AGE AS A DETERMINANT OF THE SPATIAL PREFERENCE SURFACE FOR HIGH RISE APARTMENT LOCATIONS IN VICTORIA, B.C.

by

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ABSTRACT

In recent years the increasing number of high rise apartment developments have dominated the urban landscape and become the subject of considerable controversy in urban politics. Events in Victoria and elsewhere in Canada, over the last five years, have demonstrated that local citizens, both as individuals and community groups are frequently opposed to the proposed locations of high rise apartment developments. This thesis examined public preference for high rise location in Greater Victoria with the objective of providing a gauge of public opinion on questions of location and aesthetics.

Past studies of high rise living indicate that socio-economic variables play a role in the selection of this housing type, particularly aspects of age such as life style and life cycle. Geography preference studies provide a methodology which can be used to measure public opinion. Through the analysis of individual preference surface maps a composite index of locational preference could be derived for the community.

The study investigated the preference surface for high rise residential location in Victoria, B.C. and examined the relationship of the overall preference pattern to various socio-economic and spatial variables. Since age has been shown to be such an important factor in past studies, the sample was stratified according to the age

structure of Greater Victoria and data were examined in terms of the whole sample and three age groups. The sample size was 101 with 27 in the 19-34 age group, 50 in the 35-64 age group, and 24 in the over 65 age group.

The first step in the analysis was to construct preference surfaces for the whole sample and individual age groups. These showed that there were definite areas of preferred and objected location. Since age specific patterns of preference existed within the sample the next step was to examine relationships of these patterns with various socio-economic and spatial predictor variables. A stepwise regression analysis indicated that predictor variables differed according to age, and that high levels of explained variance were obtained for some groups.

The study concludes that the public prefers specific locations for new residential high rise developments and that these preference surfaces do differ according to age. The findings of this study indicate that preference measurements can provide means of gauging public opinion on locational and aesthetic aspects of high rise development which could be used as citizen input into the future land use planning of cities.

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CHAPTER I.

INTRODUCTION TO THE STUDY

Over the last decade Metropolitan Victoria[1] has witnessed a dramatic increase in the number of apartment dwellings (Table 1) and the size of apartment buildings (Table 2). This high density[2] development has predominantly occurred in the urban core municipalities of Victoria, Oak Bay and Esquimalt, while high rise[3] apartment buildings have concentrated in Victoria and Oak Bay. Although partly a function of the increasing population in the region (Appendix A), several other factors have combined to produce this large increase in high density residential developments. As the price of land and building costs rose, developers pressured city councils to change zoning regulations which would permit increased residential densities that could accommodate high density developments including high rise apartment buildings. This pressure is likely to increase in the near future since the provincial Land Commission Act of 1973, in endeavouring to prevent the loss of good agricultural land through urban sprawl, has stalled further subdivision of agricultural land thus forcing future development into the existing built up areas.

The last decade has also shown that increasing residential densities have caused a great deal of community concern in Metropolitan Victoria. In particular, the proliferation of high rise apartment buildings has been the subject of great controversey and has

Table 1 Greater Victoria : Growth in Stocks of Apartment Dwelling Units 1961-1970

Area	1961		1964		1967		1970	
	Total D. U. starts	% of Apart-ment unit starts[1]	Total D. U. starts	% of Apart-ment unit starts	Total D. U. starts	% of Apart-ment unit starts	Total D. U. starts	% of Apart-ment unit starts
Victoria	307	72.9	1497	95.7	611	89.1	964	96.1
Saanich	529	22.6	567	12.5	533	22.8	568	61.9
Oak Bay	204	56.3	68	18.1	30	0.0	229	95.1
Esquimalt	140	51.4	150	79.3	36	0.0	146	73.2
Total:	1180	45.0	2272	71.9	1210	55.1	1907	84.1

[1] Apartment unit starts as a percentage of total dwelling unit starts.

Source: Based on Tables 3 and 4 in Social and Economic Survey of the Capital Region District, Capital Region Planning Department, March 1971.

Table 2. Greater Victoria : Construction of Apartment Buildings and Units, 1952-1971.

	Number of buildings	Number of units	Average Number of units per building
pre 1952	82	1,063	13.0
1952-55	35	450	12.9
1956-59	41	696	17.0
1960-63	45	1,395	31.0
1964-67	80	3,177	39.7
1968-71	140	6,578	47.0
Total:	423	13,359	

Sources: Central Mortgage and Housing Corporation statistics, and Victoria Real Estate Board vacancy surveys.

become the foremost election issue in recent years. If high density developments continue to grow at their present rate (25% per year since 1967) or at an increased rate, then the problems of planning and political controversy will become intensified. A major cause of public opposition to high density residential developments appears to have been the failure of planners and developers to engage the public in the planning process both for the zoning of high rise residential areas and the suitability of specific high rise developments. Since the concern demonstrated regarding the proposals for the Reid Centre, Windsor Park, Bay Village, Mulek and Riding Acdemy schemes suggests that the public has a desire to become involved in location decisions, the need to examine methods of integrating the public into the planning process appears to be an urgent necessity. Therefore the purpose of this study is to examine the feasibility of using preference surface analysis as a measure of gauging public opinion and reaction to future high rise residential developments with the hope that such analysis could provide planners and developers with a general guide for their future location decisions.

The Debate Concerning High Rise Residential Development

Any dicussion of residential high rise location must assess the implications of such development for the individuals who reside in these dwellings and the community as a whole. For the individual two stages in the life cycle are characterised by a demand for a housing unit smaller in size than the traditional single family

dwelling, and for rental accommodation. Apartment accommodation can fulfill both these requirements for two groups of people: younger people without children who do not require large amounts of space and who cannot or do not wish to own a house, and the retired who often feel that a rental apartment is more attractive than house ownership in that it does not have the associated problems of maintenance and capital outlay. In addition, a city centre location, where the highest density of apartments occurs, has specific attractions for both groups. For the younger people there are employment and entertainment opportunities, while the elderly, with their decreasing mobility, find it convenient to have easy access to such downtown facilities as shops, medical services and senior citizen centres (C.R.P.B.[4] 1963, 1969; Gayler, 1971).

From the community's viewpoint, three advantages may accrue from the development of high density residential units. High density development can solve some of the problems associated with lateral expansion of low density housing. Problems concerning the loss of good agricultural land, loss of open space, the necessity for new highway construction, the high per unit cost of utility installation and service, and visual monotony have been well documented both for North American cities in general (Little, 1969), and for the Saanich Peninsula in particular (Halkett, 1971). In many cities, and Victoria is no exception, the older single family housing around the city core is deteriorating and redevelopment of these areas cannot replicate the

existing type of dwellings except at an extremely high unit cost. Thus residential redevelopment of the inner city requires a consideration of alternative forms of housing unless the city centre is to be limited to those who can afford high cost single family housing (Gayler, 1971), and this usually consists of high density dwellings in the form of apartment buildings. In addition, high density apartment development around the central core has the advantage of revitalising the commercial interests of the central business district, thus offsetting its decreasing centrality and its susceptibility to the effects of shopper interception by the suburban shopping centres (C.R.P.B., 1963; L.M.R.P.B.,[5] 1971).

High rise living can also bring disadvantages to a community. Although high rises do increase the tax base of a community and provide a high revenue per land unit in comparison with traditional housing, they also create additional costs related to the imposition of high density development on to a formerly low density area (Price-Waterhouse, 1971). Existing utilities may be inadequate and the installation of new water mains and sewers may be necessary. Moreover, high rises generate a large volume of traffic onto the existing street network, thus resulting in traffic congestion, exacerbated by the greater volume of on-street parking. In addition, municipalities may find themselves having to supply more specialised facilities as a consequence of high rise development, such as more sophisticated and expensive fire fighting equipment.

Great concern has been expressed regarding the sociological effects of high rises. The human problems resulting from multi-storey public housing blocks in Glasgow have been detailed in the social science literature by Jephcott and Robinson (1971). In addition, Newman's study of public housing in New York City (1973) suggests that a positive relationship exists between the crime rate and the height of the building. These studies were confined to high rises which were part of the public housing stock and inhabited predominantly by low income and often single parent families. However, press coverage has dramatised these studies and local news media, by not stressing the unique characteristics of these case studies, have promoted local anxiety about the problems.

Aesthetic considerations have further implications for high rise location, particularly in Victoria where the public debate concerning this topic has centred upon the visual aspect. The focal point of expressed public opinion is that high rises constitute an "eyesore" on the urban landscape and detract from the view. The aesthetic aspect is not confined solely to Victoria, for example a major objection to the Four Seasons development in Vancouver's West End by the West End Community Council was the insensibility of the city council to the aesthetic aspects of the proposed development (Derbyshire, 1972).

From each of these viewpoints, financial, sociological, and aesthetic, no clear cut answer has emerged to the question of

whether or not high rises are beneficial to the community. The answer would appear to depend on a host of variables relating to the particular community, the location of the apartments, the types of people for whom they will cater and the level of services already provided in the community. Given this situation, the decision to construct high rise apartment buildings is made in the public area. Events in the last few years in such cities as Toronto, Vancouver and Victoria demonstrate that this decision is by nature political, and is one in which the decision making process is not solely confined to established institutions, but one in which sectors of the general public have demanded and obtained a role.

The High Rise Controversy and Its Outcome in Victoria

In examining the public's opinions on high rise apartment location the Victoria region provides a good case study area. Residential high rise buildings have been a part of the urban landscape since the early 1960's and many of the developments have caused a great deal of controversy. In particular, the controversy has revolved around the aesthetics of high rise apartments with much debate on the acceptable height and the resulting quality of the view. A second controversial theme centres on the notion that high rise apartment buildings destroy the old neighbourhoods by adding to neighbourhood crowding without engendering new community feeling on the part of the new residents. In addition, there is also the fear that high rise apartments will bring increasing crime and social

problems of the types which have befallen New York and Glasgow, even though Victoria's high rise apartments exclude all school age children, and none is part of the public housing stock, even though one is designated for low income elderly persons. Finally, events in the last five years have demonstrated that not only are Victorians conversant with planning procedures, but that they also desire to play an integral part in the planning process.

Of the recent high rise projects in the region, the Reid Centre proposal, has undoubtedly generated the most public criticism and had the strongest political repercussions. The proposal was the subject of two referenda and innumerable petitions, as well as being a major issue in the mayoralty elections of 1971. In addition, it acted as a catalyst in the formation of a citizens' group in James Bay, where the largest number of high rise apartments are located.

Following the Acres Western report (1968) on the Wharf St. waterfront with its recommendation to develop combined uses of the area in terms of residential, commercial and tourist functions, Reid Properties Ltd. announced plans for a portion of the area. These included a twenty-five storey hotel and two nineteen storey residential towers. This project was first hailed as an unrivalled opportunity for the revitalisation of the area:

> ... this would be one of the few local development ideas to explore the waterfront to full advantage ... to obtain the best for immediate construction and for the environment as a whole. With a view, marina, promenade and other features, the Fort Victoria

> complex would make the most of its waterfront location while adding an attractive segment to the harbour front.[6]

While the construction of the project was being delayed by problems arising out of site clearance and the rejection of the capital budget referendum, a number of people began to question the wisdom of the project. Alderman Pollen suggested that it was essential to consult the public on the matter "if they are not going to be alienated from traditional government processes".[7] At the same time, he suggested that the Inner Harbour should be primarily recreational, backed by commercial development rather than a commercial development interspersed with access to the water. This he considered would alienate the foreshore, a view shared by the Advisory Planning Commission in their report on the Inner Harbour. A large number of letters and petitions received by the city council echoed these sentiments as did other public figures. The then president of the Chamber of Commerce concluded that "... a high rise is nothing to boast about, and I doubt whether the waterfront is the place for them",[8] while Roderick Clack, chief architectural planner for the National Capital Commission and formerly a Victoria city planner, said of the proposal that it was:

> ... almost totally out of character for Victoria. This development will not contribute design or environmental excellence to the priceless asset of an Inner Harbour which is unique.[9]

As a result of such public concern, city council informed Reid in the summer of 1971, that his original plan was unacceptable

and that a compromise plan should be worked out in consultation with the planning department. A land use contract for a much smaller development of two towers, one fourteen and the other eleven storeys, was finally accepted by the city in June 1972, following a lengthy public hearing at which twenty-one briefs were presented against the contract. Only nine briefs, including those from real estate and business interests were presented in favour of the development. As reflected by the news media, the balance of expressed public opinion was still very much against the development. Many people considered Mayor Pollen to have broken his election promise by giving the revised project his unqualified support,[10] since he had become mayor seven months previously on the basis of his total opposition to the Reid Centre.

However, one effect of the election of Pollen and other anti-high rise candidates had already been felt. In February, 1972, council passed a by-law restricting the height of future developments to fourteen storeys. While this is an arbitrary limit, as the adverse visual impact of a high rise depends not only on its height, but also on its design, location, topographic features, and the heights of surrounding buildings, this by-law may have had some consequences for later developments. The Reid Centre plans do not exceed this limit, and two developments with proposed heights greater than this limit have been rejected. However, the grounds of rejection of these two other high rises, the second part of the Mulek development at Quadra and

View streets, and the Bay Village project in James Bay, appear to be that the public was totally opposed to the buildings because of the social and aesthetic costs they would impose, rather than that the heights exceeded the statutory limits.

Public protest towards these developments has taken many forms including letters to the council and press, petitions to council and advertisements by individuals in the newspapers stressing the urgency and necessity of public opposition. One of the most successful strategies was the formation of local citizens' groups, particularly in the cases of the Windsor Park project (in Oak Bay), and the James Bay Village development. Existing ratepayer and citizen groups were strengthened by the high rise controversy, while new ones were created.

