calculated, and used to project 1972 enrollments. The table is corrected annually so that errors in projecting are not compounded.

2. A ratio of less than one hundred will be caused by a retention (non-promotion to the next grade) of students and a net out-migration of students for that grade level. A ratio greater than one hundred will be caused by a net in-migration of students.

assumed that migration would be the same as in the preceding year and that the same percentage (represented by the letter "a_3")would register in grade one in 1971. The actual number which was assumed or predicted to register in grade one was 5142 students (represented by the letter "a_4").

A comparison of the actual retention ratios and the actual number of students enrolling in each grade in 1971 portrays the shortcomings of the retention ratio technique which is based on the assumption that changes in net migration will continue as they have in the past (Table 3). The actual retention ratios were lower than the predicted ones for all grade levels, and particularly so for the kindergarten enrollment.[3] In terms of the total enrollment, the difference between the total projected elementary enrollment and the actual enrollment was 1159 students. Assuming that there were 30 students per classroom, this is equivalent to approximately 39 classrooms and teachers.

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3. The decrease in retention ratios could not have necessarily been anticipated as migration can fluctuate from year to year (see Figure 1).

Table 2

Actual Enrollment in Vancouver City Elementary Grades
1969 et Seq. Showing Percentage Continuation
From Previous Grade

	Res. Births	Kind.	Gr. One	Gr. Two	Gr. Three	Gr. Four	Gr. Five	Gr. Six	Gr. Seven
Sept. 1969	6187	5509	6044	5710	5927	5992	5818	5527	5423
		80.5	103.3	94.1	97.3	98.0	99.1	101.5	100.3
Sept. 1970	6529	4978	5692	5686	5555	5809	5938	5903	5544
		80.5	103.3	94.1	97.3	98.0	99.1	101.5	100.3
Sept. 1971*	6526	5282	5142	5356	5532	5444	5757	6027	5921

*Sept., 1971 enrollments are predicted and are based on the retention ratio of the previous year. The figures for Sept. 1969 and Sept. 1970 are actual enrollments and actual retention ratios.

SOURCE: Vancouver School Board

Table 3

Comparison of Predicted and Actual Elementary Enrollment and Retention Ratios for 1971 in the Vancouver School District

	Res. Births	Kind.	Gr. One	Gr. Two	Gr. Three	Gr. Four	Gr. Five	Gr. Six	Gr. Seven
1971 Proj. Ret. Ratios	80.9	103.3	94.1	97.3	98.0	99.1	101.5	100.3	
1971 Act. Ret. Ratios	71.5	101.5	93.3	96.5	97.2	98.7	98.9	97.8	
1971 Proj. Enrollment		5282	5142	5356	5532	5444	5757	6027	5921
1971 Act. Enrollment		4671	5052	5313	5485	5400	5734	5875	5772

SOURCE: Vancouver School Board

B. Problems Associated with the Projection of Student Populations and Net Migration Levels

Some of the problems arising out of the inability of school boards to predict accurately student populations are associated with the rational allocation of resources (taxpayers money). Local school boards have been delegated the responsibility of operating, administering, and maintaining all schools within their district (Sections 97(b), 97(c), and 98(a) of the Public Schools Act). These, for example, require the hiring of personnel, including teachers, the construction and operating of school buildings, and the provision and maintenance of classroom equipment and supplies. Decisions on these matters have to be made in advance - in the case of hiring of teachers, prior to the opening of classes in the fall; and, in the case of the construction of new schools, at least one or two years in advance.

On a short range basis, it is consequently desirable that not only the total number of students be predicted accurately for the school district as a whole, but that this accuracy extend to each school level. The text books and required teaching qualifications vary by grade. There must be sufficient of each for each grade level.

Over the medium term, the inaccurate prediction of student populations can result in the unnecessary acquisition of school sites and construction of school buildings. Vancouver School Board, for example, purchased a school site for $135,000 in 1971 in the Laura Secord-Selkirk area. Later this purchase was considered unnecessary.

> "The $117,000 annex was to have been ready for use in September. But last week, officials said, a survey of population trends indicated a sharp drop in anticipated enrollment...
>
> 'It's just something that couldn't be forseen. It had been one of our worst over-crowded areas.'
>
> Planning director Don Pritchard said there was no clear reason for the rapid drop in enrolment, other than that people were moving out of the area bordering Victoria Drive from Burrard Inlet to about Sixteenth.
>
> He said an exodus to the suburbs by people with young children seems to be underway." (Cole, 1972, p. 1).

A second set of problems associated with changes in net levels of migration arise, not from an inability to predict these changes, but from a lack of control over them. Even if school officials, by a careful calibration of migration streams moving in and out and within the metropolitan area, predict changes in student populations, they are still faced with the problem of building additional facilities in some areas and having underutilized facilities in other areas. There is not a simple solution to this problem because school

buildings tend to be permanent structures and cannot be converted easily for alternative uses, or moved to new locations. Quite often, only a few classrooms in a number of schools are no longer needed. Thus, while a number of classrooms are being underutilized, whole buildings must still be operated and maintained.

The Vancouver School Board has attempted to deal with this problem in a number of ways. In some cases, it has converted ordinary schools to special purpose schools. For example, Osler was annexed to Oakridge, a school for retarded children. Edith Cavell Annex was transformed into an experimental "free school" for grades five to ten. Elsewhere, classrooms are being used for purposes other than conventional teaching of students. At Waverly Elementary School, a classroom has been rented out at a nominal fee of two dollars a day to an organization called PACE for the 1971-72 school year. Simon Fraser Annex has been converted into a teachers' centre.

In a third case, commercial encroachment into a school area forced the closure of a complete school (Dawson). At the same time, however, the School Board is faced with the prospect of building a new structure in the same area (the West End), but in a location such that students are not forced to cross a number of main arteries.

The net decrease in enrollment in the City of Vancouver has increased the cost of education per pupil. While there has been some attempt to make effective use of the extra classrooms and school buildings, in most cases the classrooms still had to be maintained and operated.

Secondly, the decrease in the number of students has meant fewer recent university graduates could be hired as teachers. Because these graduates are paid lower salaries than teachers with more experience, they lower the average salary paid to teachers.

While the costs of education per student have risen, the revenue received by the Vancouver School Board from the provincial government has decreased. Provincial grants to the school districts are based ultimately on the number of students at the various grade levels in the school districts.

CHAPTER II: THEORIES OF MIGRATION

I. Introduction

Because the basic purpose of this thesis is to obtain a greater understanding of the factors influencing movement into and within a city, the following literature survey will be a synthesis of those factors which have been demonstrated to have been of importance in related studies. In general, other studies have not separated migration streams within a metropolitan area. Wherever possible, however, reference will be made to the two intra-metropolitan migration streams - within the city and between the city and the suburban areas.

Studies of migration portray the migration process as having two dimensions - "push" and "pull" forces operating together. The former tends to precipitate the move, but more so when there are alternatives perceived as better elsewhere, or other factors "pulling" the individual into a new setting. In the case of the intra-city and intra-metropolitan migrant, the "push" and "pull" forces are, respectively, the reasons why families move from their original residence, and the factors which contribute to their choice of a different residence. For migrants from areas outside the metropolitan

area, the "push" and "pull" forces are the reasons for moving, and the factors important in the movement into the metropolitan area, respectively. However, for the purpose of this thesis, the factors contributing to the movement of families into the city and into specific areas in the city are also relevant. The results of studies portraying these will be presented.

II. Reasons for Movement and Factors Important in the Choice of a Residence

A. Movement Within the Metropolitan Environment

1. General Theories of Intra-Metropolitan Migration

Wolpert (1965) and Brown and Moore (1971) have outlined the "push" and "pull" dimensions of the migration process. In both theories, the decision to move is viewed as arising from a situation in which the household's residential desires are incongruent with its environment. Wolpert states that the individual, on the basis of his or her knowledge of existing residential opportunities, evaluates their utility relative to that of his present environment. The movement occurs if the assigned "place utility" of a particular residence provides a sufficient improvement relative to the cost of the move.

2. Specific Theories of Intra-Metropolitan Migration

a. Changes in Socio-Economic Status

One specific theory reflecting the interaction of the "pull" and "push" forces is that which relates changes in residence to changes in the household's socio-economic status. Incongruencies between the household's perception of its socio-economic status and that of its residence motivate a change in residence to bring the two into line with each other.

Whitney and Grigg (1958) have shown that 90 percent of local moves of predominantly Protestant middle-income families in the Eastern United States were for status reasons. In his analysis of migration by middle management personnel in Vancouver City, Paper (1959) found that the majority moved to adjust their residence to their aspirations of status.

Ross (1961-62) and Leslie and Richardson (1961) discovered that movement for status reasons tended to be a suburban rather than an urban phenomenon. In Ross's study of Boston, status considerations were the most important motivation for moving from the central city to the peripheral locations. Leslie and Richardson sampled relatively new suburban areas in Lafayette, Indiana, and found that 90 percent of the respondents with social mobility expectations indicated an intention

to change their residence compared to approximately 12 percent with no such expectation.

Not all studies have depicted status considerations to be an important reason for moving. Butler et al. (1963) found that commitment to social mobility did not for the most part differentiate those with moving intentions in suburban and urban neighborhoods of Los Angeles. In Deutschman's study of movement within the New York Metropolitan area, income and occupational class did not differentiate between movers and non-movers (Deutschman, 1971).

b. Life-Cycle Changes

Life-cycle changes are associated with mobility when they create new residential needs, such as the need for more space. One of the more commonly accepted descriptions of the life-cycle concept is that of Foote et al. (1960). A stage in the life-cycle is defined in terms of the marital status and age of the household head, the presence or absence of children and their ages. Three stages in the life-cycle are designated as tending to be associated with a great amount of mobility: "family formation", or marriage; "child-bearing", or the birth of children; and "child-launching", in which children leave to establish homes of their own. The "child-rearing" period, during which the children are attending school, is a period

of relatively little residential mobility. Foote et al. emphasize changes in the size and ages of children as factors associated with residential mobility.

Studies of intra-metropolitan migration have supported Foote et al.'s thesis that changes in household size and the development of children are associated with changing residential requirements, which, when not met lead to a change of residence. Rossi (1955) in his classic study of why families move in Philadelphia concluded that mobility was a process which enabled the household to adjust its housing to its needs generated by changes in the composition of the household. Rossi (1961-62) found that those moving within the same square mile in the central city area of Boston tended to mention reasons related to features of the house and changes in the family size and composition. Similarly, the research conducted by Lansing et al. (1964) on families moving within Standard Metropolitan areas in the United States depicted reasons largely related to the dwelling unit and changes in family composition. Chevan's sampling of residential and family histories of couples in the Philadelphia-Trenton Metropolitan area indicated that families producing a child during any given period of marriage tended to have a higher rate

of mobility than other families (Chevan, 1971). When births were compared across different periods of marriage, the birth of a child contributed to greater mobility in the early stages of marriage. The interpretation of this was that families were more likely to have already moved in the early stages to adjust their housing to anticipated needs.

Other studies relating life-cycle changes to residential mobility have stressed the importance of the age of the household head, independent of changes in household size and composition. In Speare's study of Rhode Island residents, rates of mobility for each of his life-cycle categories decreased as their age increased (Speare, 1970). Butler et al. (1963), in their analysis of suburban and urban areas in Los Angeles, found changes in family composition to be less reliable than age of household head in differentiating those with mobility intentions. In Deutschman's analysis of mobility rates in New York Metropolitan area, age of household head, in addition to variables depicting changes in the size and composition of the household, was a significant discriminator between movers and non-movers (Deutschman, 1971). Similarly, in Long's national sample of households in the United States, age was of importance in determining the propensity of a household to move (Long, 1972).

The theory relating changes in life-cycle to residential mobility is based on the thesis that conflicts between the residential environment and needs of the household are generated by life-cycle changes. Some studies have attempted to assess the specific aspects of the residential environment which tend to be most often incongruent with the needs of the household. Most of these studies have found dwelling unit characteristics to be more commonly incompatible with changing needs than neighborhood characteristics. Dwelling unit characteristics have been more important than neighborhood characteristics in moving from a residence and more important in the choice of a residence. A few studies have found location to work to be of importance in the choice of a residence for families moving within the city and from the city to the suburbs. It has not, however, been an important reason for moving. Location to work has been important in the movement of families from the suburbs to the city.