One in particular, whose origin was stimulated by the Reid Centre controversy, is the James Bay Community Association, formed in February 1972. While the Association is concerned with a number of aspects relating to the James Bay community, of foremost importance is the future planning for James Bay and the role of high rise developments in future plans. The last decade saw many of the old single family houses disappear, and in their place, the construction of a large number of multi-family dwellings, mainly low rise (three-four storeys) with some row houses and several high rise towers. A particular concern of this group, as outlined in its brief to the provincial government (James Bay Community Association

1972) is this increasing number of high rise developments in James Bay without any concomitant expansion of recreational areas, sewers and transportation facilities. The group's objective is to preserve the neighbourhood qualities of James Bay by preventing the disappearance of the better old houses.

The Association's basic objection to the city's plans for the area, based on the 1967 James Bay Transportation and Land Use Plan, which recommends that future high rise development be concentrated in James Bay, is that it was drawn up without reference to the area's residents who feel that they should have an active role in the planning of their neighbourhood's future. With the assistance of Alderman Bawlf, the organisation has been effective in its demands for consultations with the planners. The result was that the new James Bay plan (City of Victoria, 1973) introduced zoning amendments, reducing high density areas and encouraging the preservation of the older houses to prevent the over-burdening of present neighbourhood services and facilities.

Implications of the High Rise Controversy in Victoria

While the grounds for opposition can be reduced by attempting to integrate high rise development with the rest of the community, harmony between the natural and human environments is only likely to be achieved when all who are concerned and affected by new features in the urban landscape are not only consulted, but integrated into the decision making processes of the planning sphere. Tradition-

ally, city councils and planning departments have seen themselves representing the general public, but the existence of controversy over the last five years suggests that the views of established institutions and the interested general public diverge. Porteous (1971) considers that the fact that:

> ... substantial differences exist between the ways the public and designer view the same environment has been too often disregarded by the latter on the basis that the design professional knows both what the public wants, and more important, what is good for the public.

Although full citizen participation is difficult to achieve, there is now some agreement amongst planners that the lay citizen does have an extremely important role in the planning process although the exact nature of this role has not been determined. Davidoff (1965) suggests that planners should consult citizens and engage in the political process as advocates of citizen groups and should press for the presentation of plural plans rather than a single agency plan for consideration by the public. Arnstein (1969) has demonstrated a range of possible interpretations of participation in her "ladder of participation", ranging from manipulation of the general public by educating them to agree with proposals put forward by the planners, through varying degrees of tokenism to full citizen control where managerial powers are in the hands of the participants. Reservations on the wisdom of full public participation are suggested by Styles (1971) on the grounds that it is difficult to engage citizens' interest in long-run projects, and by Simmie (1971) on the grounds

that citizens would be drawn disproportionately from the extremes, thus creating government by minorities. The resulting situation, however, would be a planning process encompassing a larger range of minorities and interests than exists at present.

There needs to be a means of increasing the efficacy of greater public participation in the planning process by focussing on the people of the region and their ideas for high rise location. Given that high density developments will continue, the people must be consulted as to the locations of these apartment buildings. The aim of consultation should not be to request opinions on a project by project basis, but should endeavour to elucidate a long term view for city planning as a whole. Opinion could be elicited as to the public's most and least desirable areas for high rise location and then incorporated into official planning. Via such action the wishes of the general public and not of extreme groups becomes the input into the planning process. A starting point for involvement of the public along these lines must be a determination of the preferred areas for high rise development in the Greater Victoria area.[11]

The purpose of this study was to derive public preference surfaces for high rise apartment location in order to examine the feasibility of using such indices to gauge public opinion on the controversial issue of residential high rise location. In addition to gaining insight into the public's opinions on high rise location, it was necessary also to recognise the variables associated with these

observed preferences in order to develop a model of preference. This dual approach therefore, examining both the areas of preference for high rise residential buildings and the variables associated with these preferences could hopefully provide a useful guide for planners and developers in their future location decisions.

The study uses Rushton's (1968) definition of preference as:

> ... that process of spatial choice in which a person compared each alternative with every other one, and selects that which is expected to give the greatest satisfaction.

In order to test the feasibility of using preferences as an opinion gauge and to develop a prediction model of preference it was necessary to create a representative sample of Greater Victoria adult population on which to test these techniques.

A Review of the Literature

Although a search of the literature reveals no studies dealing specifically with the topic of public preferences for high rise residential development locations, a number of studies do provide useful information on the subject of preference surfaces and their related variables. The pertinent literature can be divided into three groups. One is the standard research into residential location which exhibits an economic bias. A second group of studies relates to the use and design of preference surfaces, most of which are undertaken by Peter Gould and his associates. The third group consists of geographical and sociological work that has enquired into variables which can influence residential preference.

Studies of the location of high density development

Economic models of residential location have limited applicability to the topic at hand. Macro-scale models of urban land use allocation, by Burgess (1925), Hoyt (1939), and Harris and Uhlman (1945), postulate that locations around the central business district will be the most attractive to high rise developers because of access to work, entertainment and shops in the city centre combined with the high price of land which necessitates high density development. This can be observed to be partially true in the case of Victoria (Murphy, 1973). Parameters used in these and the more recent micro-scale studies by Bourne (1967, 1968) and Gayler (1971) which concentrate on the subject of apartment location in Canadian cities, have primarily an economic emphasis focussing on questions concerning the economic rent of the land, its costs and the local tax structures. These studies, however, have serious deficiencies in that they exclude non-technical and non-institutional persons from the decision making process, an important omission in view of the increasing desire by certain members of the general public to be involved in making these decisions. Any analysis of public preference surfaces should include consideration of social and aesthetic factors in addition to economic and planning variables discussed in these studies.

Preference studies.

Preference studies can provide both the underlying concepts

and methodology for a study of high rise apartment location preference surfaces. These studies of preference have been developed primarily by Gould (1967, 1969a, 1969b) and in association with White (1968) and Ola (1970). Gould has accumulated evidence supporting the notion that there is considerable order and regularity in the way in geographic space is perceived for residential purposes (Gould, 1967, 1969a). The intention of his work, according to Downs (1970) is to infer the underlying structure of this order so as to understand the causes of the spatial patterns of residential preferences. While Gould postulates that locational decisions concerning migration and the location of industry are related to preferences for space and time, it can also be concluded from studies of residential preference (Frieden,1961; Kain,1962) that the location of residential development be considered to be related to preferences for space and time. According to Gould these space-time preferences are the result of information flows from many media and sources impinging on the residents of an area. These are then ordered and evaluated into images of varying desirability or preference.

As individuals differ not only in their personal backgrounds, such as their life cycle stages and life styles, but also in their receptivity to information flows, it is expected that the mental map will be unique to the individual:

> . . . an individual's map of residential desirability . . . is obviously a result of a set of unique information flows impinging upon him that may be ordered

> according to quite particular personality characteristics into a set of unique space preferences. (Gould and White, 1968, p. 161).

While Gould thus expects the individual preference surface to be unique, he also expects that a high degree of correspondence will exist between individuals:

> We expect that the mental maps unique to each person will mesh with others in varying degrees so that we can postulate the existence of an overall viewpoint accounting for much of the variation in the individual maps. (Gould and White, 1968, p. 161).

All Gould's preference surfaces, from studies of school-leavers in Britain, of college studies in the U. S. A. and Tanzania, and of school children and young adults in Nigeria, have produced two consistent results. The first is that the whole sample's preference surface is a pattern of peaks and troughs which were remarkably similar for each subgroup. Secondly, the presence of regional and age subgroups was identified and for each subgroup a local dome of desirability occurred which was not always reflected in the national surface.

The first feature would be of particular importance to a study of Victoria because it provides a testable hypothesis: that the preference surface for the location of high rise development by Greater Victoria residents will not be random, but will have definite peaks and troughs. The second feature is important since it implies that any overall preference surface can have averaging effects, which conceals the fact that the sample may consist of several subgroups,

each with its own significant preference patterns.

As there is no intrinsic reason why preference surfaces may not be constructed just as accurately for urban areas as for national areas, Gould's work thus provides useful conceptual guidelines for a study of public preference surfaces for high rise residential development in Victoria.

Possible determinants of preference.

While a description of the current preference surface for high rise location in Victoria would be helpful in determining possible areas for future high rise development, it cannot be used as a basis for prediction as the composition of the population is changing and will probably continue to do so. It is therefore important to be able to relate the preference surface to some underlying variables in order to be able to infer the surface again at a later date.

There is evidence from two major sources which suggests that age could be an extremely important factor in determining locational preferences. Firstly, Gould and Ola (1970), regard age as a critical factor, noting that the four age groups tested in their Nigerian study had preferences which had significant differences in the value of the peaks, although there was little difference in their locations. The importance of age is here linked to cultural factors, with migration and other travel experiences increasing greatly with age, and thus the national preference surface reflects this growth in experience.

The second source of evidence suggesting that age could be an extremely important factor is derived from the concept of space preference as developed by Frieden (1961) and Kain (1962). They emphasise that the preferred residential location for each individual will be determined mainly by housing needs in conjunction with the individual's life style and aspirations. As housing needs are largely determined by the stage reached in the life cycle, age again becomes a significant factor. It has already been noted that rental apartments fulfill the accommodation needs of the young without children and the retired and thus it will be pertinent to examine whether their housing needs lead to different locational preferences for high rise apartments compared to those of the middle aged who predominantly live in single family dwellings.

Residential preferences have been the subject of a number of recent empirical studies which confirm Frieden and Kain's argument. Hinshaw and Allot (1972) and Wilkinson and Sigsworth (1972) see life cycle factors as being those most significantly linked with preferred residential environments:

> ... it is our impression that attitudes and preferences which are expressed are a function of age and family size and composition within this general income group. (Wilkinson and Sigsworth, 1972, p. 208).

Hinshaw and Allot concur with these observations, adding other variables such as life experiences and ethnicity.

Michaelson, and Zech, on the other hand, emphasise life style rather than life cycle factors, proposing that:

> ... the choices people make are not a simple function of their age or status (nor, ..., of ethnic position per se), but of more subtle influences - their values and styles of life. (Michaelson, 1966, p. 358).

Thus along with the life cycle factors, particularly age, the more abstruse factors of life style may also be a determinant of residential location preference.

In addition to the above variables, Simmons (1968) suggests that preferences for an area may relate to the degree of mobility of the individual. He concurs with Wolpert (1965) in suggesting that the homeowner, by having an investment in the local environment, becomes less mobile than the renter and will exhibit a greater degree of concern for the local environment. Since the need for rental accommodation is age specific, it is likely that age has an indirect influence on preference.

Sonnenfeld (1966) suggests, on the basis of his empirical studies, that while preferences for a particular type of landscape do vary according to age and sex, the major variation is between native and non-native. He credits the difference, not to ethnicity or race, but to residence characteristics. The native will belong to one of three groups: those happy with their environment, those unhappy but not sufficiently so for them to move, and those who are insensitive to their environment. Non-natives are expected to belong to groups characterised by a more adventurous and restless personality or a lack of responsibility ("drifters"), or an inability or unwillingness to adapt to their previous environment. In addition, non-natives

bring with them a greater wealth of ideas and experience. In Victoria, this concept or native/non-native differences could well have some relationship with age due to Victoria's importance as a retirement centre.

Familiarity with the environment has also been postulated by Johnston (1972) to affect preferences. Since the individual's knowledge of her/his home city is locationally specific, with particular reference to the location of the dwelling, its immediate neighbourhood and routes connecting home and other salient places, notably the place of work, this would affect knowledge and empathy of present high rise locations and of possible future locations.

A final variable which could well be linked with preference surface for high rise location is that of attitude towards high rise developments, in that a favourable attitude may be associated with a greater range of possible locations. Murphy and Golledge (1972) suggest that attitude could be an explanatory variable of urban spatial behaviour, even though geographers have made relatively little use of this variable.

Summary

In attempting to answer the questions of where the public would most prefer to see residential high rise development occur, and to what extent their preference surfaces may be predicted, the geographic and other social science literature supplied some useful guidelines. The preference surface and sociological literature were

the most relevant sources, providing two hypotheses which can test the efficacy of preference surface analysis as a method of gauging public opinion on this issue. The two hypotheses are:

1. that a composite preference surface will not be random but will have a definite pattern, containing specific areas of acceptance (peaks) and rejection (troughs) for high rise residential development.

2. that variables reflecting life cycle and life style and spatial variables may be used to predict the preferences for high rise apartment location. It is expected that age, as an indicator of life cycle and life style will be a particularly important variable in Victoria where the demographic structure is abnormal since the two age groups with the greatest need for apartment accommodation represent half of the adult population (Table 3).

Table 3 Sample Characteristics by Age and Sex

Area	19-34				35-64				65+			
	Total Numbers	Sample Size	Male	Female	Total Numbers	Sample Size	Male	Female	Total Numbers	Sample Size	Male	Female
Victoria	9,590	11	5	6	18,366	20	10	10	12,577	13	6	7
Saanich	9,582	11	5	6	19,749	19	9	10	5,899	6	3	3
Esquimalt	3,084	3	2	1	3,669	3	1	2	1,137	1	0	1
Oak Bay	1,817	2	2	0	6,900	8	3	5	3,638	4	2	2
Total:	24,073	27	14	13	48,684	50	23	27	23,251	24	11	13

Source: Dominion Bureau of Statistics, Census of Canada, 1966, vol. 1, Table 22. Questionnaire data.