In Rossi's study, dissatisfaction with the amount of space in the dwelling unit was the most important reason for wanting to move (Rossi, 1955). Other factors, in order of importance, were complaints about the social and physical characteristics of the neighborhood, and rental and maintenance costs.

Chevan (1971) depicted size to be an important factor in the choice of a new residence in his investigating of the effect of movement on the density of the household, measured in terms of person per room ratio. Couples moving during a given three-year period were found to have a higher person per room ratio before their move than couples not moving, and similar household densities after the move. Moving was consequently depicted as a mechanism used to adjust housing space to housing needs.

Lansing et al. (1964) found that over one-half of the local moves were for reasons related to the dwelling unit itself - space, quality, and home ownership. Only ten percent were for reasons related to the neighborhood. Neighborhood considerations were also depicted to be secondary to dwelling unit characteristics in the evaluation of the most recent move, 32 percent of the people judging the success of their move in terms of the dwelling unit, compared to 22 percent in terms of neighborhood features.

In Michelson's study of the expectations of those moving and intending to move within a suburban single-family dwelling unit area and a high-rise downtown area in Metropolitan Toronto, the features mentioned by the greatest percentage of movers were dwelling unit interior (size and layout), exterior setting, and neighborhood, in that order (Michelson, 1972).

Deutschman (1971) has related reasons for moving to different groupings, according to age of household head. The need to change the size of residence was the most important reason for moving for households whose heads fell into the following age categories: 25-34, 35-44, and 45-54. In addition, at least 40 percent of the households in the categories attributed moving to factors associated with the dwelling unit - size, type, and rent. The 45-54 age group attributed the most importance to neighborhood type and schools, but only 11 percent of them indicated this to be a reason for changing residence.

Two studies depicting location to work to be of some importance in the choice of a residence for intra-city migrants and migrants from the city to the suburbs were those by Lansing et al. (1964) and Wolforth (1965). Lansing et al. found that slightly more than one-third of movers decided on a maximum journey time to work when searching for a new home, and over 90 percent of these kept within their limit. While Wolforth found that in Vancouver City distance from work had little effect in determining residential location, it did influence plant workers in peripheral workplaces.

Both Ross (1961-62) and Butler et al. (1969) analyzed the reasons for moving associated with different migration streams. While over 50 percent of those moving within a local area (approximately one square mile) in Ross's study moved because of dwelling unit features, convenience of location was a more important reason for those moving from the less central parts of Boston into the central city area. In Butler's analysis of movements within several metropolitan areas in the United States, the need for additional space was the most important reason for moves in the city and the suburbs, and from the central city to the suburban areas. Neighborhood factors were not cited as important. The two most important reasons for movement from the suburbs to the city were convenience of location to job, and the desire for a smaller lot size.

B. Movement into Metropolitan Areas from Outside Areas

Households moving into a metropolitan area can come from other communities, both urban and rural, within the same country, or from other countries. Both are generally motivated by different factors from those which operate within the metropolitan environment.

1. Movement from Outside Areas Within the Same Country

a. Economic Reasons

Studies indicate that the most important reasons for interregional migration are job related or economic. While most of the evidence for this has been based on research using secondary sources, such as census data, a few direct surveys have also been done, mostly as parts of other studies.

Ross (1961-62) showed that 74 percent of those migrating from outside the Boston Metropolitan area into the central city moved for reasons of convenience, such as closeness to work and friends (Ross, 1961-62). Similarly, in Butler's study, job changes or retirement were the most important reasons for moving from areas outside the metropolitan area into the suburbs and the city (Butler et al., 1969). Another study, analyzing the reasons for both short distance and long distance moves, was conducted by Whitney and Grigg (1958). They found that 90 percent of the long distance moves were for "economic" reasons.

In a separate study of the geographical mobility of labor in the United States, Lansing and Mueller (1967) discovered that most inter-county moves were motivated by job-related factors.

Researchers using secondary sources of data have depicted income differentials between places of origin and destination to be strongly related to migration rates between them. McInnis (1969), using Canadian census data, found provincial income differences to be an important predictor of inter-provincial migration for the years 1956-61. Similarly, Laber et al. (1971), Courchene (1970), and Vanderkamp (1971) portrayed income differentials to be strongly associated with interregional migration in Canada. Similar results were obtained by Greenwood and Gormely (1971) and A. Rogers (1968) in the United States.

Other studies using secondary sources of data have found interregional migration to be related to differences in employement opportunities between the areas of origin and destination. For example, Lowry (1966), in his study of the determinants of migration flows between 90 metropolitan areas in the United States during the 1950-60 decade, found migration differentials to be largely a function of employment opportunities at the place of destination. Vanderkamp (1968) and Courchene (1970) in Canada found unemployment differences to account for a considerable portion of interregional migration. In the United States, Masnick (1968) depicted the unemployed to have a higher propensity to migrate than the employed, while Fabricant (1970)

found labor supply and demand to account for a large proportion of migration between states. Ladinsky (1967) related migration differentials to differentials in economic expansion.

b. Non-Economic Reasons

Although economic considerations have been cited as the most important factors determining interregional migration, other features also affect it. For example, in the study published by the U.S.A. Bureau of Labor Statistics, (1963), non-economic reasons cited for interregional migration were reasons related to marriage and the family (15 percent) and "other" reasons (35 percent). In Lansing and Mueller's study (1967), "non-economic" and "no reason" accounted, respectively, for 23 and 5 percent of the interregional migration.

Other reasons suggested in the literature have been the more stimulating cultural environment of some urban centres, and climatic differences between regions (M. J. Greenwood,1968: T.W. Rogers, 1968).

2. Households Moving from Other Countries

The reasons for immigration tend to vary with the economic and political circumstances of the country of origin. Three of the more important reasons for emigration have been political instability,

over-population, and lack of economic opportunity in the country of origin. Thomas (1959), in a review of international migration, indicates these reasons to have been of importance in different historical periods. Dudley and Hyuck (1965) in their discussion of postwar migration from Eastern European countries indicate that while emigration was primarily due to political oppression, economic and population pressure also played a role. Other articles and authors have stressed economic motives for emigrating ("International Migration Statistics", 1964; "Economic and Social Factors Affecting Migration", 1953; Spengler, 1956).

Research on the residential features considered important by new immigrants in their choice of a home tended to emphasize the role of "ethnic receiving neighborhoods" or "minority neighborhoods". Such neighborhoods, composed of the same ethnic or minority group as the immigrant, tend to be of low socio-economic status because most recent immigrants have little capital and tend to be unskilled. In addition to the "economic security" provided by such communities, they also provide social security or a sense of community. The culture and life-style of the immigrant is usually different from that in the country into which he is immigrating, and he finds cultural comfort in the ethnic

or minority community.

III. Summary

1. Studies have depicted that families move within the metropolitan area in order to bring their residential environment in line with their residential needs.

a. For families moving within the city and from the city to the suburbs, residential needs have often changed, creating incongruencies between the household's needs and the residential environment. The changes in the household's needs have most often been generated by life-cycle changes. In some cases, changes in socio-economic status have also been important reasons for moving. Dwelling unit features, especially size, have been most often depicted as important in the movement from one residence and in the choice of another.

b. For families moving from the suburbs to the city, location to job has been an important reason for moving.

2. Studies have portrayed economic factors to have contributed most to interregional migration, or movement from other metropolitan areas and rural areas in the same country, and to immigration from other countries. In the case of the latter, however, political and demographic factors have also been important.

Families moving into a metropolitan area from other countries have in their choice of a residence attached importance to the social and economic security offered by "ethnic receiving neighborhoods."

CHAPTER III: METHODOLOGY

I. Development of Hypotheses

A. Hypotheses Related to the Migration Streams

1. Hypotheses Related to the Decision to Move

Studies have demonstrated that a number of factors influence the movement of families. Families moving within the city and from the city to the suburbs tend to be motivated by a divergence between their residential environment and residential needs, generated by life-cycle changes. There is some, although less, evidence to indicate that such incongruencies are caused by socio-economic changes. The features of the residential environment which tend to be most often in conflict with household needs concern the dwelling unit itself, and particularly space. Neighborhood considerations are of secondary importance. For families moving from the suburbs to the city, convenience of location plays an important role in the decision to move.

In contrast to intra-metropolitan migration, migration into the metropolitan area tends to be motivated by economic and job-related reasons. This is true for households coming from other parts of the country, and from other countries. In addition, climatic and cultural considerations influence interregional migration,

while political unrest and demographic factors affect migration from other countries.

The preceding results, depicting reasons for migration, suggest the first hypothesis:

Hypothesis I

Families moving into city areas from different origins will be motivated by significantly different reasons.

Several sub-hypotheses describe more detailed reasons which are presumed to be associated with the specific migration streams.

Sub-hypothesis I-1

Change of job will contribute significantly more to the out-migration of families from areas outside the metropolitan area than from areas within the metropolitan area.

Sub-hypothesis I-2

Location to job will contribute significantly more to the movement of families from the suburban areas than from other areas.

Sub-hypothesis I-3

Features related to the dwelling unit and neighborhood will contribute significantly more to the movement of families from other areas in the city than from areas outside the city.

There will be an attempt to determine whether significant socio-economic and life-cycle differences exist amongst the migration streams - movement within the city, movement between the city and the suburbs, and movement into the city from outside areas. The literature has demonstrated that movement to the suburbs tends to be motivated by both life-cycle and socio-economic changes, while movement within the city tends to be related primarily to life-cycle changes. The sample to be used in testing the hypotheses in this thesis, being families with children at the elementary school level, is expected to be too homogeneous to reveal any significant differences in life-cycle characteristics between the migration streams. Evidence in other studies, favoring the socio-economic explanation of residential mobility, tends to be limited. Consequently, it is difficult to propose relationships between socio-economic status and migration with any degree of confidence. These relationships and those between migration streams and life-cycle characteristics will therefore be approached in an exploratory manner. In addition, there will also be an investigation of the relationships between the migration streams and other variables, such as changes in type, tenure, cost, and living space of housing, areas considered in the choice of a residence, and the

reasons for considering the areas.

2. Hypotheses Related to the Choice of a Residence

It would seem reasonable that the considerations which prompt the decision to move will be reflected in the choice of a new residence. The second set of hypotheses links these considerations to the different migration streams.

Hypothesis II

The importance attached to different features in the choice of a residence by families moving into city areas from different origins will vary significantly.

Sub-hypothesis II-1

Families moving into city areas from other areas in the city will attach more importance to dwelling unit features and neighborhood characteristics than families moving from areas outside the city.

Sub-hypothesis II-2

Families moving into city areas from areas outside the city will attach more importance to locational considerations than families moving from other areas of the city.

Immigrants from other countries have tended to move into areas populated by their own ethnic groups. While ethnic communities, such as the Chinese Strathcona area, do exist in Vancouver City, the school areas to be sampled, although receiving immigrants, are not perceived as being characterized by any particular ethnic group. Therefore the social characteristics of the sample neighborhood in the present study are expected to be unimportant in the residential choice of the immigrant.

B. Hypotheses Related to Specific School Areas

Variations in the migration streams which characterize school areas should be reflected in the importance attached to the different residential features. The following hypotheses portray these expectations.

Hypothesis III

The importance attached to different residential features by families moving into school areas characterized by different migration streams will vary significantly.

Sub-Hypothesis III-1

More importance will be attached to dwelling unit and neighborhood features in school areas characterized by an in-migration of families from other areas in the city.

Sub-hypothesis III-2

More importance will be attached to location to job in school areas characterized by an in-migration of families from areas outside the city.

The analysis of the reasons why families move out of school areas is restricted in this thesis to movement to other schools in Vancouver City and to the suburban areas. This was because the new addresses of families moving to places outside the metropolitan area were too difficult to obtain. The final hypothesis relates this out-migration to residential features.

Hypothesis Four

Residential features will contribute to the movement of families from school areas to other school areas in the metropolitan area. They will be significantly more important in school areas characterized by a net out-migration to other school areas in the city.

As in the case of the analysis of life-cycle and socio-economic characteristics, and other factors associated with migration, the analysis of these relationships in school areas with different migration patterns will be exploratory.

II. Testing of the Hypotheses

A. The Basis for the Sample

In order to test the hypotheses, a questionnaire was sent to families with elementary school age children moving in and out of school areas in Vancouver City. The questionnaire[4] was designed to determine why families had moved from their previous residence, and the reasons for their choice of their present residence.

Testing of hypotheses three and four necessitated the sampling of school areas characterized by different migration streams. It was felt that a cluster sampling of such school areas would provide a sufficiently large sample of each migration stream to test the first two hypotheses and their related sub-hypotheses.