CHAPTER II

THE METHODOLOGY OF THE STUDY

The purpose of the study was to determine the public's preference surface for high rise location and to examine its related variables in order to determine the feasibility of using preference surface analysis as a means of incorporating public opinion into the planning process. Therefore it was necessary that the sample should be representative of the adult population and that a wide range of variables be studied. The data collection therefore necessitated a lengthy interview for which the subject's residence provided the most suitable setting. Here, the assumption was made that a resident could visualise the city in the abstract, with the advantage that:

> ... no matter how he (the resident) has learned about the spatial features of his environment, he enjoys a flexibility which enables him to combine information from different trips, different time periods and sources other than his own movements and to respond consistently in an abstract situation. (Lowrey, 1970).

The Questionnaire

In order to collect the requisite information on all the variables and to minimise the problems and bias inherent in a personal interview, it was deemed necessary to conduct a formally structured interview. After preliminary testing to ensure that possible sources of misinterpretation and ambiguity had been avoided, the finalised questionnaire was constructed, consisting of six sections (Appendix B). Each section had the specific aim of collecting a particular type of

information, and each is described below, with a dual emphasis on its function and on the operational aspects of each technique.

The preference map.

The first objective of the study, to ascertain the preference surface for high rise development, was furthered by having the subject delineate on a base map of Greater Victoria the areas where she or he preferred to see high rises located. Since features such as major roads, meeting places and landmarks consistently appear as images in mental maps of settlements (Lynch, 1960; Appleyard, 1969; Porteous, 1971) these were provided on the base map. The guidelines which were included were major roads, shopping centres, parks, golf courses and coastal features. This resulted in few subjects having orientation problems. It was assumed that residents would have a range of preferred areas and therefore they were asked to mark their preferences according to the following three categories:

1. the areas in which the subject would be pleased to see new high rise (over four storeys) development.

2. the areas in which the subject would permit new high rise development.

3. the areas in which the subject would completely object to new high rise development.

Each category was to be marked in a different colour, and the subjects were informed that they could mark as few or as many areas as they wished.

Profile section.

This section was designed to give background and personal characteristics of the subject in order to assess their significance as predictor variables. Because the literature emphasised life cycle and life style, age was seen as a surrogate variable for these factors and was an important question. Subjects were asked for their residency and tenure characteristics, family status, occupation and education. The latter two pieces of information produced a socio-economic status rating when combined and weighted using the two factor index of social position created by Hollingshead (1965).

The variables relating to familiarity with the high rise concept in Victoria were based on ascertaining the areas (census tracts) of the city in which the subject currently lived, worked, shopped and socialised, and had previously lived, and the proximity of these areas to current residential high rise developments was later calculated.

To give an indication of attitude, and as a check on the more rigorous test of attitude administered later in the questionnaire, subjects were asked for reactions to two current high rise development schemes (Reid and Windsor Park) and for reactions to a hypothetical proposal for a high rise development in their own neighbourhood. These questions assess more the personal opinions of the subject towards specific developments rather than overall attitudes towards high rises. Since these two high rise projects had been given a great deal of news coverage because of their controversial

nature, these questions allowed the subjects to express their opinions about them and enabled the subject to consider the topic of high rise location in other than merely abstract terms.

Attitude determination scale.

The subject's attitude toward high rises was measured by a Likert type scale, as discussed by Edwards (1957). Briefly, this method consists of rating a series of statements on a five point intensity scale ranging from strongly agree to strongly disagree. Approximately half the statements to be rated are favourable to the attitude object, in this case, a high rise, while half are unfavourable. Ratings for the categories of response are weighted in such a way that the response made by individuals with the most favourable attitudes will always have the highest positive weight. Thus for statements intrinsically favourable to the attitude object, the strongly agree response is given a rating of four, while the strongly disagree response has a zero rating. The scoring system is reversed for statements unfavourable to the object, with the strongly disagree response having a rating of four and the strongly agree response having a rating of zero.

The actual eight statements used were chosen from an original list of thirty-six items which were considered relevant to the high rise issue. These items were pre-tested by forty-four judges with backgrounds similar to those of the sample, who scored the items on a five point intensity scale ranging from strongly agree

to strongly disagree. After obtaining a ranking of the total scores of the judges, the responses of the highest and lowest quartiles were used to indicate the statements which most clearly differentiated attitudes towards high rises of these two groups. These statements were then included in the final questionnaire.

Preference ranking.

This section had a twofold objective, the major one being to obtain a ranking of preference for high rise development for the areas of Greater Victoria, while the minor objective was as a check on the preference map to ensure that the subject had not mistakenly used the wrong colour pen to denote a particular category of preference.

The marking of the map according to preference noted three categories of response only. However, it was assumed that within each category there would be a variation in the strength of preference according to location. This section attempted to measure the strength of preference for high rises in the different areas of the city.

Using Gould's approach, subjects were asked to rank areas of the city according to their preferences for new high rise development in each area. As in Gould's studies, the subjects were then asked to divide the list into three parts indicating where positive feeling turns to indifference and indifference to negative feeling. Thus the total of areas labelled preferred, indifferent and objection could be ascertained, enabling comparison of individual rankings.

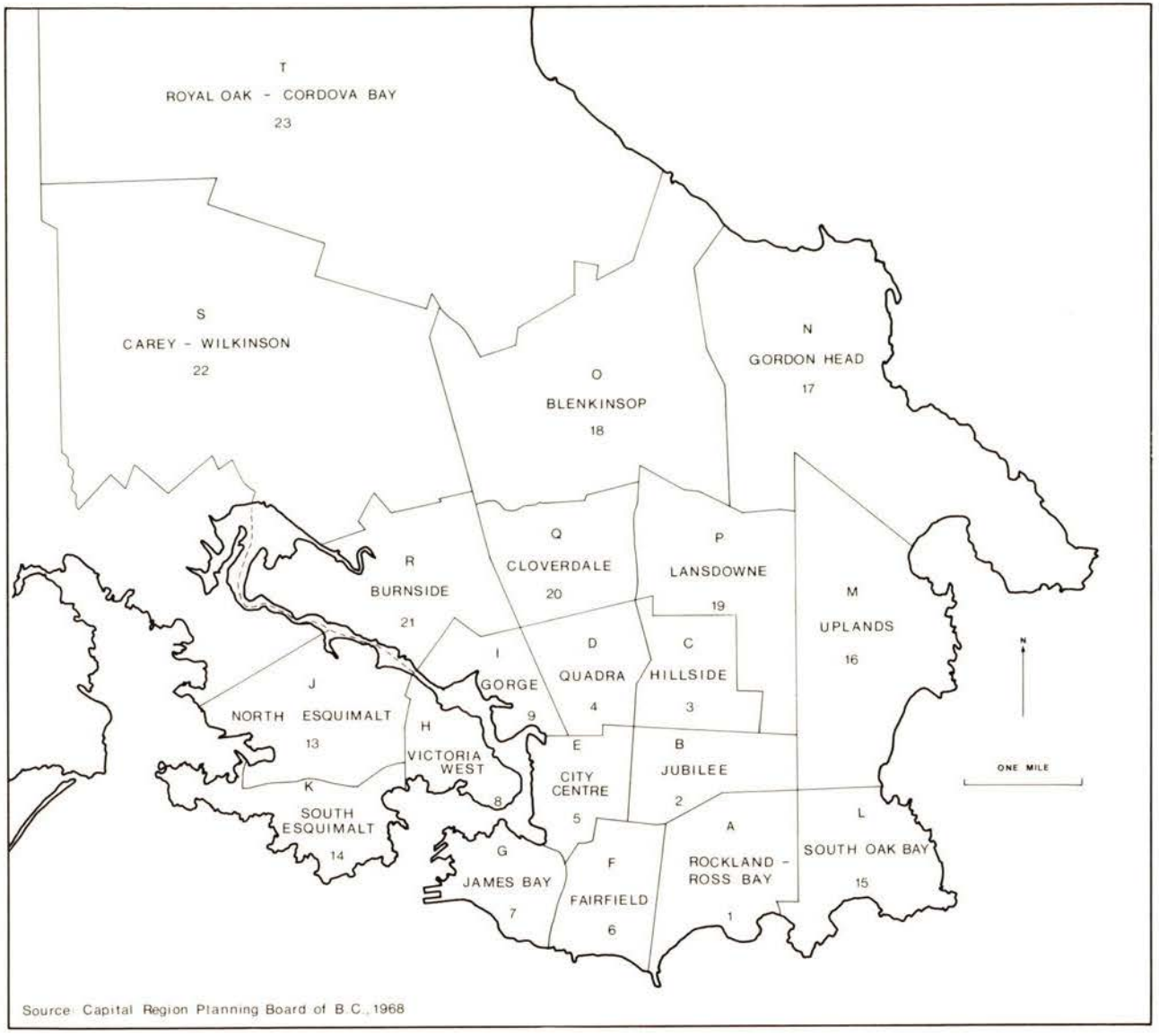
The areas of Greater Victoria which were demarcated for

this ranking were the census divisions of the region, outlined on Map 1. These were chosen as they provided a ready demarcation of twenty tracts, which it was thought would be a manageable number to rank. In addition, census tracts were used as a basis for sample selection and therefore their use in this section gives a greater degree of internal consistency to the study. While it is obvious that census tracts do not demarcate all neighbourhoods and may bisect others, they are designed "with a view to providing basic census statistics for homogeneous areas with respect to enconomic status and living conditions".[12]

The information people receive concerning areas and high rises does not usually come in reference to census tract number, but rather these areas are identified by a local name. The twenty census tracts were therefore named according to local usage (Map 1.). Where local names did not exist, the tracts were named according to either the major road(s) or to a major landmark in the area. In order to prevent the census tract numbering system from constituting a possible bias, the areas were denoted by letter along with the name (Map 1.), and the subjects ranked the tracts by letter.

High rise definition check.

The final part of the interview was included to check the subject's interpretation of "high rise" in order to ensure that all respondents had the same definition of the concept of "high rise", and thus their preference maps would be comparable. The subject was



MAP 1.

Census Tracts :
Name and Letter.

handed a photograph of a Vancouver high rise and was asked to compare this with her/his impression of the various characteristics of high rise in terms of height, width, materials and design. The vast majority of the subjects were in agreement as to what constitutes a high rise. A small number of subjects, however, considered any building higher than the traditional single family dwelling to be a high rise development and therefore their questionnaires were excluded from the final analysis.

Supplementary information.

To prevent the interview from becoming too lengthy, certain information which could be compiled from other sources was added later. Noted immediately following the interview were the subject's sex, type of dwelling, number of households living in the building, and the location of the building. To these were later added the number of high rise apartment buildings in the subject's census tract and the distances separating the subject's residence from the nearest coastline, from the city centre (the Douglas-Yates intersection) and from the nearest high rise.

Sample Design

Since the nature of the questionnaire necessitated a home interview, and with the restrictions of limited time and financial resources, the study can claim internal statistical validity only. Using 1966 data from the Census of Canada, a ratio of one respondent per 1,000 adult population was chosen, as this appeared to give a

manageable number of interviews (101). In order that the study should reflect the adult population of Greater Victoria as closely as possible, the sample was stratified primarily by age, since the demographic factor is of prime interest in the study.

As in any social stratification system, the numbers of classes and their boundaries are somewhat arbitrary, having to be related to the task at hand. A small number of groups was decided upon to prevent the number of subjects in any one group becoming too small for meaningful analysis.

Three age groups; 19-34, 35-64, and 65 and over were selected for study. The age of 19 years was selected as the study threshold because this is the age at which people become legal adults and eligible to vote, and thereby have a voice in community affairs. The 19-34 age group was selected following the example of Gayler (1971) who suggests that the preponderance of the 19-34 age group in the apartment district of Vancouver (the West End) is due to the fact that rental accommodation is very suitable for this age group. Of the three age groups selected, the youngest group is the most heterogeneous in terms of life styles displayed, being composed of students, working people without dependents, and families. Persons in the 35-64 age group are more homogeneous since they tend to have stabilised their patterns of occupation, home ownership and number of children. As retirement at age 65 often entails a change in life style and in tenure of accommodation, particularly for those who decide to

spend their retirement in another location, it seemed logical to demarcate a retirement age group. The resulting sample size and age divisions thus approximates the age group distribution of Greater Victoria (Table 3).

Within this age group distribution an equal representation of the sexes was sought except for the retired age group, for which census figures (1966) showed a larger number of females. Within each municipality an attempt was made to weight the sample according to the census tract distribution of the population. Although ultimately this was not feasible due to the primary aim of age stratification, it was possible to prevent each municipality sample from being concentrated in terms of location (Table 4).

Using a table of random numbers, subjects were selected from the 1971 telephone directory. While this is not an ideal method since it excludes those without telephones[13] and those with unlisted numbers, it was the most practical method available as it enabled an appointment to be made with prospective subjects. Interviews could then be arranged at times most convenient for the subjects, thus enabling definite commitments to be made and easily fulfilled. In addition, it was also possible to stratify the sample by location in advance of the survey proper, thereby decreasing the initial number of interviews necessary, and the amount of time spent on this stage of the study.

Table 4 Sample Characteristics by Location

Census Tract No.	Number of Households	Number of Subjects	Census Tract No.	Number of Households	Number of Subjects
Victoria Total	20,795	44	Oak Bay Total	6,168	14
1	3,158	6	15	2,619	6
2	3,390	7	16	3,549	8
3	2,221	5	Saanich Total	16,979	36
4	1,870	4	17	3,051	6
5	1,588	3	18	1,826	5
6	3,792	7	19	2,736	6
7	3,027	7	20	1,928	4
8	844	3	21	3,440	7
9	905	2	22	1,996	4
Esquimalt Total	3,482	7	23	2,002	4
13	1,997	4			
14	1,485	3			

Source: Dominion Bureau of Statistics, Census of Canada, 1966, Vol. 1, Appendix B. Questionnaire data.