In order to cluster sample appropriate school areas affected by different migration streams, a separate study of the effects which migration streams were having on the specific school areas in Vancouver City was necessary. The only migration data possessed by the Vancouver School Board Planning Department related to net migration levels for the school district as a whole.

The study was made in the summer of 1972 and covered a two and one-half year period - October 1, 1969 to May 1, 1972. Migration during a particular school year was

4. See Appendix A for a copy of the questionnaire.

considered to have occurred between October 1 and September 30 as many of the transfers registered at the opening of schools in September had actually occurred prior to this time.

Secretaries of the 93 elementary schools (including annexes) in Vancouver City were asked to complete a form[5] detailing the number of students from their schools transferring to and from the following areas:

a. Vancouver City;
b. Lower Mainland (Metropolitan Vancouver exclusive of Vancouver City);
c. areas outside the Lower Mainland, including other countries, other provinces, and other parts of British Columbia;
d. private schools; and
e. others, which were basically "unknowns" or students with incomplete transfer records.

Those transferring between schools in Vancouver City were separated into two groups - those changing addresses and moving to a different school, and those maintaining their addresses but changing schools.

The survey indicated that migration streams caused a much greater turnover of student population in some areas of the city than in others. Maps I and II portray

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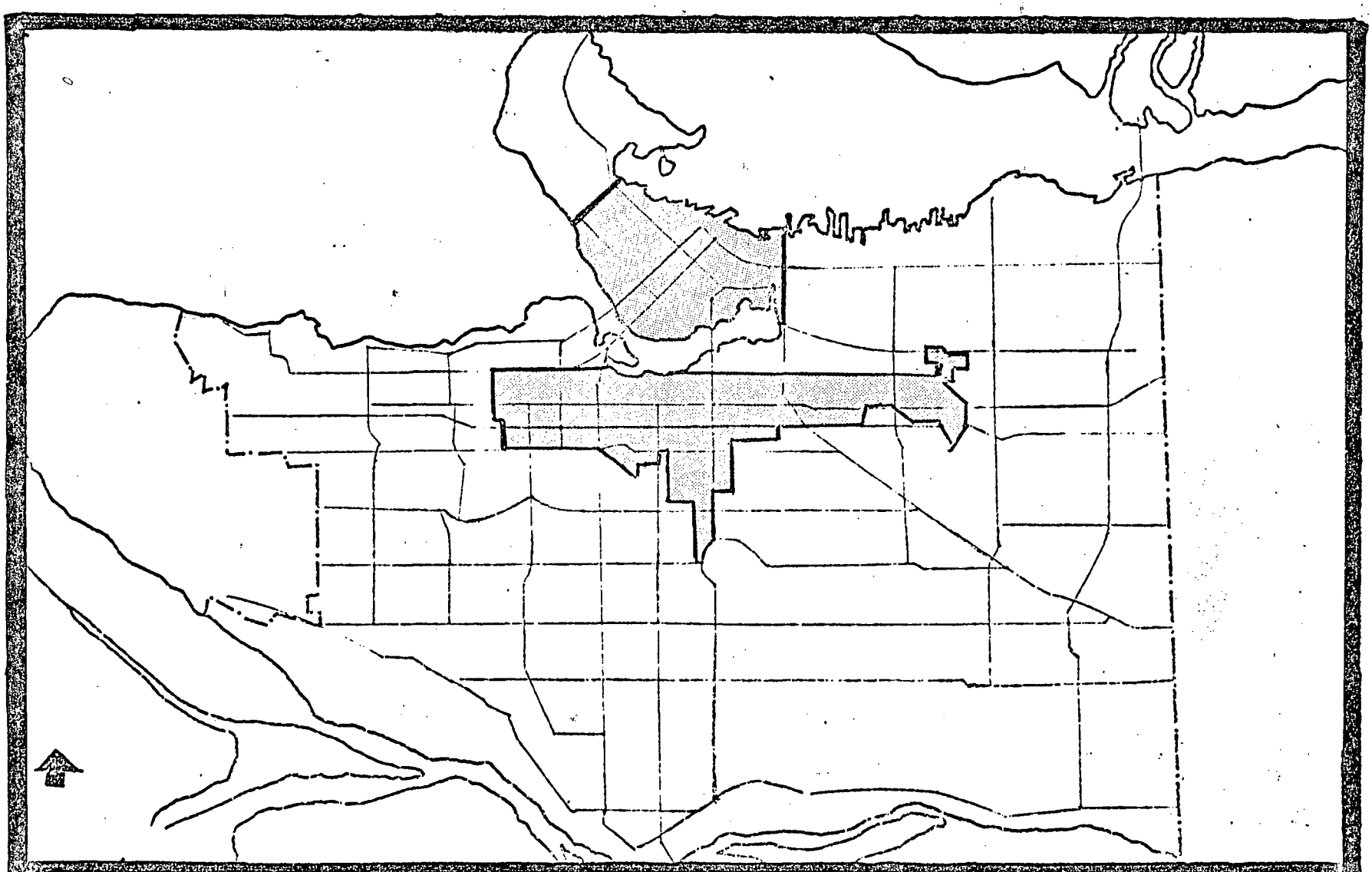
5. See Appendix B for a copy of the form.

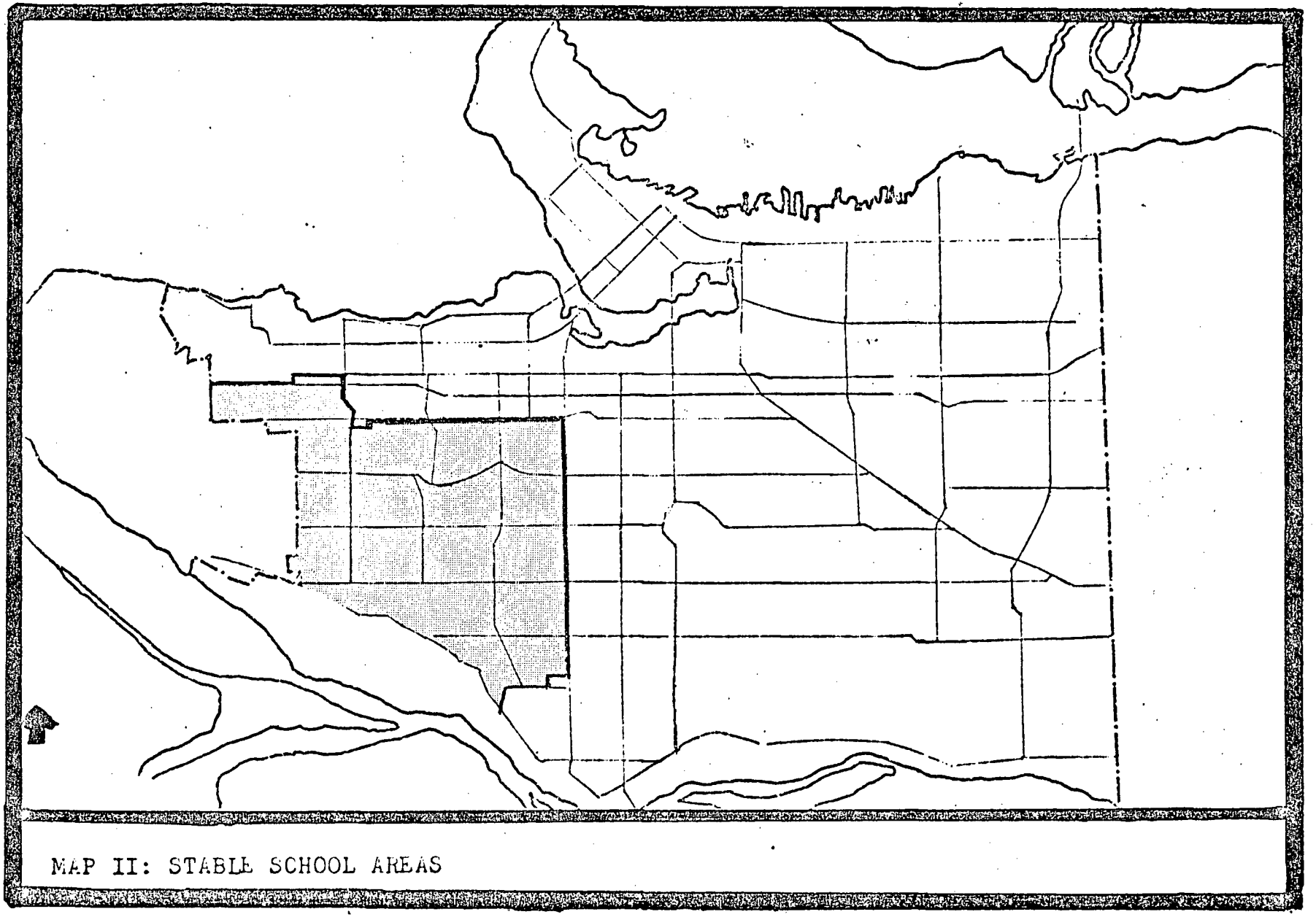
mobile and stable school areas, respectively. The former was defined as one in which the transfers in and out for the two and one-half year period constituted 50 percent or more of the numbers of students enrolled in the school for the same period. Stable areas contained schools in which the transfers in and out constituted 30 percent or less of the student population.

The rate of change in student population levels caused by migration was not always greatest for school areas characterized by a high rate of mobility. Nevertheless, when, for example, net losses and gains were expressed as a percentage of the school enrollments for the 1970-71 school period, the school areas with relatively high "net loss percentages" tended to be those with relatively high rates of mobility. Of the twelve school areas with relatively high rates of mobility, seven had relatively high "net loss or gain percentages" (9 percent or higher).[6] The remaining five schools tended to be characterized by a moderate rate of student mobility. Only one school with a relatively low rate of student mobility had a relatively high rate of population change. The enrollment of this school was comparatively small and small changes in the number of students meant relatively large rates of change.

6. In terms of actual changes in student population, a net loss or gain percentage of 9% was equivalent to a change in enrollment of at least 30 students (one classroom).



MAP I: MOBILE SCHOOL AREAS

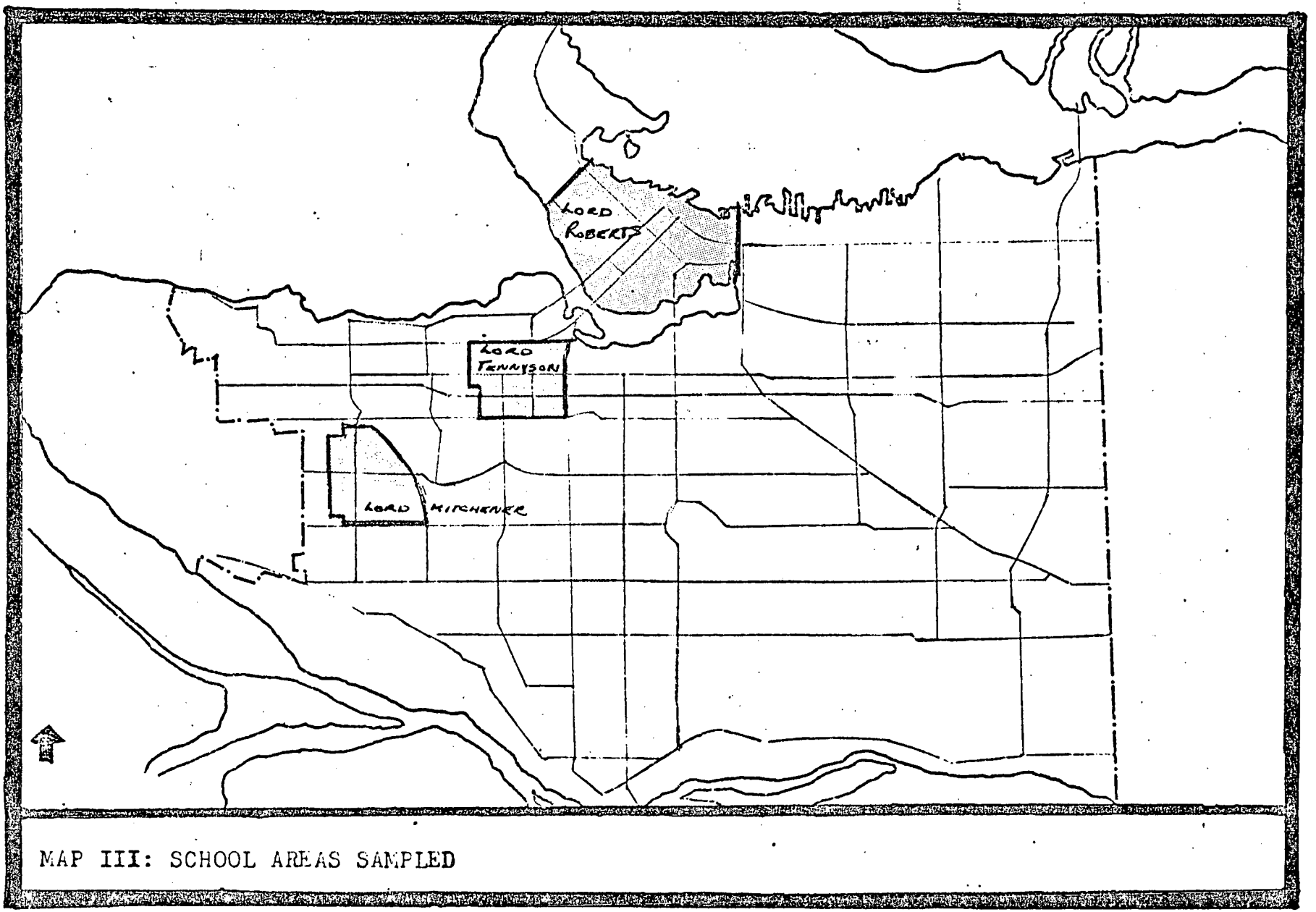


MAP II: STABLE SCHOOL AREAS

On the basis of the varying impacts which the different migration streams had on the student population in Vancouver City, three school areas were chosen for the survey. Map III portrays their location and boundaries. These had varying rates of both student mobility and changes in student population. The three school areas were characterized by different migration streams. Table 4 portrays the relative importance in 1970-71 of each migration stream to be sampled in the three school areas.