Data Collection

A total of 375 telephone calls resulted in 128 appointments (34% of the total) being arranged. In a number of cases the appointment was later cancelled by the subject, so the final number of interviews obtained was 113. As it was not diplomatic to ask the subject's age at the time of making the appointment, the age grouping had to be done following the interviews and therefore a greater number of interviews were conducted than were required for the sample size of 101.

Following the interviews, twelve questionnaires were invalidated, seven because they were surplus to the age requirements, and five because the subjects had a mistaken impression of a high rise building. Thus 101 questionnaires were available for analysis, of which 27 were in the 19-34 age group, 50 in the 35-64 age group, and 24 in the 65+ group, a distribution which corresponds approximately to the percentage distribution of the adult population in Greater Victoria.

CHAPTER III

ANALYSIS OF THE PREFERENCE MAPS

The first objective of the study was to determine where the general public would prefer to see future high rise developments located. The hypothesis to be tested here was that this preference surface for location had a definite spatial component. In addition, the preference surface was expected to provide some information concerning the relationship between age and preference. Therefore, as well as creating a preference surface for the whole sample, surfaces for each age group were constructed in order to determine whether the surface for the whole sample was an accurate representation for each age group, or whether it was merely an average, masking the polarisation of age-specific opinions.

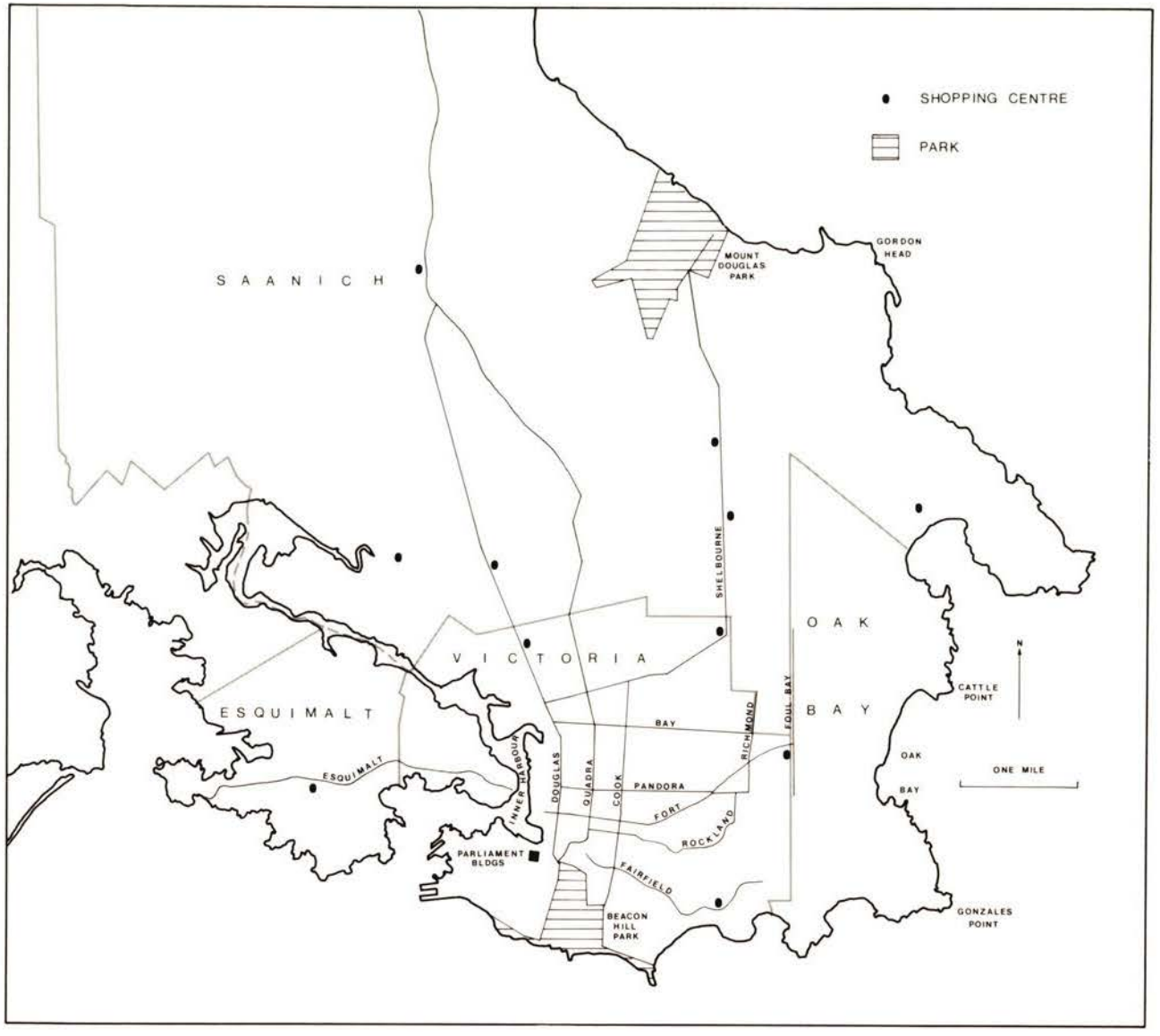
Method of Analysis

Composite maps of preference were constructed by placing a grid map of 700 cells (each corresponding to 1/16 sq. mile) over each subject's map and recording on a matrix the categories of preference marked for each cell. The scores for each category of preference were summed for each cell and entered on separate base maps. Isolines, which Gould terms isopercepts, were constructed which connected cells marked by an equal percentage of subjects using a base of zero. As the numbers in each age group differed, converting the raw data for the isopercepts into percentages enabled

comparisons to be made between the whole sample and the three age samples.

Initially, it had been hoped to examine the preference surfaces using a threefold classification based on whether the subjects would be happy to see, would permit, or would completely object to new high rise development. However, as a result of low scoring in the first two categories, these were combined to produce maps of acceptance, or tolerance for high rise development. Thus analysis of the maps concentrates on the two poles of acceptance and objection. For the maps of acceptance only 90 of the questionnaires could be used in the analysis as eleven subjects completely objected to high rise development throughout the region. The objection surfaces, however, were based on a sample of 100 as only one subject did not delineate areas of objection. In all, eight preference surfaces were constructed, representing two classifications of preference with four samples for each, as follows:

1. Maps of Acceptance:
    a) for the whole sample - Map 3
    b) for the young age sample (19-34) - Map 4
    c) for the middle age sample (35-64) - Map 5
    d) for the old age sample (65+) - Map 6
2. Maps of Objection:
    a) for the whole sample - Map 7
    b) for the young age sample - Map 8



MAP 2.

Location Map for
Preference Surfaces.

c) for the middle age sample - Map 9

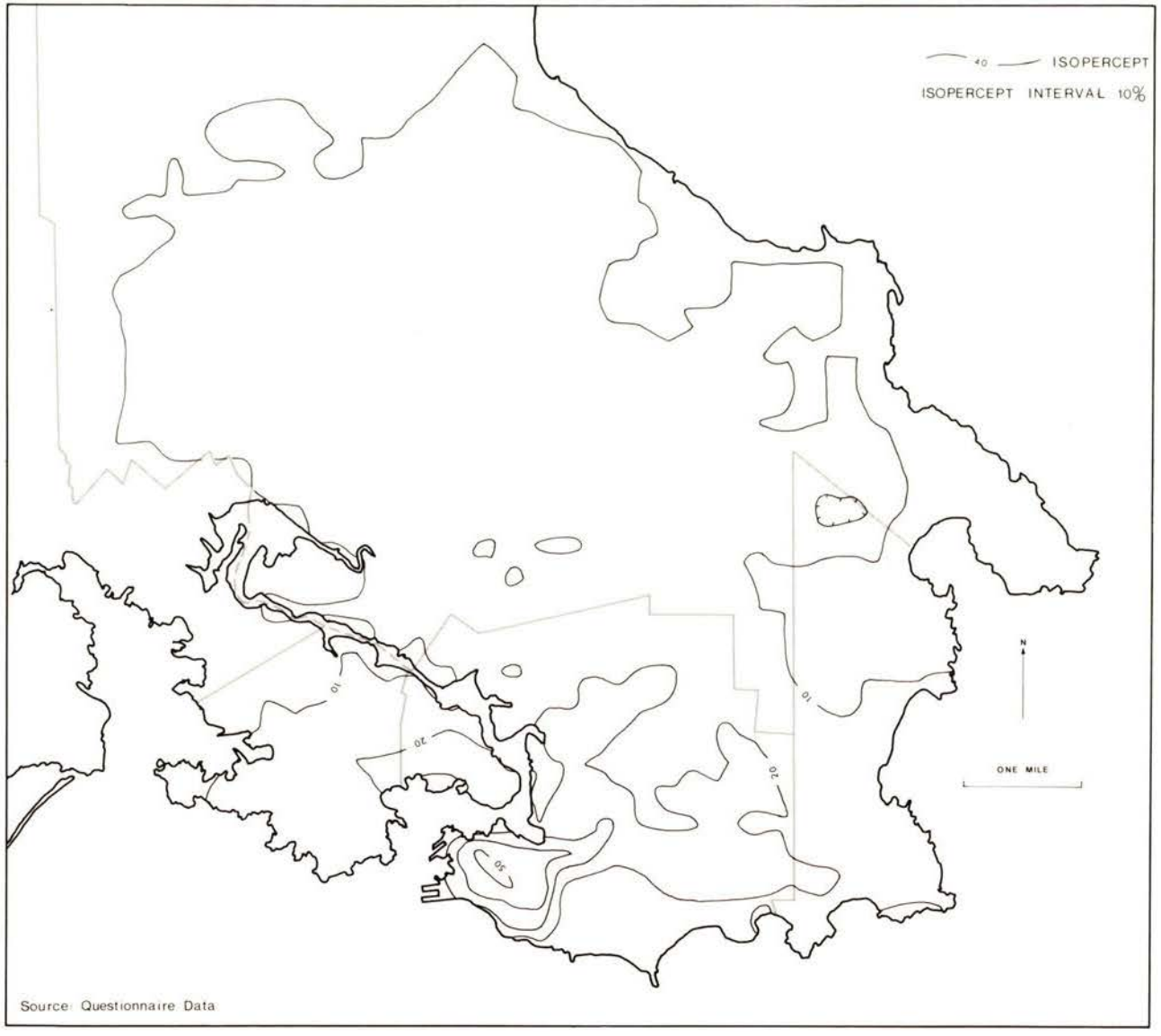
d) for the old age sample - Map 10

To facilitate the interpretation of the preference maps, a map showing general features of the landscape (Map 2) precedes the series of preference maps.

Results

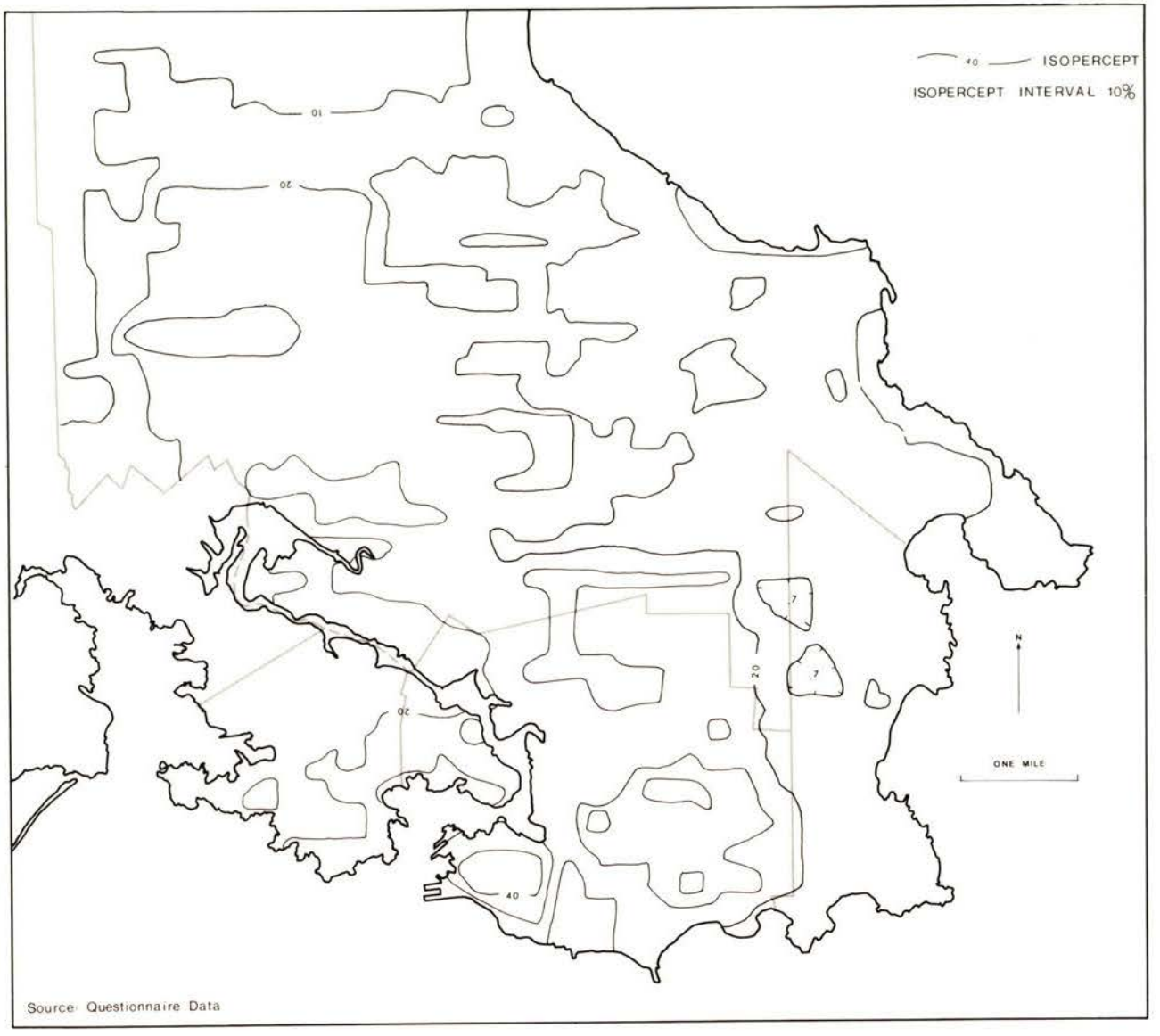
The acceptance map for the whole sample (Map 3) supports the first hypothesis having noticeable peaks and troughs. The major concentration is seen in the central area of James Bay, while declining towards its coastline. Other concentrations occur along axes from James Bay through the city centre corresponding to the traffic arteries of Fairfield, Fort, Richmond, Douglas, Blanshard and Quadra streets. Around the shopping centres in Victoria and Esquimalt, peaks of 10% higher than the surrounding area exist, but are masked by the reduced size of the maps. Significant troughs, indicating a sharp drop in the level of acceptance of high rises exist aroand the coastline. Looking at the value of the acceptance isopercepts, it is evident that there is no single location which the sample accepts wholeheartedly for high rise location, the highest concentration reaching only the 50% isopercept indicating acceptance by only half the sample.