In the Lord Roberts school area, the transfers in and out constituted 76.1% of its enrollment, and the increase in its student population for the 1970-71 period was 14.7% (85 students). The most important migration stream was in-migration from areas outside the Lower Mainland. This was also primarily responsible for the relatively high increase in student population for this period. However, Lord Roberts also experienced a slight net gain from other schools in Vancouver City.

In the Lord Tennyson area which was also characterized by a relatively large amount of mobility, the transfers in and out constituted 55.5% of its enrollment. However, in contrast to Lord Roberts, its student population experienced a relatively large decrease (10.7%), equivalent to 55 students, during the 1970-71 period.



MAP III: SCHOOL AREAS SAMPLED

The strongest migration streams were those between Lord Tennyson and other Vancouver schools, in particular migration out to other Vancouver schools. This exchange was primarily responsible for the net loss of students from the area. An additional factor contributing to the net loss of students was the net out-migration to the Lower Mainland.

In the Lord Kitchener school area, the transfers out comprised only 20.4% of the enrollment. It experienced a relatively small increase in student population (2.5%). The latter was equivalent to an increase of 19 students. The main migration stream for Lord Kitchener was in-migration from other Vancouver schools. This was primarily responsible for the slight net increase in its student population, counteracting the net loss to the Lower Mainland.

There was little variation amongst the three school areas in terms of their transfers to and from the Lower Mainland, consistent with school areas in Vancouver City as a whole.

Table 4

Proportion of Total Transfers in Each School Area, Subdivided by Origin and Destination, Vancouver City, 1970-71

School Areas, Transferring From and To:	Proportions Transferring
From Lord Roberts to other Vancouver Schools:	14.9%
To Lord Roberts from other Vancouver Schools:	19.3%
From Lord Roberts to Lower Mainland:*	10.9%
To Lord Roberts from Lower Mainland:	5.5%
To Lord Roberts from areas outside the Lower Mainland:**	34.3%
From Lord Tennyson to other Vancouver Schools:	29.8%
To Lord Tennyson from other Vancouver Schools:	20.2%
From Lord Tennyson to Lower Mainland:	11.9%
To Lord Tennyson from Lower Mainland:	8.6%
To Lord Tennyson from areas outside the Lower Mainland:	9.5%
From Lord Kitchener to other Vancouver Schools:	12.7%
To Lord Kitchener from other Vancouver Schools:	23.6%
From Lord Kitchener to Lower Mainland:	10.3%
To Lord Kitchener from Lower Mainland:	2.9%
To Lord Kitchener from areas outside the Lower Mainland:	14.9%

* Lower Mainland does not include Vancouver City.

** Migrants to areas outside the Lower Mainland are not sampled in the study and therefore are not portrayed in the table.

B. The Sample

The names and addresses of students transferring in and out of each school area are recorded at the particular school. Some of the records are incomplete; in some cases both the addresses and schools to which the students had transferred were unknown. In other cases, only the schools to which the students had transferred were known.

In the case of the latter, an attempt was made to obtain their addresses by contacting the schools involved. Many of the students who had transferred, from the Lord Tennyson school area in particular, had already moved again.

In regard to transfers to the Lower Mainland, it was impossible to obtain the new addresses from Lower Mainland schools. Such information is considered confidential, and only in the case of Vancouver City was such information available. Transferees to the Lower Mainland are consequently under-represented in the sample.

These difficulties in sampling were reflected in the sample obtained for the separate school areas (Table 5). A comparison of Tables 4 and 5 indicates that out-migrants to the Lower Mainland were particularly

under-represented in the Lord Roberts area. For both Lord Roberts and Lord Tennyson, there were more in-migrants from the Lower Mainland sampled than out-migrants to this area. The actual transfer records for the time period sampled demonstrated a net loss to this area, and not a net gain.

Another discrepancy between Tables 4 and 5 occurred in the transfers between Lord Tennyson and other schools in Vancouver City. A tabulation of the actual transfers between Lord Tennyson and other Vancouver schools for the sampled time period depicted a net loss to other Vancouver schools, as existed in 1970-71. However, the sampled number of transfers out to other Vancouver schools fell short of the number of transfers into the school area.

C. Returns of the Questionnaire

The questionnaires were mailed to the parents and, approximately one week later, a letter of reminder was sent out to those who had not returned the questionnaire. 202 questionnaires were returned, approximately 48% of those mailed. Of these, 43.6% were from families transferring in and out of Lord Roberts school area. This represented 40.6% of the questionnaires sent to such families in this area. Of the remainder, 28.2% were from families associated with the Lord Tennyson area.

Table 5

Proportion of the Total Transfers Sampled in Each School Area, Subdivided by Origin and Destination, Vancouver City, Sept. 1, 1971 to Feb. 10, 1973*

School Areas, Transferring From and To:	Proportions Transferring
From Lord Roberts to other Vancouver Schools:	16.6%
To Lord Roberts from other Vancouver Schools:	22.6%
From Lord Roberts to Lower Mainland:**	4.6%
To Lord Roberts from Lower Mainland:	17.0%
To Lord Roberts from areas outside the Lower Mainland:***	39.2%
From Lord Tennyson to other Vancouver Schools:	30.4%
To Lord Tennyson from other Vancouver Schools:	40.0%
From Lord Tennyson to Lower Mainland:	8.9%
To Lord Tennyson from Lower Mainland:	7.2%
To Lord Tennyson from areas outside the Lower Mainland:	13.6%
From Lord Kitchener to other Vancouver Schools:	18.8%
To Lord Kitchener from other Vancouver Schools:	50.5%
From Lord Kitchener to Lower Mainland:	11.9%
To Lord Kitchener from Lower Mainland:	7.7%
To Lord Kitchener from areas outside the Lower Mainland:	10.9%

* The time period chosen for the sample was Sept. 1, 1971 to Feb. 10, 1973, the latter being the time at which the questionnaires were mailed. It was felt that the time period would be sufficiently long to provide an adequate sample, but not too long to prevent respondents from accurately recalling necessary information.

** Lower Mainland does not include Vancouver City.

*** Migrants to areas outside the Lower Mainland are not sampled in the study and therefore are not portrayed in the table.

The same percentage were returned by families moving in and out of the Lord Kitchener area. The returned questionnaires represented 45.6% of those relating to the Lord Tennyson area, and 56.5% for the Lord Kitchener area.

A comparison of Tables 5 and 6 indicates the proportion of questionnaires returned relative to the proportion sampled. There were some discrepancies between the proportional representation of the migration streams in the sample and in the responses. For example, there was a greater response from families transferring into Lord Roberts and from other Vancouver school areas, than from families transferring in the reverse direction.

On the whole, the dominant migration streams for each school area were adequately represented. For example, the response of in-migrants from areas outside the Lower Mainland was approximately in proportion to the number sampled. In-migrants into the Lord Kitchener area from other Vancouver schools responded similarly. In the Lord Tennyson area, however, the proportion of responses from in-migrants from other Vancouver City school areas was less than that sampled. Those transferring to other Vancouver schools were over-represented. Nevertheless, while these responses were not in the proportions sampled, the relative proportions

Table 6

Proportion of Total Transfers Responding to Questionnaire in Each School Area, Subdivided by Origin and Destination, Vancouver City, Sept. 1, 1971 to Feb. 10, 1973

School Areas, Transferring From and To:	Proportion Responding
From Lord Roberts to other Vancouver Schools:	24.4%
To Lord Roberts from other Vancouver Schools:	16.6%
From Lord Roberts to Lower Mainland:*	4.4%
To Lord Roberts from Lower Mainland:	13.3%
To Lord Roberts from areas outside the Lower Mainland:**	41.1%
From Lord Tennyson to other Vancouver Schools:	40.0%
To Lord Tennyson from other Vancouver Schools:	25.0%
From Lord Tennyson to Lower Mainland:	8.3%
To Lord Tennyson from Lower Mainland:	8.3%
To Lord Tennyson from areas outside the Lower Mainland:	18.3%
From Lord Kitchener to other Vancouver Schools:	23.2%
To Lord Kitchener from other Vancouver Schools:	48.2%
From Lord Kitchener to Lower Mainland:	7.1%
To Lord Kitchener from Lower Mainland:	7.1%
To Lord Kitchener from areas outside the Lower Mainland:	14.3%

* Lower Mainland does not include Vancouver City.

** Migrants to areas outside the Lower Mainland are not sampled in the study and therefore are not portrayed in the table.

Table 7

Proportion of Total Transfers, Total Sample, and Total Responses, Represented by Each Migration Stream

Migration Streams	Prop. of Total Transfers Rep. by Migration Streams	Prop. of Total Sample Rep. by Migration Streams	Prop. of Total Transfers Rep. by Migration Streams
Transfers Out to other Vancouver Schools	22.3%	23.8%	29.2%
Transfers In from other Vancouver Schools	25.5%	30.7%	29.9%
Transfers Out to Lower Mainland	14.8%	7.4%	6.4%
Transfers In from Lower Mainland	8.2%	12.1%	9.9%
Transfers In from areas outside the Lower Mainland	29.2%	26.0%	24.9%

* Lower Mainland does not include Vancouver City.

for the two migration streams did represent the actual migration situation. There were more out-migrants to other Vancouver City schools than in-migrants, although as previously established, the sample did not reflect this.

The proportion of responses from out-migrants to the Lower Mainland might be so low as to affect the results of the study. As indicated previously, relatively few of these families could be sampled. In addition, for the Lord Kitchener area, a smaller proportion of those migrating to the Lower Mainland responded to the questionnaire than were sampled. The relatively smaller size of the sample and of the response for the migration stream between Vancouver City and the Lower Mainland is illustrated in Table 7.

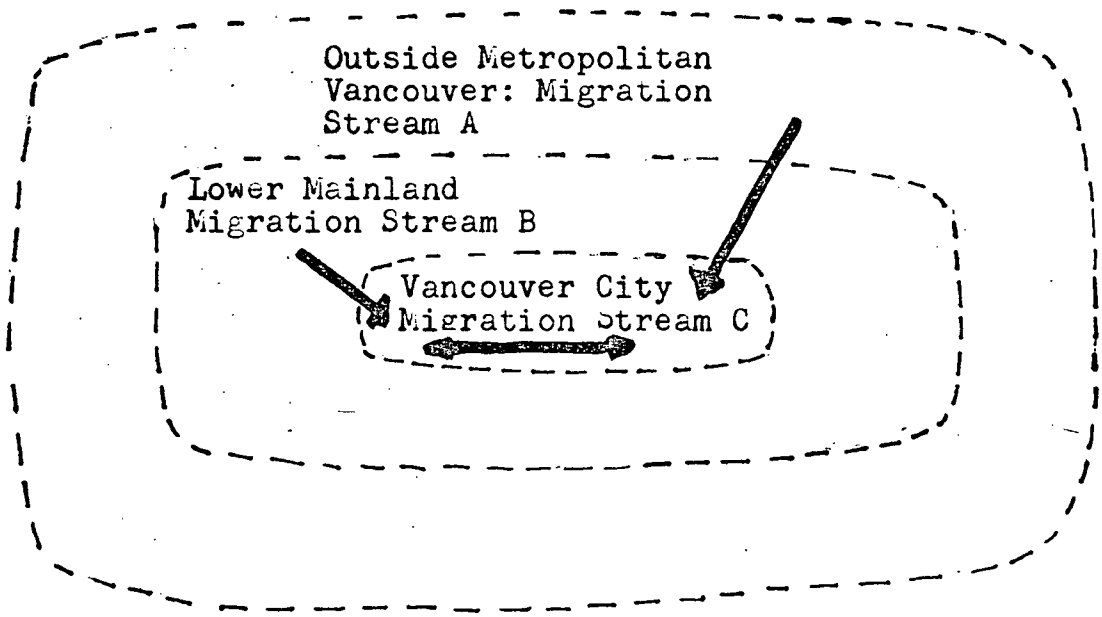
CHAPTER IV: SURVEY RESULTS

I. Hypotheses Related to Reasons for Out-Migration from Different Origins into City School Areas

The first major hypothesis states that there will be significantly different reasons for the movement of families from different areas into the city. These expected differences were delineated in a number of sub-hypotheses. They were reasons related to change of job, location to job, and dwelling unit and neighborhood features, respectively, for families moving from outside the metropolitan area (Diagram 1, Migration Stream A), from the suburbs (Diagram 1, Migration Stream B), and from other areas in the city (Diagram 1, Migration Stream C).

Diagram 1

Migration Streams Affecting
School Enrollments in Vancouver City



Question 9, 18, and 19 of the questionnaire were used to test these hypotheses. Question 9 indicated the three main areas of origin for families moving into city areas in Vancouver. Question 19 was the most important question in terms of the response rate as it provided a uniform set of factors to which all households could respond. It contained a list of the possible reasons for the movement of families, and respondents were asked to indicate the importance of these reasons. Question 18, an open-ended question asking respondents to state the reasons for the movement out of their previous residence, was not answered as completely as question 19. It was more often used when the important reasons for the family's out-migration were not delineated in question 19.

Chi-square values indicated that there were significant differences in the factors which contributed to the migration of families from various origins (Table 8).[7]

For in-migrants from areas outside the Lower Mainland, (Diagram 1, Migration Stream A), "change of job" and "other reasons" were significantly more important in contributing to their migration from

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7. See Appendix C. for an explanation of the Chi-Square and an illustration of its use in the present study.

their previous residence than they were for families originating from other areas. Of the respondents indicating "change of job" and "other reasons" to be of importance, 46.0% and 60.5%, respectively, were migrants from areas outside the Lower Mainland. This group constituted only 28.7% of the sample of in-migrants responding to these variables.

The migrants indicating "distance from job" to be of importance were from the Lower Mainland to a disproportionate extent. Of the respondents to this variable, 10.7% were from the Lower Mainland, (Diagram 1, Migration Stream B), but 26.3% of the families considering it to be of importance in their out-migration were from the Lower Mainland.

Housing factors were significantly more important for families who moved from other areas in the city, (Diagram 1, Migration Stream C), than they were for families who moved from areas outside the city. Of the out-migrating families specifying housing features to be important, at least 80% of those from other city areas noted each of the following specific housing features: home too run down; home too large or small; landlord sold home; offered a good price for home; and desired nicer home and/or neighborhood.

Two reasons related specifically to the neighborhood - "too much traffic" and "neighborhood too run down" were significantly more important for

families who moved out of areas in the city than for families who moved out of areas outside the city. Of the out-migrating families depicting these reasons to have contributed to their movement, 82.9% and 76.7%, respectively, were from other areas in the city.

The responses to the open-ended question (question 18) provided some additional insight into the motivating factors which were operating in different areas. For example, three "other reasons" for moving, significant at the .05 level, were considered important by a disproportionate number of families moving from areas outside the Lower Mainland. These were climatic, political, and cultural considerations. Over 80% of the households specifying these reasons to be important were migrants from areas outside the Lower Mainland, the latter comprising 29.5% of the respondents to the question.

General location was a statistically significant variable which was stated to be important by a disproportionate number of migrants from suburban areas. In contrast to the 9.6% which this group constituted of the total respondents to the question, 17.0% specified it to be important in their out-migration.

Table 8

Features Which Were Significantly Different in Contributing to the Migration of Families From Different Origins into Areas in Vancouver City

Feature	Level of Significance
Change of job	.005
Too far from job	.01
Home too run down	.025
Home too large or small	.005
Did not like design of home	.005
Landlord sold home	.05
Offerred a good price for home	.05
Too much traffic	.005
Desired nicer home and/or neighborhood	.005
Neighborhood too run down	.05
Other reasons for moving	.005

SOURCE: From chi-square values obtained by crosstabulating question 19 (22 reasons for moving) with question 9 (the migration streams) of the questionnaire.

The desire to buy a home was also a statistically significant variable at the 95% level of confidence. Of migrating families stating it to be important, 92.9% were from other Vancouver City areas. Of the

families responding to the question, 61.0% were from other Vancouver City areas.

Hypothesis I and its associated sub-hypotheses have consequently been supported in a statistically significant manner. However, while the contribution of different motivating factors to out-migration varied significantly in terms of the origin of the family, a relevant consideration is the absolute extent to which they were important for families from different origins.

Job reasons contributed more to the movement of families from areas outside the Lower Mainland than of families originating from other areas. However, of the families from areas outside the Lower Mainland, only 41.1% and 46.4%, respectively, depicted "change of job" and "other reasons" to be important. The proportion of migrants from these areas stating political and climatic reasons, and the desire to live in a different cultural setting as having contributed to their out-migration was considerably lower.

For families originating from the Lower Mainland "location to job" was considered important by 47.6% of the families, while "location in general" was stated to be important by 50% of these out-migrants.

In the case of families who moved from other areas in Vancouver City, only two variables were considered important by 40% or more of the families. These were size of home, and the desire for a nicer home, specified as important by 48.7% and 47.1%, respectively, of these out-migrants.

II. Hypotheses Related to Choice of a Residence

The second hypothesis stated that the importance attached to residential features in the choice of a home by families from different origins would vary significantly. Dwelling unit and neighborhood features were expected to be significantly important for families who moved within the city, and location for families who moved from areas outside the city (sub-hypotheses one and two of hypothesis two).

The second set of hypotheses was tested by cross-tabulating question 9 with questions 22 and 23. As previously stated, question 9 delineated the area of origin. Question 23, a list of locational, dwelling unit, and neighborhood features which might be important in the choice of a home, was more valuable than question 22. The latter, an open-ended question asking respondents to indicate the important factors in their residential choice, was,like question 18, used mainly to determine important factors not listed in the closed question.

The chi-square values depicted significant differences in the importance attached to most of the housing features, but to only a few of the locational features (Table 9).

Table 9

Features Which Were of Significantly Different Importance in Contributing to the Choice of a Home by Families from Different Origins

Feature	Level of Significance
Closer to shopping.....	.025
Closer to recreational facilities....	.05
Size of home.....	.01
Cost or rent of home.....	.025
Design or layout of home.....	.005

SOURCE: From chi-square values obtained by crosstabulating question 23 (16 factors important in the choice of a residence) with question 9 (the migration streams) of the questionnaire.

Features of the dwelling unit were considered to be more important by families who moved from other areas in the city, than they were by families who moved from areas outside the city. Of in-migrating families considering size to be important, 68.1% were from other areas in the city, while 60.9% of the respondents to this question were from this area. Of in-migrating families noting cost and design of home

to be of relevance in their residential choice, 64.5% and 68.3%, respectively, were from other city areas. In contrast, 9.4%, 7.8%, and 9.6% of families indicating size, cost, and design, respectively, to be relevant were from the Lower Mainland. The latter constituted 11.7% of the respondents. In the case of in-migrants from areas outside the Lower Mainland, comprising 27.4% of the respondents, 22.5%, 27.4%, and 18.4% specified size, cost, and design, respectively, to contribute to their residential choice.

Of the in-migrating families, there was a tendency for a considerably greater proportion of families from other city areas than from areas outside the city to note the importance of specific dwelling unit. features. Size was considered important by 78.3%, 47.8%, and 72.2% of families from other city areas, the Lower Mainland, and areas outside the Lower Mainland, respectively. Design of home was important to 68.3% of families from other city areas, but only to 47.8% of families from areas outside the Lower Mainland.

While dwelling unit features were significantly more important, in the choice of a home, to families who moved within the city, neighborhood features were not. With the exception of the "status of the neighborhood" these features were considered important by more than 50% of all in-migrants. There was not sufficient

variation among the groups in the importance attached to "status of neighborhood", "type of people in neighborhood", and "quality of school" to produce chi-square values which were statistically significant.

While there was thus some support for sub-hypothesis four, dealing with the relative importance of dwelling unit and neighborhood features in residential choice, support for sub-hypothesis five, dealing with locational features, was more limited. Proximity of job was expected to be significantly more important in the choice of a home for migrants from areas outside the city than for families moving within the city. While a greater proportion of respondents from areas outside the city did specify proximity of job to be important, the differences were not statistically significant at the .05 level.

Two locational factors which were statistically significant were nearness to shopping and to recreational facilities. These were more important for families who moved from areas outside the Lower Mainland than for families who moved from both the Lower Mainland and other city areas.

Nearness to shopping was important for 77.8% of families who moved from areas outside the Lower Mainland, but important for only 47.8% and 58.3% of families

from the Lower Mainland and other city areas, respectively. Of the in-migrants considering it important in their choice of a home, 34.1% were families from areas outside the Lower Mainland, a group which constituted 27.6% of the total respondents. Disproportionately fewer families from the Lower Mainland and other city areas considered it important. Of the families noting location to shopping to be important, 8.9% and 56.9% were from the Lower Mainland and other city areas, respectively. The sample of respondents was composed of 11.7% from the Lower Mainland, and 60.9% from other city areas.

Similarly, of the families depicting accessibility to recreational facilities as contributing to their residential choice, disproportionately fewer were from the Lower Mainland than other city areas (10.9% and 55.5%, respectively), relative to their representation in the sample (see above). Disproportionately more were from areas outside the Lower Mainland (33.6%). Of the in-migrants from areas outside the Lower Mainland, 79.6% specified this variable to be important, in contrast to 60.9% for those from the Lower Mainland, and 59.2% for families from other city areas.

The factors considered in the choice of a residence were noted as being important by a greater proportion of families from each area of origin, than were reasons for moving from the previous residence. No single reason for moving was considered to have been important by more than 50% of the families. In contrast, there were many factors of the residential environment considered important by more than 50% of the families from each area in their choice of a residence.

III. Hypotheses Related to School Areas

A. Hypotheses Related to the Choice of a Residence

Hypothesis three and its corresponding sub-hypotheses predicted that significant differences would exist in the importance attached to residential features by families moving into school areas characterized by different migration streams. Dwelling unit and neighborhood features were presumed to be significantly important for families who moved into school areas characterized by an in-migration from other city areas. Locational factors were anticipated to be important for school areas characterized by an in-migration from areas outside the city.

Table 10

Residential Features Considered Important by More Than 50% of Families from Different Origins in the Choice of Their Home

Origin of Family	Residential Feature	Proportion of Families Attaching Importance to the Features
Families from other city areas	Being near to job	55.8%
	Being near to shopping	58.3%
	Being near to recreational facilities	59.2%
	Being near to schools	76.7%
	Size of home	78.3%
	Quality of home	75.8%
	Cost or rent of home	75.8%
	Design or layout of home	68.3%
	Status of neighborhood	50.9%
	Type of people in neighborhood	58.3%
	Quality of schools	7.17%
Families from the Lower Mainland	Being near to job	73.9%
	Being near to recreational facilities	60.9%
	Being near to schools	73.9%
	Size of home	56.5%
	Quality of home	69.6%
	Type of people in neighborhood	52.2%
	Quality of schools	57.4%
Families from areas outside the Lower Mainland	Being near to job	68.5%
	Being near to shopping	77.8%
	Being near to recreational facilities	79.6%
	Being near to schools	85.2%
	Size of home	57.4%
	Quality of home	64.8%
	Cost or rent of home	72.2%
	Type of people in neighborhood	51.9%
	Quality of schools	82.6%

SOURCE: Crosstabulation of question 23 (factors important in the choice of a home) with question 9 (the migration streams) of the questionnaire.
* Lower Mainland does not include Vancouver City.