A comparison of the acceptance map of the whole sample with that for the young (Map 4) suggests that there are certain features characteristic of the preferences of the young which are masked by



MAP 3.

Acceptance Surface
for Whole Sample.



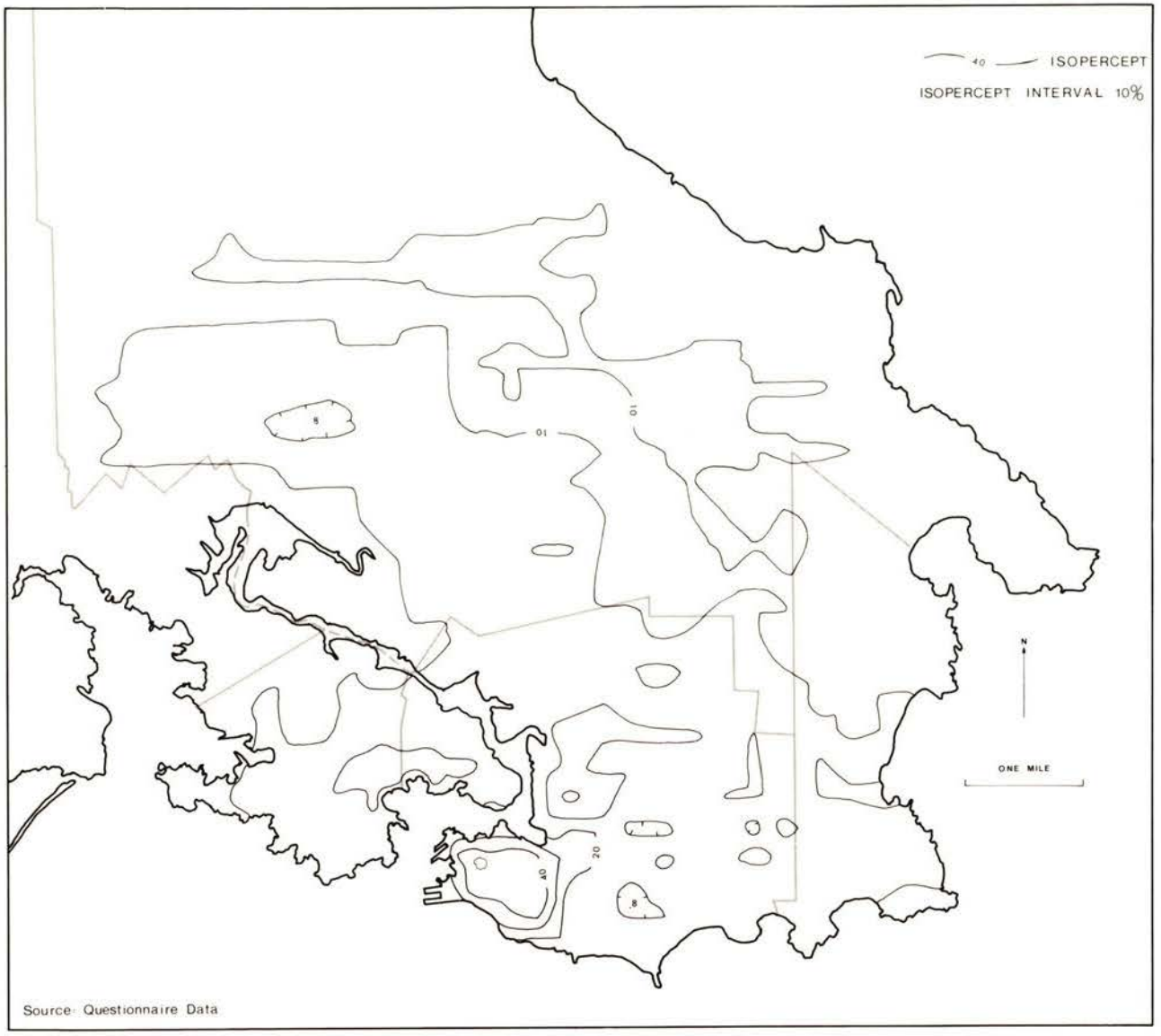
MAP 4.

Acceptance Surface
for Young Age Group.

the composite map for the whole sample. While a far more random distribution of areas of acceptance occurs for the young, it is evident that there is an orientation toward the city of Victoria. The islands of acceptance which are most spatially pronounced are in the Fairfield and central James Bay areas. The young, however are not highly polarised in their acceptance of high rise development, as their degree of acceptance does not exceed the 40% isopercept.

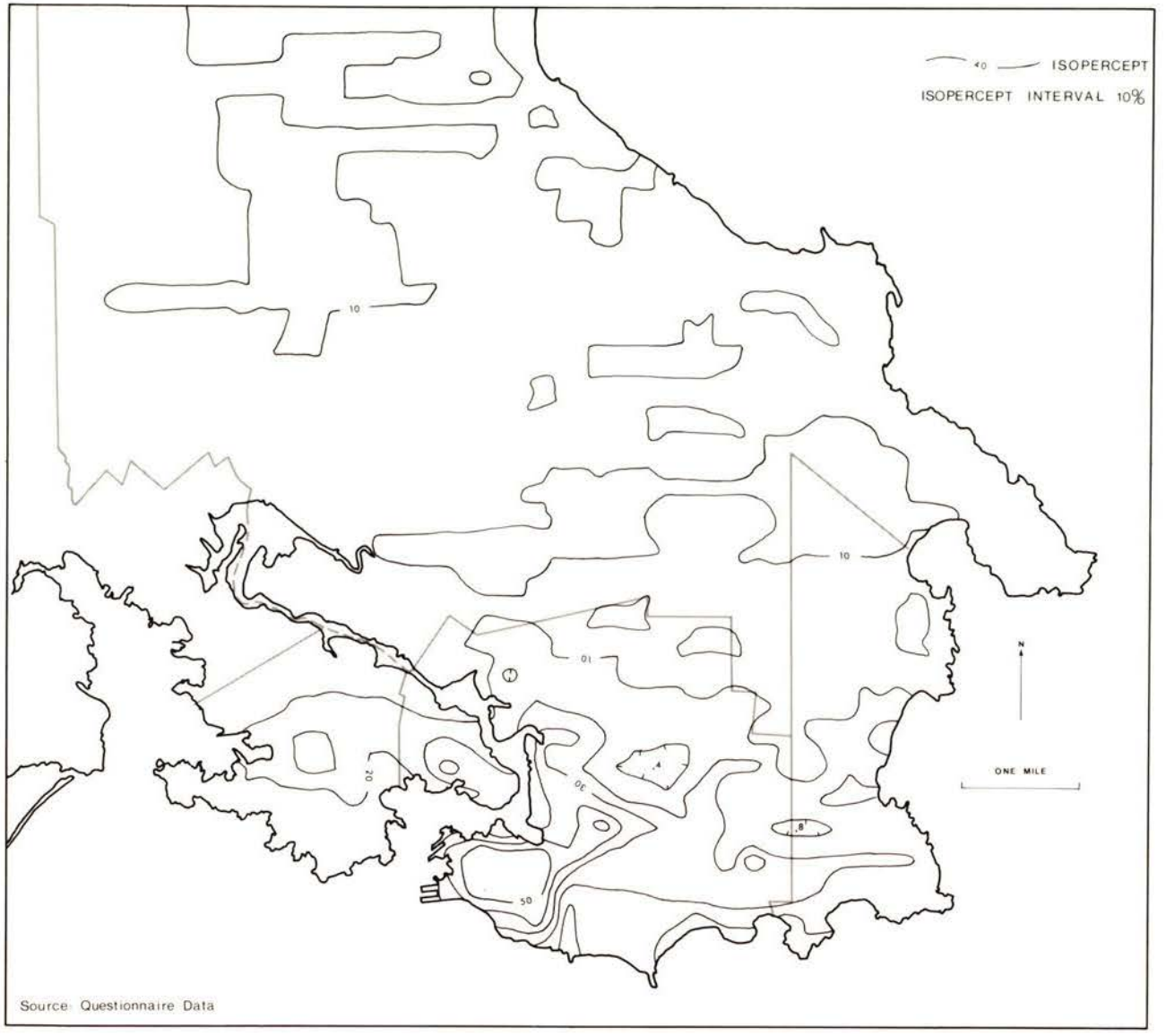
In contrast to the young, the acceptance of high rise development by the middle aged (Map 5) is oriented almost exclusively to James Bay, reaching a peak equivalent to that of the whole sample (50%) at the Ontario and Montreal streets intersection. A secondary peak of acceptance (30%) occurs in the block bounded by Douglas, Yates, Blanshard, and Johnson streets, while a lower degree of acceptance (20-30%) is exhibited in a linear pattern along the traffic arteries of Douglas, Blanshard, Quadra, Bay, Richmond and Esquimalt Road. Thus the middle aged acceptance surface may be described as having a greater degree of acceptance in a more spatially restricted area than that of the young.

The acceptance map for the old (Map 6) shows a very strong plateau over James Bay (50%) declining towards the coastline and Beacon Hill Park. This plateau extends through the Beacon Hill area towards the cathedral precinct. In terms of the degree of acceptance, additional areas of some significance (20-30%) are the city centre along Douglas and Blanshard streets and two small areas in Victoria West



MAP 5.

Acceptance Surface for Middle Age Group.



MAP 6.

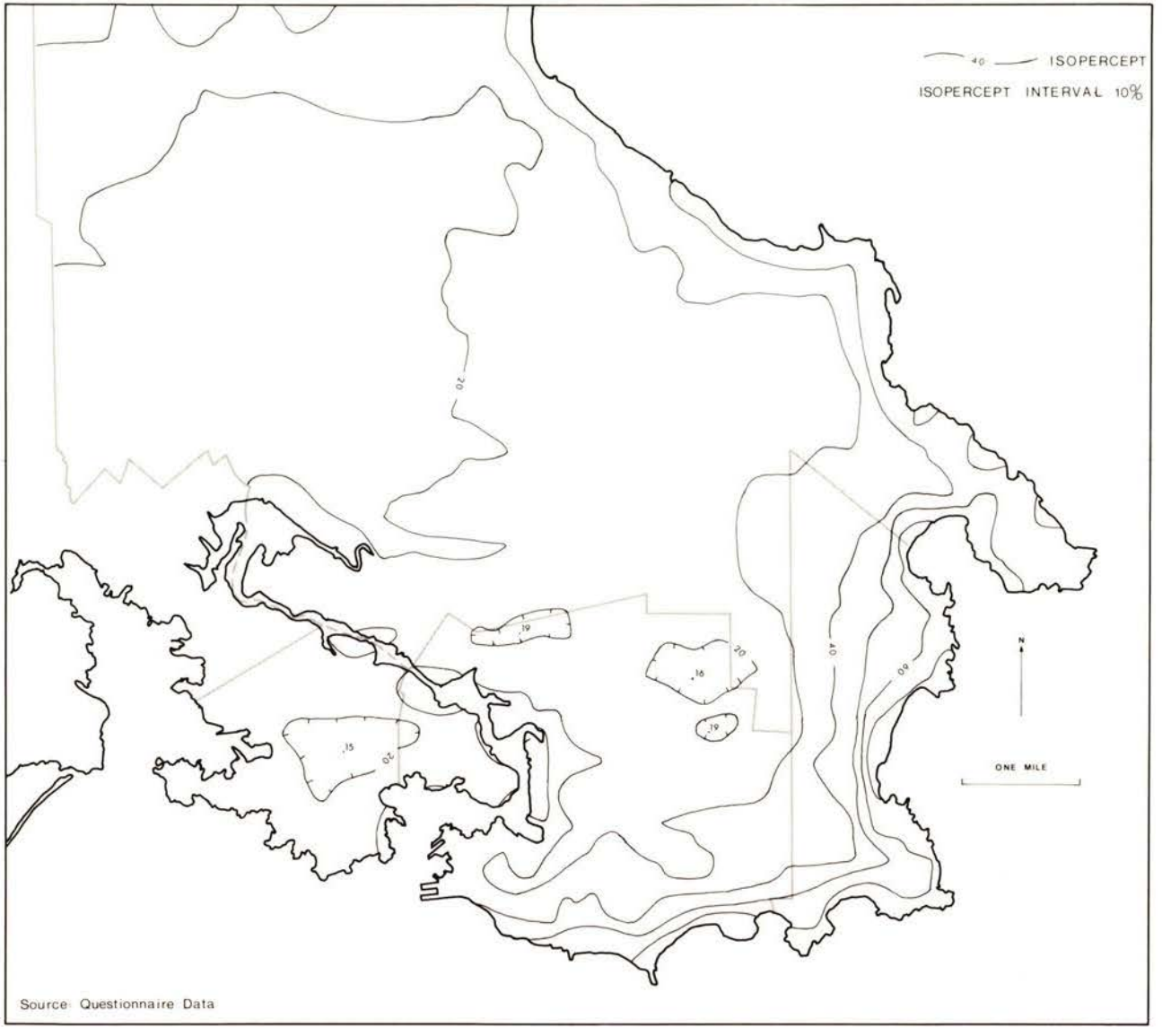
Acceptance Surface
for Old Age Group.

and Fairfield. The acceptance map of the old, therefore, has features characteristic of both other age groups, having a relatively high degree of acceptance comparable to that of the middle aged, over a relatively large area, a feature more typical of the young than of the middle aged.

Turning to the maps of objection (Maps 7-10), it is found that they are not the simple obverse of the maps of acceptance. Low scoring on the acceptance surface does not necessarily imply a high level of objections, because for some portions of the region very little interest, indicated by low scoring on all maps, was expressed. Objection surfaces were therefore constructed to depict clearly those locations for which explicit objections had been delineated.

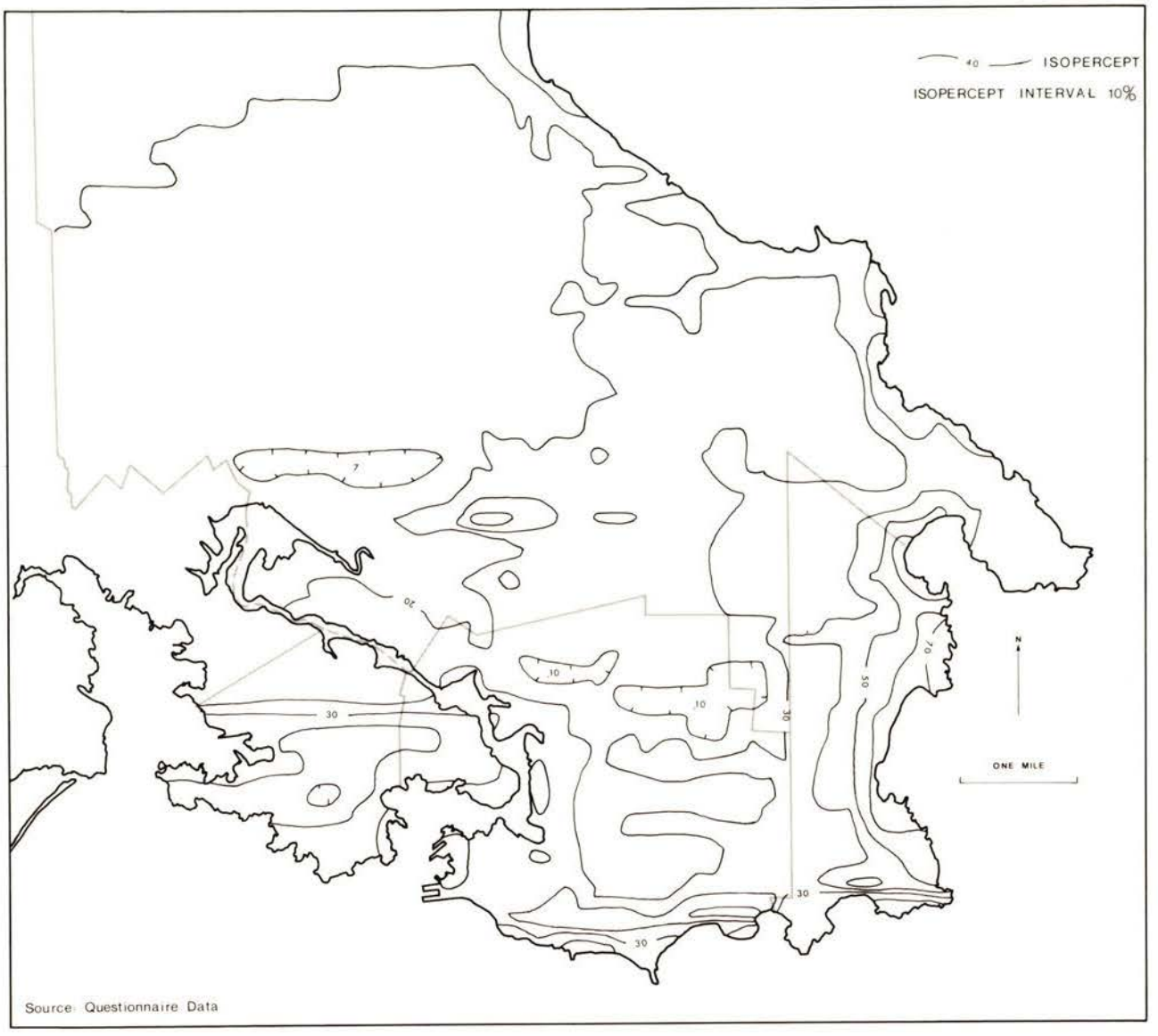
The objection surface for the whole sample (Map 7) confirms the findings of the acceptance map in that objections follow the coastline, being highest immediately around Oak Bay[14] (70%) and declining inland to less than 20%. A slight peaking (40%) occurs along the Inner Harbour, again reflecting the fact that waterfront locations for high rise developments are those to which there is most objection. Significant troughts exist in James Bay and in central Esquimalt, these being the most accepted areas for high rise development.

The objection surface for the young (Map 8) partially reiterates the findings of the objection surface of the whole sample, with the peaking towards the Oak Bay coastline and a secondary peak in the



MAP 7.

Objection Surface
for Whole Sample.



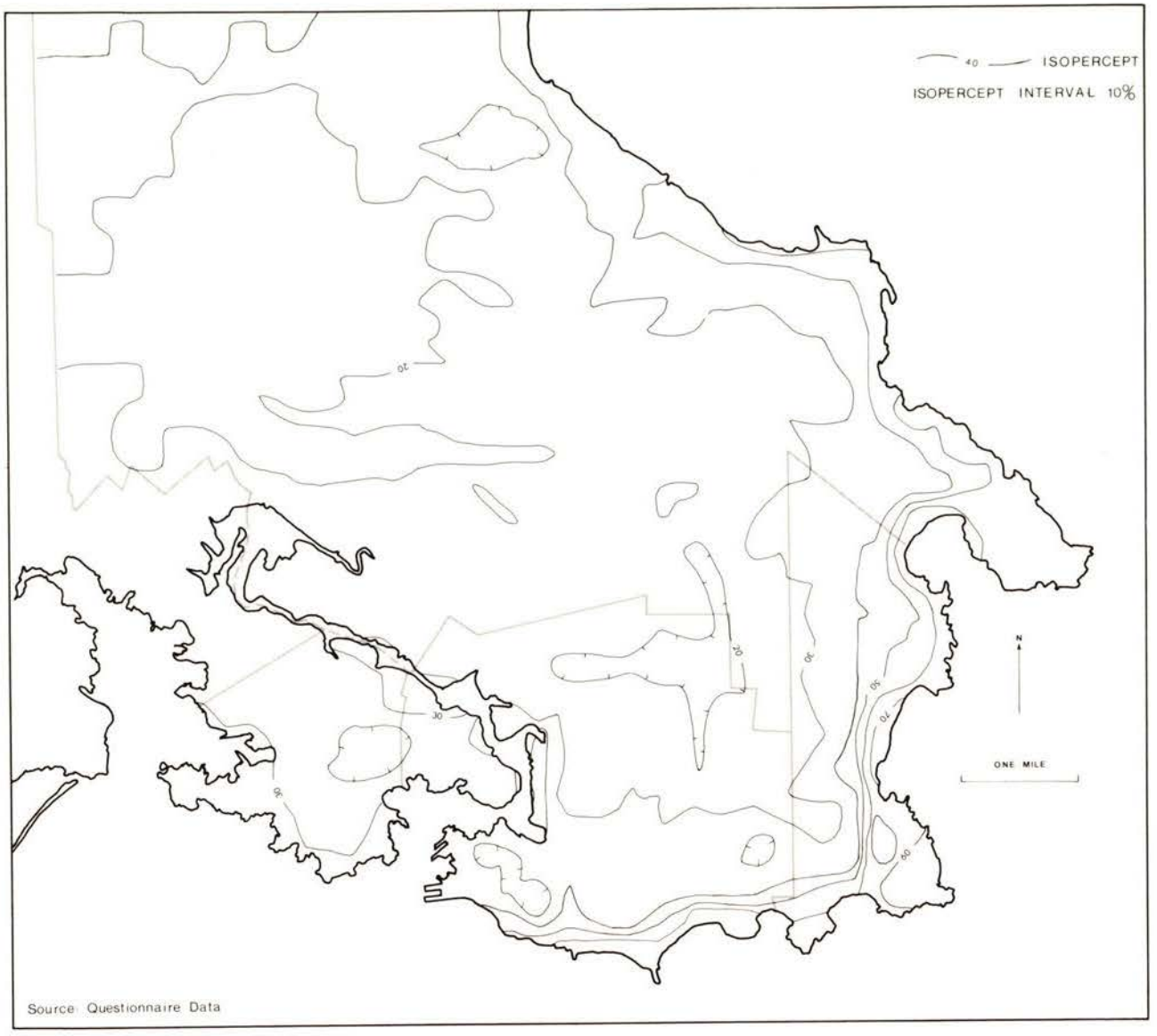
MAP 8.

Objection Surface for Young Age Group.

Inner Harbour. The actual peak of objections (70%) is, however, at Cattle Point, not along Oak Bay as was the case for the whole sample's objection surface. The map for the whole sample also masks, for the young, the two small peaks of 40% in James Bay, and in addition a very significant trough along the southern Victoria waterfront. Along this part of the waterfront, the level of objections reaches the 30% isopercept, which is only half the level of objections for the whole sample. However, a similarity in the troughs in central James Bay and Fairfield appears on both maps, for the young and the whole sample.

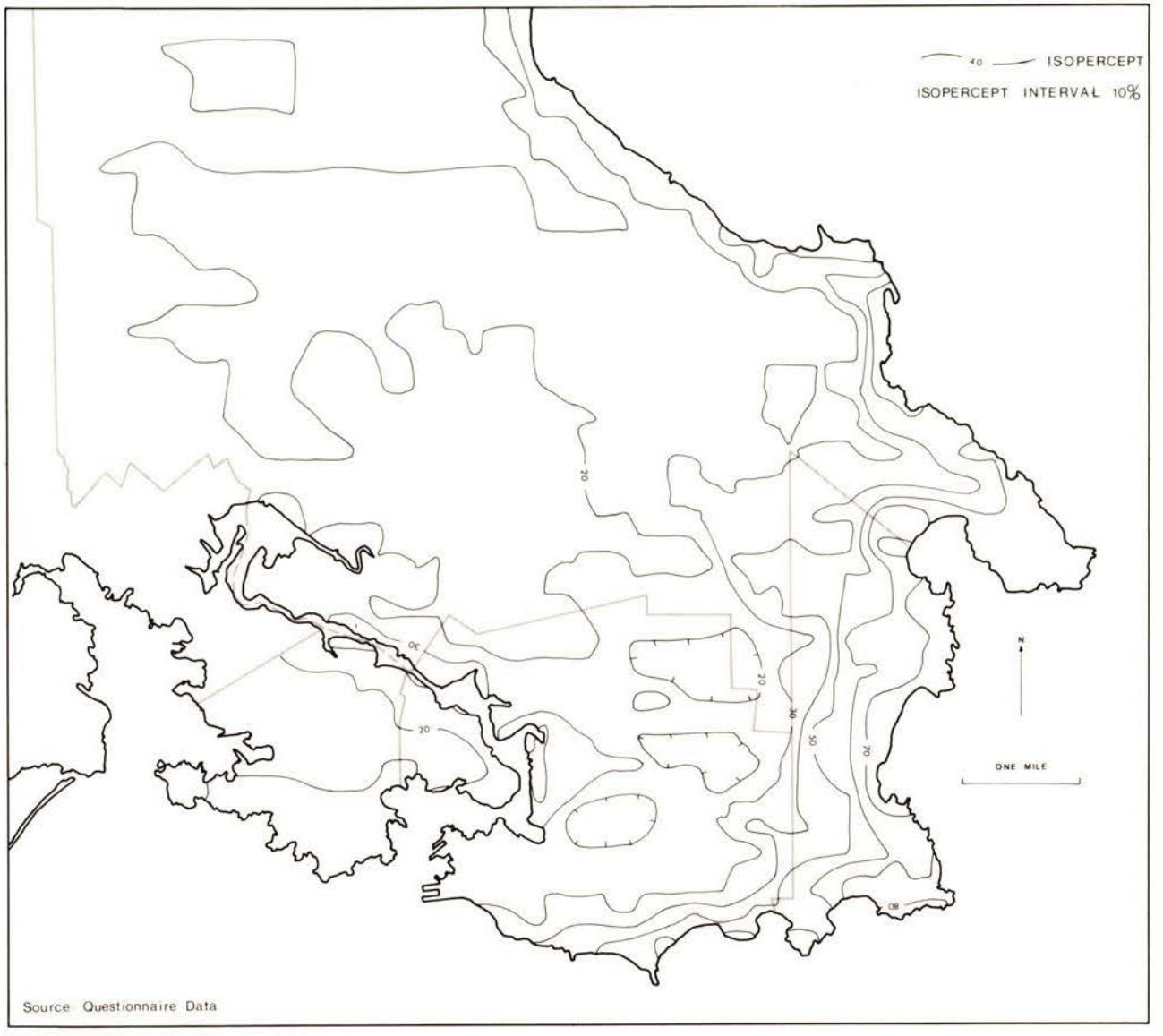
The objection map for the middle age group (Map 9) is very similar to that for the whole sample, showing a regular decline in the value of objections inland from the Oak Bay and southern Victoria coastlines. As in the case for the whole sample, the peak of objections (70%) occurs around Oak Bay, with a secondary concentration of 40% around the Inner Harbour. The only consequential averaging effect for this age group is the masking of the very marked trough (less than 20%) occuring in James Bay and Fairfield which is reflected on the surface for the whole sample as being between 20-30% respectively.