To test the hypotheses, question 2, which indicated the school area into which a family had transferred, was crosstabulated with questions 22 and 23, which as previously stated, portrayed the factors considered important by families in the selection of a residence. Residential features which were statistically significant for school areas characterized by different migration streams are listed with their corresponding levels of significance in Table 11.

The features of the dwelling unit itself were considered to be significantly more important in the Lord Kitchener area, which is characterized by a net in-migration of families from other areas in Vancouver City, than in the Lord Roberts area, characterized by a large influx of families from areas outside the Lower Mainland. In the Lord Tennyson area, characterized by a net out-migration to other city schools, the responses to the residential variables were, in most cases, closest to the average for the sample.

Size was considered to be important by 82.1% of the families who moved into the Lord Kitchener area, but by only 50.8% of the families who moved into Lord Roberts area. Quality of home was noted as important by 87.2% of migrants into the Lord Kitchener area,

but only 57.4% of those who moved into Lord Roberts area. Of the families who moved into Lord Kitchener area, 87.2% and 71.8% specified cost and design of home, respectively, to be relevant to their choice of home. This contrasted with 62.3% and 37.7% for the Lord Roberts area.

Table 11

Features Important in the Choice of a Home Which Varied Significantly Between School Areas Characterized by Different Migration Streams

Feature	Level of Significance
Being near to shopping.....	.005
Size of home.....	.005
Quality of home.....	.025
Cost or rent of home.....	.05
Design or layout of home.....	.005
Status of neighborhood.....	.01
Quality of school.....	.005

SOURCE: From chi-square values obtained by crosstabulation of question 23 (16 factors important in the choice of a residence) with question 2 (school areas into which families transferred) in questionnaire.

The families in the Lord Kitchener area who specified dwelling unit features to be important contributed a greater proportion of this type of respondent than they

did of the total number of respondents. The reverse was true in the Lord Roberts area. Of the respondents to the question, 29.8% and 46.6% were families who moved into Lord Kitchener and Lord Roberts school areas, respectively. Of the families who specified size, quality, cost, and design to be important, 37.6%, 38.2%, 36.6%, and 41.8% respectively had moved into the Lord Kitchener area, and 36.5%, 39.3%, 40.9%, and 34.3%, respectively, into the Lord Roberts area.

Neighborhood characteristics were significantly more important for families which had moved into the Lord Kitchener area than into the Lord Roberts area. Status of neighborhood was indicated to be important by 69.2% of migrants into Lord Kitchener, but only by 39.3% of those who moved into Lord Roberts. Similarly, quality of school was more important for those who moved into Lord Kitchener; 87.2% indicated it to be important in contrast to 54.1% for Lord Roberts. Of the respondents who noted status of neighborhood and quality of school to be important, 42.2% and 38.6%, respectively, were migrants into Lord Kitchener, while 37.5% were families which had moved into the Lord Roberts area for both variables.

There was only one locational variable (accessibility to shopping) for which migrants into the different school areas responded in a statistically significant manner. It was most important for families which had moved into the Lord Roberts area, being depicted by 82.0% of them. Only 64.1% of migrants into the Lord Kitchener area did likewise. Other locational variables, such as nearness to job and recreational facilities, were considered important by families moving into all three school areas, but there was little variation in the proportions between school areas.

Although there has been significant variation in the importance attached to residential features between school areas, considerable importance was attached to most residential features in all the school areas. Table 12 delineates residential features specified as important by more than 50% of the in-migrants, and the proportion of families in each school area noting them to be important.

Table 12

Residential Features Considered Important by More Than 50% of Families Migrating into School Areas Characterized by Different Migration Streams

School Areas	Feature	Proportion of Families Attaching Importance to the Feature
Lord Roberts	Being near to job	70.5%
	Being near to shopping	82.0%
	Being near to recreational facilities	75.4%
	Being near to schools	83.6%
	Size of home	50.8%
	Quality of home	57.4%
	Quality of school	54.1%
Lord Tennyson	Being near to job	64.5%
	Being near to recreational facilities	54.8%
	Being near to schools	64.5%
	Size of home	71.0%
	Quality of home	64.5%
	Cost or rent of home	67.7%
	Design or layout of home	51.6%
	Type of people in neighborhood	54.8%
	Quality of school	67.7%
Lord Kitchener	Being near to job	69.2%
	Being near to shopping	64.1%
	Being near to recreational facilities	71.8%
	Being near to schools	84.6%
	Size of home	82.1%
	Quality of home	87.2%
	Cost or rent	87.2%
	Design or layout	66.7%
	Status of neighborhood	69.2%
	Type of people in neighborhood	66.7%
	Quality of school	87.2%

SOURCE: Crosstabulation of question 23 (factors important in the choice of a home) with question 2 (school areas into which families had transferred) of the questionnaire.

B. Hypothesis Related to Reasons for Out-Migration

The expectation that residential features would contribute to the out-migration of families from city school areas to other parts of the city was stated in hypothesis four. In addition, this hypothesis anticipated that residential features would be significantly more important in school areas characterized by families moving to other city school areas.

This hypothesis was tested by crosstabulating question 10, indicating the area from which the household had transferred, with question 18 and 19, describing the reasons for movement out of the previous residence. It was expected that more than 50% of the families which migrated from the three school areas would indicate some features of the residence to have been more important than others. In particular, it was expected that families migrating from the Lord Tennyson area would attach significantly more importance to residential features than families moving from the other school areas, as this school area was chararacterized by a net out-migration to other school areas in the city.

There was little support for the hypothesis. The only two variables considered important by more than 50% of the respondents from any school area were size of home and the desire to live in a nicer home and/or

neighborhood. The former was noted as important by 55.6%, 44.8%, and 55.6% of the respondents which moved from Lord Roberts, Lord Tennyson, and Lord Kitchener, respectively. The desire to live in a nicer home and/or neighborhood was specified by 48.1%, 62.1%, and 50.0% of the families from Lord Roberts, Lord Tennyson, and Lord Kitchener, respectively.

"Too much traffic" was the only variable which was statistically significant at the .05 level. Of those considering this to be an important reason for out-migration, 52.0% came from the Lord Tennyson area which contributed 39.2% of the respondents. Of the families moving out of this area, 44.8% noted it to be important, while 37.0% and 11.1% of the families moving from Lord Roberts and Lord Kitchener, respectively, specified it to be important.

IV. An Examination of Other Significant Differences Among Migration Streams and Among School Areas

Demographic, socio-economic, and housing variables plus areas considered in the choice of a residence and reasons for considering the areas were examined to determine the existence of statistically significant differences between the migration streams (families from different origins moving into city school areas)

and between the school areas. In the case of the areas considered in the choice of a residence and the reasons for considering the areas, the variations in the responses were too varied to permit any statistically significant results to emerge. Neither were there statistically significant socio-economic differences among the different migration streams. However, among the school areas there were some statistically significant demographic and socio-economic differences. For both the school areas and the migration streams, differences in housing type and tenure were statistically significant.

A. Demographic Variables

Variables describing the characteristics of the family which were statistically significant at the .05 level were type of family, single versus two-parent families; age of oldest child; and the composition of the family, described in terms of the ages of the children.

While most families in the three school areas included two parents, a significantly greater percentage of single-parent families moved into the Lord Roberts area. Of the single-parent families, 63.4% had moved into the Lord Roberts area, although families moving

into this area constituted only 47.4% of the total respondents to the question. Of all the families moving into the Lord Roberts area, 36.5% were single-parent families.

The number of children in the family was significantly smaller for the Lord Roberts area and larger for the Lord Kitchener area. Of families transferring into the Lord Roberts area, 60.3% were one-child families; and, of those migrating into the Lord Kitchener area, 51.3% were families with three children or more. Of those moving into the Lord Tennyson area, the greatest proportion were families with two children (38.7%).

In regard to the age of the oldest child, there was a significantly different percentage of families with the oldest child of elementary age in the Lord Roberts area - 87.3% of the families moving into the area. The greatest percentage of families with the oldest child in secondary school existed in the Lord Tennyson area, where 45.2% of in-migrating families had a child in this category.

Similarly, in terms of the ages of children in the family, Lord Tennyson had the greatest proportion of families with some children in the secondary grades.

The greatest percentage of families moving into both Lord Tennyson and Lord Roberts had just elementary children -48.4% and 68.3%, respectively. The school area characterized by the greatest proportion of in-migrating families with some pre-school age children was Lord Kitchener, with 38.5% of such families. Almost the same proportion were families with only elementary children (35.9%).

B. Socio-Economic Variables

Statistically significant socio-economic differences existing among the school areas concerned occupation categories and income levels. The migrants into Lord Kitchener area tended to be managers in large operations and professionals (51.2%). Only 33.3% and 19.6% in the Lord Tennyson and Lord Roberts areas, respectively, were in this category. In both of the latter two school areas, clerical workers and craftsmen were almost equally represented - 33.3% in Lord Tennyson and 34.4% in the Lord Roberts area. They comprised the major occupational group for Lord Roberts, and the second major one for Lord Tennyson.

Lord Kitchener was also characterized by the largest proportion of in-migrating families with high incomes. Of the families moving into this area, 57.8% had incomes of $12,000 per annum or more. This

contrasted with 24.7% for the Lord Tennyson area, and 19.3% for the Lord Roberts area. The greatest proportion of families with incomes of less than $6000 per annum had moved into the Lord Roberts area (71.0%). Similarly, the greatest percentage with incomes between $6000 and $8999 per annum were migrants into the Lord Tennyson area (41.2%).

C. Housing Variables

The housing variables which were statistically significant were type and tenure of present and previous home, and changes in both the size and cost of housing. Families from outside the Lower Mainland had migrated primarily into apartments (71.5%). Of these families, three-quarters were in apartment blocks of more than four stories. Over one-half of the families coming from the Lower Mainland (56.5%) moved into converted suites and apartments, the latter being mainly in buildings of four stories or less. Of families moving from other city areas, 70% moved into single attached or detached homes, or town houses.

There were significant differences among the school areas regarding the type of dwelling unit into which families had moved. The greatest proportion

of migrants into the Lord Roberts area moved into apartments in buildings of more than four stories (65.6%), while in the Lord Tennyson area, they moved into apartments in buildings of four stories and less (32.3%). Single detached units were chosen by 94.6% of migrants into the Lord Kitchener area. Other housing types which were important in the Lord Tennyson area were single attached (22.6%) and single detached (22.6%) units.

There were not statistically significant differences among the types of homes from which families of various origins had moved as approximately the same proportion (61%) from each area moved from what would be considered suitable family accommodation - single family dwelling units (single detached), duplexes (single attached), and town houses. However, for families moving into the three school areas, there were statistically significant differences between the school areas in the type of dwelling unit from which the family had moved. A significant percentage of families which moved into Lord Kitchener had previously occupied "suitable family accommodation" (89.5%). In contrast, only 54.1% and 51.6% of migrants into Lord Roberts and Lord Tennyson, respectively, had moved from this type of housing.

For families moving out of the school areas, differences in the type of housing into which they moved were not statistically significant, as the majority from all school areas moved into single family dwelling units, duplexes, or town houses.

Tenure of present home was statistically significant for the three school areas. In the Lord Kitchener area, 87.2% of the families moved into self-owned units. In the other school areas, however, the majority of migrants moved into rental units, 98.4% and 71.0% in the Lord Roberts and Lord Tennyson areas, respectively.

Tenure of present dwelling unit was also statistically significant for the different migration streams. The majority of families moving within the city transferred to self-owned units, while the majority of those moving into city areas from the Lower Mainland (73.9%) and from areas outside the Lower Mainland (86.0%) chose rental units.

Tenure of present dwelling unit was also statistically significant for families moving out of the three school areas. Most of the families from the Lord Roberts area moved into rental units (66.7%), while the majority of families from Lord Tennyson (51.7%) and Lord Kitchener (77.8%) moved into self-owned units.

There were significant differences in both changes in living space and cost of housing among school areas. A significant proportion of families which moved into Lord Kitchener area increased their living space (66.7%) and their housing costs (76.3%). In contrast, only a few families moving into the Lord Roberts area increased their living space (9.8%), and less than one-half (48.2%) increased their housing costs. While less than one-half of the families moving into Lord Tennyson increased their living space (48.4%), more than one-half (61.3%) increased their housing costs.