For the old, a concentration of objections again occurs around Oak Bay (Map 10). As in the case of the whole sample, a noticeable decline inland from the Oak Bay and southern Victoria coastlines is observed, as also are a secondary peak of 40% in the



MAP 9.

Objection Surface for Middle Age Group.



MAP 10.

Objection Surface
for Old Age Group.

Inner Harbour, and a significant trough of 20-30% in James Bay.

Discussion

It thus appears that the first hypothesis, that a preference surface for high rise location will have spatially specific peaks and troughs, can be confirmed. Overall the acceptance surfaces were closely tied to the present concentration of apartment buildings as described by Murphy (1973), with the peak preference, in James Bay, corresponding to the present concentration of high rise buildings. The objection surfaces were tied, in part, to the areas where high rise development has aroused controversy, as for example along the Oak Bay waterfront and in the Inner Harbour. This indicates, in general terms a willingness to continue development along the lines of present planning policy.

Several reasons for this willingness to continue present policy with its concentration in James Bay, can be found in the remarks made during the interviews. Some people expressed a feeling that the experts know best. Thus they concluded that as the planners and developers have concentrated high rise apartments into James Bay, then this is the most logical area in which to locate these developments. A second reason was that some people considered that high rises destroyed neighbourhoods and therefore considered it preferable to contain this type of development within areas already desecrated, such as James Bay and the city centre. Most of the sample (91) live outside these two areas and therefore could be

intent on keeping high rises away from their own neighbourhoods. Thirdly, as high rises have been part of the James Bay landscape for over ten years, they are for many people part of their urban imagery of Victoria, resulting in habitual mental association of James Bay and high rise apartments.

This willingness to continue development along present policy lines has two implications for future development. It would appear, from the public's preference surfaces, that a concentration rather than a random dispersal of high rise apartments is preferred and at the same time this concentration should be limited to areas already containing high rises.

Comparing the overall degrees of acceptance and objection (Maps 3 and 7), it may be noted that peaks of acceptance reach only 50% while those of objections exceed 70%. In addition, for most of the region the base level of acceptance is less than 20% while that of objections is between 20-30%. This would seem to indicate that the sample studied opposed rather than accepted new high rise development.

While there is a substantial consensus of opinion amongst the age groups, it should be noted that the acceptance map for the whole sample is an average, masking the polarisation between the sub-groups, thus confirming Gould's experience (1968, 1970). The middle aged and old definitely favour development in James Bay, although there is a wider range of acceptance by the young, with

James Bay as one of several areas for high rise apartment development. The old and the young concur on the acceptability of high rise development in small areas in the Beacon Hill area and at the Fort-Quadra streets intersection.

There is a greater consensus of opinion amongst the age groups concerning the areas of objection to high rise development. Most objection was raised by all groups to high rise development along the waterfront between Gordon Head and Gonzales Point, and continuing for the middle aged and elderly along the Victoria coastline as far as James Bay. The trough along this part of the coast for the young is the only major feature masked by the composite objection surface. The feature of objections to waterfront locations was replicated, although at a lower level of objections, around the Inner Harbour and along the southern Esquimalt coastline. There appeared to exist, then, for the sample a wish to prevent high rise development along the coastline, including the currently less desired waterfront areas.

While the objection map is a reasonable reflection, with one exception, of the opinions of the differing age groups, the whole sample's acceptance map is merely an aggregate. Significant differences do exist between the acceptance maps of the three age groups and the composite surface of the whole sample. It maybe suggested therefore, that a relationship between age and acceptance does exist, but the maps in themselves do not indicate the basic nature of this linkage.

In order to explore this relationship further, it is necessary to test it more rigorously. In addition, as a number of life cycle and life style variables are age specific, and as preferences, by having a spatial expression could also be related to spatial variables, it is necessary to look more closely at the preference surface in terms of its underlying variables.

CHAPTER IV

FUNCTIONAL RELATIONSHIPS OF PREFERENCE STRUCTURE

While the preference maps indicated that age was significantly related to preference, they did not explain the nature of this relationship in any great detail. For planning purposes a greater knowledge of this relationship is necessary in order to forecast probable future responses to high rise development by a changing population. As noted in the literature, it is not just age per se which is important, but the effect age has on life cycle and associated activities. Thus an examination of the relationship between age and preference must take into account such variables as socio-economic status, familiarity with the high rise concept and present living conditions. This chapter, therefore, examines the relationship between age as affected by life cycle and life style factors, and preference.

Method of Analysis

Since the objective of the study was to examine in detail the nature of the relationships between preference, age and other variables, it was necessary to use a method testing such multivariate functional relationships. The method chosen was stepwise regression analysis since not only does it test these hypothesised relationships, but it also ranks independent variables in the order in which they contribute to the total variance in the dependent variable scores. The approach involves:

> ... adding one independent variable at a time and generating a series of intermediate regression equations. The first independent variable considered is the one which has the highest simple correlation with the dependent variable. This initial two variable regression is completed and then the partial correlations between the dependent and all other independent variables are computed. The independent variable among these which has the highest partial correlation, in other words, the one which contributes most to the unexplained variation in the dependent variable remaining after the first regression is then included at the second step. (King, 1969).

This stepwise procedure continues until all the independent variables contributing at least a specified amount[15] to the variance have been included.

Selection of a dependent variable was guided by the fact that the map analysis had shown preference to have a definite spatial component. As only small areas of the region were contentious, while large tracts recorded little opinion it was not necessary to consider the whole region. Thus the most logical choice for a dependent variable was to choose that area for which most opinion was recorded. The preference maps clearly indicate that James Bay was this area (Table 5), and thus James Bay was the basis for a dependent variable. James Bay also had the additional advantage that opinion on high rise location here was approximately equally divided between acceptance and objection, in contrast to Oak Bay with the next highest level of opinion, where opinion is largely rejection.

The actual dependent variable used was based on the pre-

Table 5 Preferred Locations for High Rise Apartments (in ranked order)

Area	Whole Sample		19-34 age group		35-64 age group		65+ age group	
	Acceptance level	Objection level	Acceptance level	Objection level	Acceptance level	Objection level	Acceptance level	Objection level
1. Central James Bay	50%	25%	40%	35%	50%	20%	50%	25%
2. Central Areas								
Beacon Hill	35	30	30	30	30	35	45	20
City Centre	25	30	25	25	20	30	35	35
Southeast Vic. West	20	25	30	30	20	25	20	20
3. Traffic Arteries								
Douglas	25	30	25	25	25	30	35	35
Blanshard	25	30	30	30	25	25	20	30
Quadra	25	25	30	30	20	25	25	30
Bay	20	25	25	25	20	25	10	25
Hillside	20	20	30	20	15	20	15	20
4. Shopping Centres								
Town & Country	20	20	20	20	20	25	10	15
Mayfair	20	20	30	15	20	25	15	20
Esquimalt	15	15	20	10	15	20	20	20
Junction	20	35	15	35	15	30	15	40
Fairfield	20	45	30	45	15	45	20	40

Note: All figures rounded to nearest 5%.

ference ranking of census tracts according to their relative desirability for high rise location. The ranked position of James Bay could thus be used as the dependent variable. Here, therefore, the emphasis is not on the individual preference surfaces but on whether the subject's preference ranking for James Bay can be predicted. A high numerical ranking assigned to James Bay is indicative of a strong preference for continued high rise development in James Bay, while a low numerical ranking is indicative of a preference for development outside of James Bay.

Independent variables were drawn from the questionnaire data. After excluding pieces of information collected as checks on other variables, and data which were not measured at the interval level and therefore unsuitable for parametric statistical tests, nineteen independent variables were available for analysis (Table 6). As all subjects had completed the preference ranking part of the interview, all 101 questionnaires were available for analysis.

As one objective of this analysis was to examine the causes for age specific preference maps, it was necessary also to conduct this part of the analysis with reference to specific age groups. As in the case of the preference maps, it is possible that the averaging effects of the whole sample may conceal age-specific variations. Therefore it is necessary not only to examine the whole sample, but also to perform the regression analysis on the three age groups. Thus the procedure was undertaken using four samples asfollows:

Table 6 Variables Used in the Analysis

Independent Variables

Number	Name	Alphanumeric Title
1	Length of residence in present dwelling	RES DW.
2	Length of residence in metropolitan Victoria	RES VIC
3	Number of high rises in the census tracts in which the subject has lived in the last ten years (subject's home census tract)	HI LV
4	Size of the previous city of residence	PREV CY
5	Number of high rises which can be seen from the subject's dwelling	NO SEEN
6	Number of high rises known by the subject	NO KNOW
7	Perceived distance to the nearest high rise	DI PERC
8	Real distance to the nearest high rise	DI REAL
9	Difference between perceived and real distances	DIFF PR
10	Number of high rises in the census tract in which the subject works	NO WORK
11	Number of high rises in the census tract in which the subject shops	NO SHOP
12	Number of high rises in the census tract in which the subject socialises	NO SOCI
13	Socio-economic status (Hollingshead number)	HOLL NO
14	Age	AGE
15	At titude to high rises (Likert scale number)	LIKERT
16	Distance to the city centre from the subject's dwelling	DI CENT
17	Distance to the coastline from the subject's dwelling	DI COAS
18	Number of high rises in the census tract of present dwelling	HI C T LV
19	Number of households in the building in which the subject lives	H/H BDG
Dependent Variable		
	Preference ranking for James Bay	RKG JB

a) the whole sample - Table 7

b) the young age sample (19-34 years) - Table 8

c) the middle age sample (35-64 years) - Table 9

d) the old age sample (65+ years) - Table 10

Results

With the dependent variable as the preference ranking for James Bay and the nineteen independent variables, a stepwise regression was first performed on the data for the whole sample. The resulting level of explained variation in the dependent variable (R^2) is 36% (Table 7). Almost half of the explained variation (17%) is contributed by attitude score and the number of high rises in the subject's home census tract; these are the first two variables entered into the regression equation and the ones with statistically significant beta coefficients. Attitude score has a positive relationship with the dependent variable indicating that a favourable attitude towards high rise apartment buildings is functionally related to a high ranked position for James Bay and thus to a preference for further high rise developments in this area. A stronger negative relationship with the dependent variables is enjoyed by the number of high rises in the subject's home census tract, suggesting that familiarity with concentrations of high rises leads to a desire for future high rise development outside their present concentration.

A summary of the R^2 contributions and regression equation for the young age sample is given in Table 8. By breaking down the

Table 7. Summary Table for Stepwise Regression

A. R^2 Contribution for the Whole Sample

Step Number	Variable Entered	Removed	R^2	R^2 increase
1	LIKERT	15	0.1057	0.1057*
2	HI LV	3	0.1720	0.0663*
3	NOSEEN	5	0.2125	0.0405*
4	NOSHOP	11	0.2461	0.0336*
5	DICOAS	17	0.2628	0.0167*
6	NOSOCI	12	0.2758	0.0129*
7	RES. DW	1	0.2903	0.0146*
8	AGE	14	0.3056	0.0153*
9	PREVCY	4	0.3118	0.0061*
10	DIPERC	7	0.3171	0.0053*
11	DICENT	16	0.3476	0.0306*
12	DIREAL	8	0.3551	0.0074*
13	RESVIC	2	0.3578	0.0027*
14	NOKNOW	6	0.3610	0.0033*
15	H/HBDG	19	0.3626	o.0016*
16	HICTLV	18	0.3643	0.0016*

B. Final Regression Equation

$$Y = 4.93 - 0.14X_1 + 0.02X_2 - 0.72X_3^{*} - 0.002X_4 - 0.91X_5 + 0.09X_6 - 1.06X_7 - 1.35X_8 + 0.44X_{11} + 0.10X_{12} + 0.05X_{14} + 0.28X_{15}^{*} + 2.57X_{16} - 0.09X_{17} + 0.16X_{18} - 0.01X_{19}$$

Note: * indicates variable significant at $p = 0.05$.