Changes in both living space and costs were not statistically significant for families moving out of the three school areas. Only change in living space was statistically significant for the different migration streams. Families moving from other areas in the city increased their living space (60.8%), while families from areas outside the Lower Mainland decreased their space (57.1%). Of those from the Lower Mainland, the greatest percentage decreased their living space (39.1%). However, an almost equivalent proportion maintained the amount which they had in their previous residence (34.8%).

CHAPTER V: DISCUSSION OF RESULTS

I. Limitations of the Sample

While significant variation was found among features important in the choice of a residence by families moving into Vancouver City school areas from different areas of origin, these differences may be specific to the sample, and not representative of the city as a whole.

Two locational features, nearness to shopping and recreational facilities, were significantly important for families moving from areas outside the Lower Mainland into Vancouver City. Most of these families, however, moved into the Lord Roberts area, within walking distance of most services. Nearness to shopping might not, for example, have been significantly more important for these in-migrants than migrants from other areas, were the former to move to other parts of the city.

While location to job was considered important in the choice of a residence by a greater proportion of migrants from outside the city than by intra-city migrants, it was also specified to be important by more than 50% of the latter group. The differences

among the migrant groups were not statistically significant. This could have been partly a function of the location of the Lord Kitchener school area into which a large proportion of the intra-city migrants were transferring. The school area is located in proximity to the University of British Columbia, where a considerable proportion of the in-migrating household heads were employed.

Dwelling unit features (size, cost, and design of home) were significantly more important for families moving within Vancouver City than for other migration streams, although more than 50% of the families from areas outside the city attached importance to dwelling unit features. It is therefore possible, for example, that such families moving into sections of the city other than the Lord Roberts school area, located near downtown, would attach as much importance to dwelling unit features as intra-city migrants.

Similarly, significant differences in the type and tenure of housing into which families moved, as well as the change in living space which they experienced as a result of the move, could have been partly due to the nature of the sample. For example, rented apartments in buildings of more than four stories and a decrease in living space were related significantly

to families moving into city areas from places outside the Lower Mainland. However, in the sample, these in-migrants moved mostly into the Lord Roberts area, containing most of the rental accommodation in the form of high-rise buildings in Vancouver City. This housing pattern is not repeated in other parts of the city.

While the results of the survey cannot necessarily be generalized completely to the school district as a whole, they point to the factors which should be considered in a similar examination of other parts of the school district.

II. Comparison of Results of Survey for Migration Streams with Results for School Areas

Significant differences in the features which were considered important in the choice of a residence were for the most part reflected in the residential features which were significantly important in school areas characterized by different migration streams.

Dwelling unit features (size, cost, and design), for example, were important for families moving within the city and for the Lord Kitchener area, characterized by migration from other areas in the city.

Location to shopping was important in the choice of a home for both migrants from areas outside the

Lower Mainland, and for the Lord Roberts area, characterized by this migration stream.

Self-owned single family dwelling units and an increase in living space were statistically important to families who moved into city school areas from other city areas and into the Lord Kitchener area.

Rented apartments in buildings of more than four stories and a decrease in living space were significant for families who moved from areas outside the Lower Mainland and into the Lord Roberts area.

School areas, however, are affected by more than one migration stream, and this has resulted in significant differences among school areas not existing among the migration streams characterizing the school areas. In other cases, differences which were statistically significant for the migration streams were not significant for the school areas which they characterized.

Neighborhood features in the choice of a residence, for example, were not statistically significant for the migration streams, but they were for the school areas. Status of neighborhood and quality of schools were significantly important for the Lord Kitchener area. The type of dwelling unit out of which families had moved was not statistically significant for the migration streams, but was significantly important

for the Lord Kitchener area. Three-quarters of the families who moved into this school area moved out of single family dwelling units. Significant socio-economic and demographic differences existed for the school areas, but not for the migration streams which characterized them. For example, single-parent and one-child families were significantly important for the Lord Roberts area, and families of three children and more for the Lord Kitchener area. The school area with the greatest proportion of secondary school age children was Lord Tennyson, and that with the greatest percentage of pre-school age children was Lord Kitchener. Higher income families were significant in the Lord Kitchener area and lower income families in the Lord Roberts area. Similarly, professionals and managers of large-scale operations characterized Lord Kitchener, while clerical workers and craftsmen were the most dominant occupational group in the Lord Roberts area.

There were fewer differences which were significant for the migration streams but not for the school areas which they characterized. Nearness to recreational facilities was important for migrants from areas outside the Lower Mainland, but not for the Lord Roberts area. Increases and decreases in living space characterized families who moved within the city and into the city

from places outside the Lower Mainland, respectively. Changes in living space, however, were not statistically significant for the school areas.

For the sample as a whole, there were several significant reasons for the movement of families from one area in the city to another: reasons related to the dwelling unit ("home too run down", "home too large or small", "did not like design of home", "offerred a good price for home," "landlord sold home"); and reasons related to the neighborhood ("neighborhood too run down", "too much traffic"). However, in terms of the out-migration of families from the three sampled school areas to other parts of the metropolitan area, the only statistically significant variable was "too much traffic". It was most important in the school area characterized by a net out-migration to other parts of the city.

The preceding results demonstrate the necessity of analyzing more than the factors affecting the dominant migration stream which characterizes the school area. Such factors do suggest those which should be investigated, but an analysis on a school area basis yields more detail and slightly different information.

CHAPTER VI: IMPLICATIONS FOR PLANNING

Changes in migration levels have hampered the accurate prediction of elementary student populations and have contributed to an imbalance in demand for existing educational facilities and to an increase in the per pupil cost of education. The results of the present study suggest factors which may be incorporated into a technique for the prediction of student enrollments to make it more comprehensive than those generally adopted by educational planners. In addition, the results suggest the means by which educational planners may shape migration patterns, controlling to some extent the migration of students from school areas and the school district. Making an attempt to influence the migration patterns which affect student populations represents a marked change from the traditional approach of educational planners. The basic function of school boards has been to provide the necessary facilities to accommodate changes in student population levels (Public Schools Act, Sections 158, 177).

I. The Prediction of Student Enrollments

The incorporation of those factors suggested by the study into a projection of elementary school enrollments

would entail not only a comprehensive approach to the prediction process, but would involve cooperation with other governmental agencies.

The movement of families from the suburban areas into Vancouver City is a migration stream which does not affect the student populations of either the specific school areas or the entire city school district as much as other migration streams do. Nevertheless it does counteract the flow from the city to the suburbs and is susceptible to drastic change. For example, moving closer to work, which was significantly important for this migration stream, could possibly cease to be relevant if rapid transit were developed. It is therefore necessary that educational planners be aware of plans for major transportation developments and their impacts on residential developments. This entails communication with the Greater Vancouver Regional District, which would be responsible for initiating major transportation developments in Metropolitan Vancouver.

In projecting the number of families moving from areas outside Metropolitan Vancouver into the Vancouver School District, planners of school facilities should consider the employment situation in Metropolitan

Vancouver relative to other centres in Canada. "Change of job" was one of the main reasons for migration from areas outside Metropolitan Vancouver into Vancouver City. "Other reasons" was an additional, important variable to which this migration stream responded in the questionnaire. These included political and climatic considerations, and the desire to live in a different cultural setting. Some immigrants from other countries, for example, Tanzania, moved for political reasons, while Vancouver's mild climate influenced in-migrants from other parts of Canada. It is therefore necessary to consider the climatic and cultural attractiveness of Metropolitan Vancouver, relative to other areas in Canada, and to take into account Canadian immigration policy.

Calibration of the employment situation in Metropolitan Vancouver relative to other areas, and estimation of the additional effect which climatic and cultural conditions have on in-migration would be facilitated if the Vancouver School Board Planning Department worked in cooperation with the local research branch of the Manpower and Immigration Department. The latter has monthly records of the unemployment situation in Metropolitan Vancouver and other areas in Canada. In addition, they are attempting to develop a model to

predict the demand for labor in Metropolitan Vancouver. Migration from other parts of Canada and other countries are essential components of their model.

An understanding of the factors which affect the movement of households in Metropolitan Vancouver from outside areas will assist in the projection of student enrollments, but will not provide a complete understanding of the migration process. It will not indicate the extent to which the in-migrants will move into Vancouver City as opposed to the suburban areas of Metropolitan Vancouver, nor will it depict the extent to which these in-migrants will move into specific areas in Vancouver City.

The factors which affect the migration of families from areas outside Metropolitan Vancouver into Vancouver City are residential features. A limited supply of the features which are important to this migration stream in certain areas of the city and in the school district relative to suburban areas would cause these migrants to settle in other parts of the city and the suburban areas, respectively.

The residential features considered important by more than 50 percent of the respondents from areas outside Metropolitan Vancouver were accessibility to job and services (shopping, recreational facilities and

schools); housing (size, quality, and cost); and neighborhood (type of people and quality of school). Accessibility to shopping and recreational facilities were significantly more important for this group of in-migrants than for other groups. However, this may have been partly due to the nature of the sample. Similarly, rented apartments in high-rise buildings, which were the dwelling unit type and tenure chosen by this group, may have been specific to the sample. Nevertheless, the residential features which were significantly more important for this group than for other groups, in addition to those noted to be important by a majority of these in-migrants, should be considered in the prediction of enrollments in school areas other than those sampled.

In order to use these residential features as a means of predicting changes in migration levels, planners must quantify them. For example, cost of home was noted to be important in the choice of a residence by 72.2% of the families moving into Vancouver City from places outside Metropolitan Vancouver. In order to use this in a prediction of the movement of these families into specific school areas in Vancouver City and into the entire school district, planners

must know the cost of housing in the specific areas of the city, and in the city relative to other parts of Metropolitan Vancouver.

It is not essential that the Vancouver School Board Planning Department quantify all the residential features themselves. Data on type, tenure, and quality of housing exist at Vancouver City Hall, in both the planning department and the assessment department. Similar information for the other municipalities in Metropolitan Vancouver could possibly be obtained from other municipal planning departments and from the Greater Vancouver Regional District. The costs of self-owned dwelling units may be obtained from the Greater Vancouver Real Estate Board, and housing starts and completions from the local branch of Central Mortgage and Housing Corporation. However, other information, such as the rents of apartments and type of people in a neighborhood, is not readily available. Obtaining and quantifying this information will require cooperation between the Vancouver School Board Planning Department and other planning agencies.

A quantification of housing and neighborhood factors would also be necessary in order to predict the movement of families within the city and from the city to the suburban areas. Dwelling unit and

neighborhood features were more important for the intra-city migrants than they were for families moving from outside into Vancouver City. Size, condition, and quality of home, and neighborhood conditions, such as excessive traffic and run-down neighborhoods, were significantly important reasons for moving from one residence to another within Vancouver City. In the choice of a different residence, the intra-city migrants and families moving from the city to the suburban areas attached significantly more importance to size, cost, and design of home than did other migrants. The quanification of these factors for the purpose of predicting enrollments would be facilitated if the school planning department worked in conjunction with the government agencies previously mentioned: City Hall assessment and planning departments, other municipal planning departments, the Greater Vancouver Regional District, and Central Mortgage and Housing Corporation.

The quantification of housing and neighborhood factors for the purposes of predicting student enrollments should be done on a school area basis and then aggregated for the school district as a whole. The residential and neighborhood factors which were statistically significant for the migration streams did not always correspond to those which were significant

for the school areas which they characterized. The converse was always true. In addition, the study depicted significant differences among the ages and sizes of families moving into the specific school areas. Both types of demographic data are of value in predicting enrollments.

II. The Shaping of Migration Streams

Any attempt to influence the migration streams affecting elementary student enrollments would also necessitate cooperation with other governmental planning departments because local school boards do not have the delegated power to introduce the necessary programs and policies. This cooperation could either be "informal" and "unofficial" or "formal". In the case of the former, the school board would recommend changes to the particular planning agency involved. In the latter, the school board would have a vote in the decision to implement policies and programs.

The two approaches can be demonstrated with the following example. Some of the factors which have contributed to the migration of families from some city school areas to other parts of the city were those characterizing the decline of neighborhoods as residential areas. These were run-down homes and neighborhoods;

and too much traffic in the neighborhoods. Too much traffic may result from a number of causes: a major arterial road through a residential area, a change in housing type, and/or commercial and industrial encroachment into a residential area. Run down neighborhoods and homes are often associated with each other and with an excessive amount of traffic.

An "unofficial" approach to the prevention of the decline of school areas as residential areas would involve recommendations such as the following to either city council or to those city planning officials proposing changes: that major arterial roads not be built through residential areas, and that zoning not be changed to allow uses which increase the volume of traffic in school areas. Similarly, an "unofficial" approach used to counteract and change areas characterized by excessive traffic, and homes and neighborhoods which are run down,would involve recommendations to govenmental agencies. For example, zoning changes and changes in traffic regulations would be proposed to city planning officials or aldermen, while rehabilitation programs could be suggested to Central Mortgage and Housing Corporation.

An "official" approach to shaping migration streams would mean that school board representatives could

vote on zoning changes and other measures designed to implement policies and programs, or have representation on the zoning board in an official advisory capacity. In order to be able to do so, however, changes in both the Municipal Act and the Public Schools Act are necessary. It would be difficult to convince the provincial government of the necessity for this. A documentation of the effects which municipal programs have on student enrollments would be necessary. This would also be necessary in order to portray to city hall planning officials and aldermen the consequences of the measures which they intend to adopt. Otherwise they, and other government agencies, may tend to ignore recommendations made by the school board.

III. The Adaptation of Educational Plans to Meet the Effects of Migration

It is not only necessary that the school board provide evidence to convince municipal and provincial officials of the consequences of measures which they adopt. It is also essential for school boards to develop close communications with these agencies in order that they understand the reasons for proposed changes. Measures of benefit to the school board may be detrimental to several groups of people or to the city as a whole. In such a case, it would be

unrealistic to expect that the school board's recommendations would be adopted. However, an awareness of the likelihood of such an occurrence would permit educational planners to adjust their plans accordingly. For example, in areas which are likely to experience out-migration of students, classrooms may be created such that they can be converted easily for other uses. They could be in the form of classrooms either decentralized in a number of buildings, or in a multi-purpose building.

IV. Summary

The prediction of elementary school enrollments and the influencing of migration streams which affect student enrollments necessitates a more versatile approach to planning educational facilities than has been done in the past, and greater cooperation with other planning agencies. The latter is important if educational planners are to facilitate the prediction of school enrollments and to counteract or prevent factors which affect student populations in undesirable ways. At the same time it provides the educational planner with the opportunity to determine the probability of implementation of programs and measures which are detrimental to school planning objectives, but are of benefit to other groups within

the city. This permits him to adjust his plans to the situation and avoid inefficient utilization of the school board's resources.

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APPENDIX A

1. What are the ages of each person living in this home?

Person	Under 5	5-12	13-18	19-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
Wife													
Husband													
Sons and Daughters													
Other Relatives (specify)													
Others (specify)													

2. Which school(s) do your children attend?

_____

3. What is your marital status?
Single_____
Divorced_____
Married_____
Separated_____
Widowed_____

4. If you immigrated into Canada, what country did you come from?

_____

5. If you immigrated into Canada, when did you come?

_____

6. Please indicate the educational level of the head of the house:
Some High School or Less_____
High School Diploma_____
Some Vocational or Technical Training_____
Some University or College_____
University or College Degree(s)_____

7. What is the occupation of the head of this house?

_____

8. Please indicate the income level of this house (before taxes):
Under $6000_____
$6000 to $8999_____
$9000 to $11999_____
$12000 to $17999_____
$18000 to $23999_____
$24000 and over_____

9. Please check the area in which you lived just before moving here:

Vancouver City.....____

Any of the following: West Vancouver, North Vancouver, Burnaby Port Moody, Port Coquitlam, Coquitlam, New Westminster, Surrey, Delta, White Rock, Richmond.....____

Other.....____

10. If your home just before you moved here was in Vancouver City, what school(s) did your child or children attend?

_____

11. Please check the type of home in which you are now living:
Single Detached.....____
Single Attached (Duplex).....____
Conversion (for example, a suite in a home).....____
Apartment (building up to 4 stories).....____
Apartment (building 4 stories and more).....____
Row House or Town House.....____
Other (specify).....____

12. Is your present home rented or owned?
Rented_____
Owned_____

13. Please check the type of home in which you lived just before you moved here:
Single Detached.....____
Single Attached (Duplex).....____
Conversion (for example, a suite in a home).....____
Apartment (building up to 4 stories).....____
Apartment (building more than 4 stories).....____
Row House or Town House.....____
Other (specify).....____

14. Was your previous home rented or owned?
Rented_____
Owned_____

15. How does the family living space in this home compare with that in your previous home?
More_____
The Same_____
Less_____

16. Compared with the size of your family when you were living in your previous home, what is the size of your family now?
Larger_____
The Same_____
Smaller_____

17. How do your present monthly payments (mortgage, if buying your home, and rent, if renting) compare with those of the home you lived in just before moving here?
More_____
The Same_____
Less_____

18. There are many reasons why people move out of one area and into another one. Some people do not like certain things about their home and neighborhood.

a. If there were things you did not like about your home which were part of the reason why you moved, what were these things?

b. If there were things you did not like about your neighborhood which were part of the reason why you moved, what were these things?

19. The following is a list of things which may have been of importance in your decision to move out of your last residence. Please indicate whether they were of no importance, of some importance, or of great importance in your decision to move:

	Of No Importance	Of Some Importance	Of Great Importance
Change of job			
Change in marital status			
Change in family size			
Too far from job			
Too far from the school			
Too far from shopping			
Too far from playgrounds and recreation facilities			
Too far from daycare centers and/or play schools			
Home too run down			
Home too large or small			
Home too costly (rent, price of home, maintenance, etc.)			
Did not like design of home			
Evicted by landlord for a number of reasons - he did not like pets, children, etc.			
Landlord sold home			
Home being torn down			
Was offered a good price for home			
Neighborhood too run down			
Did not like neighbors			
Did not like the school			
Too much traffic in neighborhood			
Wanted to live in a nicer home and/or neighborhood			
Other (specify)			

20. When you were looking for a new place to live, what neighborhoods or areas did you consider?

21. Why did you consider these areas?

22. What were the important reasons for choosing your present home?

23. How important were each of the following in your choice of your present home?

	Of No Importance	Of Some Importance	Of Great Importance
Being near to job			
Being near to shopping			
Being near to daycare centres and/or play schools			
Being near to playgrounds and recreational facilities			
Being near to the school			
Being near to friends and relatives			
Being near to your church			
Being near to people of same ethnic origin			
Size of home			
Quality or condition of home			
Cost of home (or rent)			
Design or layout of home			
Status of neighborhood			
Type of people in neighborhood			
Quality of school			
Other (specify)			

THANK YOU VERY MUCH FOR YOUR COOPERATION.

APPENDIX B

TALLY SHEET OF STUDENT TRANSFERS

A-STUDENTS TRANSFERRED OUT OF THE SCHOOL						
	New Add.-Van.	Lower Main.	Outside Lower M.	Same Add.-Van.	Private Sch.	Other
Kind.						
Gr. 1						
Gr. 2						
Gr. 3						
Gr. 4						
Gr. 5						
Gr. 6						
Gr. 7						
Sp.						
Total						

B-STUDENTS TRANSFERRED INTO THE SCHOOL						
	New Add.-Van.	Lower Main.	Outside Lower M.	Same Add.-Van.	Private Sch.	Other
Kind.						
Gr. 1						
Gr. 2						
Gr. 3						
Gr. 4						
Gr. 5						
Gr. 6						
Gr. 7						
Sp.						
Total						

New Add.-Van. = New address and a different school in Vancouver City.
Same Add.-Van. = Same address but a different school in Vancouver City.
Lower Main. and Lower M. = Lower Mainland(exclusive of Vancouver City).

APPENDIX C

Chi-square

The validity of the various hypotheses was tested by means of the chi-square test criterion. Stated in simple terms, the chi-square test indicates the probability that an observed proportion of a population possessing some attribute is consistent with a specified, or expected value for this proportion.

The SPSS crosstabulation programme used in the analysis computed total chi-squares for each crosstabulation. In conjunction with the indicated degrees of freedom, the magnitude of the chi-square indicates the probability that the observed distribution among the crosstabulated attributes is consistent with the hypothesis that the attributes are independent.

Since the total chi-square refers to the distribution among all the attributes, it indicates nothing about the individual attributes. In instances where the total chi-square is significant, i.e. where the attributes are not independent, it is instructive to examine the chi-square for each attribute combination separately in order to discover any particular dependencies among the attributes. These individual chi-squares may be considered to have one degree of freedom for the purpose of assessing significance.

(This is not strictly correct as will be shown, but the method is indicative of significance).

The calculation of chi-square and the special method indicated above is illustrated by the following example.

OBSERVED FREQUENCIES

Area of Origin	Change of Job		Row Total
	No. Imp.	Some Imp.	
Other city areas	99	19	118
Lower Mainland	13	8	21
Outside the Lower Mainland	33	23	56
Column Total	145	50	195

If the crosstabulated attributes are independent, the expected frequencies will be distributed in proportion to the respective column and row totals. For example, the expected frequency in column 1, row 1 will be:

$$E_{11} = 195 \times 145/195 \times 118/195 = 17110/195 = 87.74$$

The expected frequencies are as follows:

EXPECTED FREQUENCIES

Area of Origin	Change of Job		Row Total
	No. Imp.	Some Imp.	
Other city areas	87.74	30.26	118
Lower Mainland	15.62	5.38	21
Outside the Lower Mainland	41.64	14.36	56
Column total	145	50	195

The chi-square for the entire tabulation is calcualted from the following formula:

$$\chi^2 = \sum(O-E)^2 / E$$

i.e. as the sum of the chi-squares "contributed" by each column/row cell.

These chi-square contributions are as follows:

CHI-SQUARE

Area of Origin	Change of Job		Row Total
	No. Imp.	Some Imp.	
Other city areas	1.44	4.19	5.63
Lower Mainland	.44	1.27	1.71
Outside the Lower Mainland	1.79	5.20	6.99
Column Total	3.67	10.66	14.33

The degrees of freedom for the total chi-square is:

$$df. = (\text{Columns} - 1)x(\text{Rows} - 1)$$
$$= (2-1)x(3-1) = 2$$

Considering each attribute comination to have 1 df. will give 6 df. for the entire table; this is obviously too large.

The total chi-square is highly significant since it is larger than the tabulated value of 10.60 for $p = 0.005$. The major contributions to the total chi-square arise in column 2, rows 1 and 3, with the largest individual chi-square values.

The reasons why rows 1 and 3 of column 2 produced statistically significant chi-square values can be determined by looking at the proportions from the various areas of origin attaching importance to "change of job", relative to the proportions which these groups constitute of the total sample; and the proportions attaching importance to it which are from the various areas of origin, relative to the proportions in the total sample attaching importance to it.

PROPORTIONS

Area of Origin	Change of Job		Row Total
	No. Imp.	Some Imp.	
Other city areas	a. = 83.9% b. = 68.3%	a. = 16.1% b. = 38.0%	c. = 60.5%
Lower Mainland	a. = 61.9% b. = 9.0%	a. = 38.1% b. = 16.0%	c. = 10.8%
Outside the Lower Mainland	a. = 58.9% b. = 22.8%	a. = 41.1% b. = 46.0%	c. = 28.7%
Column Percentage	d. = 74.7%	d. = 25.6%	100.0%

where: a. = the individual row percentages, or the proportions from each area of origin attaching importance to "change of job";
b. = the individual column percentages, or the proportions attaching importance to "change of job" being from various areas of origin;
c. = the row percentage, or the proportion of the total sample represented by respondents from each area of origin;
d. = the column percentage, or the proportion of total responses to each category of the variable("change of job").

For example, row 1, column 2 depicts 16.1% of the families from other city areas as indicating "change of job" to be an important reason for moving. This is lower than the percentage for the total sample (25.6%). Of those indicating "change of job" to be important, 38.0% were from other city areas, although this group constituted 60.5% of the total responses. Row three, column 2 depicts 41.1% of the families from areas outside the Lower Mainland attaching importance to "change of job" in their decision to move. This is higher than the proportion of the total sample attaching importance to "change of job" (25.6%). Of those indicating it to be important, 46.0% were from areas outside the Lower Mainland. This group, however, comprised only 28.7% of the respondents. The significantly statistic chi-square for the total sample, therefore, is due to fewer respondents than expected from other city areas attaching importance to to "change of job", and a greater number than expected from areas outside the Lower Mainland attaching importance to it.