Table 8. Summary Table for Stepwise Regression

A. R^2 Contribution for the Young Age Group (19-34 years)

Step Number	Variable Entered	Removed	R^2	R^2 increase
1	HOLLNO	13	0.1717	0.1717*
2	RES. DW	1	0.3215	0.1497*
3	PREVCY	4	0.4379	0,1165*
4	NOSEEN	5	0.5503	0.1124*
5	DICOAS	17	0.6005	0.0502*
6	HI LV	3	0.6267	0.0262*
7	NOSHOP	11	0.6374	0.0107*
8	H/HBDG	19	0.6465	0.0091*
9	RESVIC	2	0.6660	0.0195*
10	NOSOCI	12	0.6860	0.0201*
11	DIFFPR	9	0.7000	0.0140*
12	NOKNOW	6	0.7082	0.0081*
13	DICENT	16	0.7204	0.0122*
14	DIREAL	8	0.7563	0.0359*
15	HICTLV	18	0.7980	0.0417*
16	AGE	14	0.8059	0.0080
17	NOWORK	10	0.8114	0.0055

B. Final Regression Equation

$$Y = 4.92 - 0.66X_1 + 0.16X_2 - 0.35X_3 - 0.01X_4 + 1.60X_5 - 0.60X_6 - 8.56X_8 - 2.35X_9 + 0.15X_{10}^{*} + 2.33X_{11}^{*} - 0.14X_{12} + 0.15X_{13} + 0.13X_{14} + 10.83X_{16} + 4.20X_{17} - 1.18X_{18} - 0.19X_{19}^{*}$$

Note: * indicates variable significant at $p = 0.05$.

whole sample, a larger proportion of the variance is explained, with R^2 increasing to 81%, even though the three variables with statistically significant beta coefficients account for only 2%. Although added at the seventh step in the analysis, the number of high rises in the census tracts in which the subject shops has a very strong positive relationship with the dependent variable, suggesting that, for the young, familiarity with the high rise concept is functionally linked with a preference for a continuation of the concentration of high rise developments in James Bay. This conclusion is also supported by the positive, though weak, nature of the relationship between the dependent variable and the number of high rises in the census tract in which the subject works. However, those among the young living in high density conditions do not wish future high rise developments to be located in James Bay, as a negative relationship exists between the dependent variable and the number of households living in the same building as the subject. This latter relationship, is however much weaker than that between preference for continued development in James Bay and familiarity with the high rise concept as obtained by shopping in areas in which high rises are located.

The regression for the middle age sample reveals two significant variables which together contribute 17% to the explained variance of 48% (Table 9), which again is an improvement on that for the whole sample. Added at the first step is the number of high rises in the subject's home census tract with a beta value indicating a strong

Table 9. Summary Table for Stepwise Regression

A. R^2 Contribution for the Middle Age Group (35-64 years)

Step Number	Variable Entered	Removed	R^2	R^2 increase
1	HI LV	3	0.1521	0.1521*
2	HOLLNO	13	0.2269	0.0748*
3	NOSHOP	11	0.2707	0.0438*
4	DICOAS	17	0.2962	0.0254*
5	NOSEEN	5	0.3236	0.0275*
6	PREVCY	4	0.3447	0.0211*
7	H/HBDG	19	0.3852	0.0404*
8	NOKNOW	6	0.4321	0.0469*
9	RESVIC	2	0.4425	0.0104*
10	RES. DW	1	0.4530	0.0105*
11	LIKERT	15	0.4598	0.0068*
12	DIPERC	7	0.4677	0.0079*
13	DICENT	16	0.4843	0.0166*
14	DIFFPR	9	0.4882	0.0038*

B. Final Regression Equation

$$Y = 12.13 - 0.20X_1 + 0.07X_2 - 0.91X_3^* - 0.01X_4^* - 1.49X_5$$
$$+ 0.39X_6 - 1.77X_7 - 0.83X_9 + 0.10X_{11} - 0.04X_{13}$$
$$+ 0.18X_{15} + 1.78X_{16} - 1.81X_{17} + 0.06X_{19}$$

Note: * indicates variable significant at $p = 0.05$.

negative relationship to the dependent variable. This suggests, as in the case of the whole sample, that familiarity with concentrations of high rises leads to a preference for future developments to be located away from their present area of concentration. A very weak relationship with the dependent variable is demonstrated by the size of the previous city of residence which is added at the sixth stage of the analysis. The negative nature of the relationship may possibly indicate that those subjects from larger cities, and therefore possibly more familiar with large concentrations of high rises, do not wish to see these replicated in Victoria, preferring instead to see future high rise development in Greater Victoria outside its current spatial concentration.

The final regression equation for the old sample also has two significant variables. Added at the second step and having a fairly strong relationship to the dependent variable is the subject's attitude score (Table 10). By having a relationship of a positive nature with the dependent variable, a favourable attitude towards high rises is related to a high preference ranking for James Bay and therefore to continued concentration of high rise development in this area. The notion of familiarity with the high rise concept leading to a preference for continued concentration is supported by the second variable with a statistically significant beta coefficient, which is added at the eleventh step of the analysis. This variable, the number of high rises in the census tracts in which the subject has lived in the last ten years has a

TABLE 10. Summary Table for Stepwise Regression

A. R^2 Contribution for the Old Age Group (65 years and over)

Step Number	Variable Entered		Variable Removed		R^2	R^2 increase
1	NOSEEN	5			0.5127	0.5127*
2	LIKERT	15			0.6669	0.5142*
3	DICENT	16			0.7135	0.0466*
4	NOWORK	10			0.7394	0.0259*
5	AGE	14			0.7765	0.0372*
6	RESVIC	2			0.7966	0.0201*
7	DIPERC	7			0.8232	0.0266*
8	NOSOCI	12			0.8439	0.0208*
9	NOKNOW	6			0.8517	0.0078*
10	HOLLNO	13			0.8562	0.0044*
11	HI LV	3			0.8773	0.0211*
12	NOSHOP	11			0.8869	0.0096*
13			NOSOCI	12	0.8869	-0.0000
14	PREVCY	4			0.8935	0.0067*
15	H/HBDG	19			0.9104	0.0169*
16	NOSOCI	12			0.9217	0.0112*
17	DIFFPR	9			0.9301	0.0084*
18	DICOAS	17			0.9354	0.0053*
19			RESVIC	2	0.9354	-0.0000
20	RES. DW	1			0.9369	0.0016*
21	HICTLV	18			0.9382	0.0013*

B. Final Regression Equation

$$Y = 10.38 - 0.02X_1 + 2.13X_3^{*} - 0.008X_4 - 1.98X_5 + 0.78X_6 + 2.57X_7 + 3.81X_9 - 4.15X_{10} - 0.57X_{11} - 10.53X_{12} - 0.41X_{13} - 0.02X_{14} + 1.25X_{15}^{*} - 2.56X_{16} - 2.55X_{17} - 0.20X_{18} - 0.09X_{19}$$

Note: * indicates variable significant at $p = 0.05$.

very strong positive relationship with the dependent variable. Together these two variables contribute 17% to a level of explained variation of 93% which is a very great improvement on the 36% result for the whole sample.

In an attempt to ensure that the analyses had omitted no important spatial variables, maps of the residuals from the regression were constructed. As no spatial pattern emerged the scores being randomly distributed, it was concluded that no significant spatial variables had been omitted.

Discussion

As in the case of the preference maps, the regression analysis for the whole sample masks important differences between the individual age groups regarding the relationship between the dependent variable, i.e. the preference ranking for new high rise apartment development in James Bay, and the nineteen independent variables. Before discussing these differences, it should be noted that the varying levels of explanation (R^2) are themselves significant. For all age groups, the level of R^2 is higher than that for the whole sample (Table 11), suggesting that the homogeneity of each age group is greater than that for the whole sample.

In addition, for two age groups, the young and the old, the standard error of the estimate of R is an improvement on that for the whole sample, which also indicates that age may be a significant variable in preference prediction. It is for these two groups that the

Table 11. Summary Table for Regression Analyses

	N	R	R^2	Standard error of the estimate of R
Whole Sample	101	0.6035	0.3643	6.0980
Young Age Sample	27	0.9008	0.8114	5.1723
Middle Age Sample	50	0.6987	0.4882	6.1738
Old Age Sample	24	0.9686	0.9382	3.1929

level of explanation shows a very definite improvement over that for the whole sample. However, it should be recognised that because of the disparate nature of the size of the various age samples which was necessary to ensure a representative cross section of the adult population, the differences in opinion by the smaller age groups, the young and the old, are not necessarily truly reflected in the regression for the whole sample.

This becomes more apparent on the examination of the variables with significant beta coefficients (Table 12), where differences and similarities emerge between the age groups themselves as well as between the whole sample and the individual age groups. These differences and similarities are reflected not only in the actual variables which are significant, but also in the nature, whether positive or negative, and in the magnitude of their relationships.

For the whole sample, the variable with the strongest relationship to the preference ranking of James Bay is the number of high rises in the subject's home census tract. This strong negative relationship between the two variables is also shared by the regression for the middle age group. In contrast, this variable has a much stronger relationship of a positive nature for the old age group. It would thus appear that familiarity with the high rise concept as measured by the propinquity of past and present residence to high rises leads to a desire for an extension of the current concentration of high rises on the part of the old age group, but a contrary pre-

Table 12. Statistically Significant Regression Coefficients

(in rank order)

Whole Sample		Young Sample		Middle Sample		Old Sample	
Variable Name	Beta Coeff.	Variable Name	Beta Coeff.	Variable Name	Beta Coeff.	Variable Name	Beta Coeff.
LIKERT	0.28	NO SHOP	2.33	HI LV	-0.91	LIKERT	1.25
HI LV	-0.72	H/H BDG	-0.19	PREV CY	-0.01	HI LV	2.13
		NO WORK	0.15				

Notes:

LIKERT - Attitude score on Likert scale.

HI LV - Subject's home census tract.

NO SHOP - Number of high rises in the census tract(s) in which the subject shops.

H/H BDG - Number of households living in the same building as the subject.

PREV CY - Size of the previous city of residence.

NO WORK - Number of high rises in the census tract in which the subject works.

ference on the part of the middle age group.

Attitude score, which has a significant relationship with preference ranking for high rise development in James Bay, is significant also for only the old age group as well as for the whole sample. While for both samples the relationship is positive, it is much stronger for the old age group than for the whole sample. The significance of this variable may in part be explained by the fact that high density living may be more acceptable to the elderly because of the advantages of apartment living for them, and thus they may be more ready to accept a greater concentration of high rises.

All the other significant variables are unique to particular age groups. The regression for the young suggests that the whole sample is a very poor reflection for this age group as it shares no common significant variables with either the whole sample or the other two age groups. For the young, familiarity with high rises, as measured by proximity to their shopping areas in particular, and also to their locations of employment, is conducive to preference for further concentration of high rises in James Bay. This preference is, however, tempered by those amongst the young living in high density conditions who would prefer that new high rise development be located away from the existing concentration.

Unique to the middle age group is the significant variable of the size of the previous city of residence. It is probable that those from larger cities are more familiar with the high rise concept than

those from small towns. That those from larger cities are more inclined to resist continued development supports the earlier conclusion regarding the middle age sample, that propinquity of residence to high rises is related to a preference for new high rise development outside James Bay.

This analysis therefore suggests that there is a greater degree of homogeneity within each group than within the whole sample, with a consequent difference in the factors causing preferences for either a continuation or a cessation of high rise development in James Bay. For all age groups, familiarity with the high rise concept appears to be the important variable in determining preferences, but the nature of familiarity differs between age groups. For the young it is familiarity resulting from regular exposure to high rises on shopping trips or journey to work, along with living in multi-family dwellings; while for the middle aged and elderly it is familiarity through proximity of residence. However, it must be remembered that for these two latter groups, proximity of residence leads to opposite responses regarding the concentration of high rise development. In addition, for the elderly, a personality variable of attitude is also an important determinant of preference for continued concentration of high rises in James Bay.

As some social and spatial variables do therefore have functional relationships with preferences for high rise apartment development in James Bay, the second hypothesis, that social

variables such as age and other life cycle and life style factors, and spatial variables may be used to predict preferences for high rise location, is supported. Furthermore, age, through its influences on life cycle and associated activities, is a highly significant predictor variable as evidenced by the improvement in the explanation of variance in the dependent variable resulting from age grouping, thus confirming the conclusions of the preference maps regarding the relationship of age and spatial expressions of high rise development.

CHAPTER V

CONCLUSIONS

The study was based on the premise that high rise developments will continue to be proposed for the Greater Victoria region due to the increasing population and cost pressures, and the influence of provincial legislation. It asked the very important question of where, in the public's opinion, should these developments be located. While the location of new residential high rises will primarily be a function of market considerations and zoning by-laws, public opinion must also be taken into account, if only to avoid prolonged controversy with costly delays. Therefore the study attempted to determine the consistency of public opinion and the feasibility of integrating the public's viewpoints into the planning process. The first objective of the study demonstrated a method by which the public could be brought into the planning process by assessing their preferred locations for high rise apartment development. A second objective which followed from this was the identification of underlying variables determining preference so that a predictive model could be developed to guide future planning.

Two major conclusions can be drawn from the study regarding these objectives. The first is that there are specific locations which are more preferred for high rise development than others, while the second is that there are certain social and spatial characteristics, particularly age, which are important predictors of the pre-

ference surface. These are discussed in detail below with a consideration of their implications for the planning process.

Preferred Locations

By requesting a representative sample of the adult population to indicate areas of acceptance and objection towards high rise apartment development, it became evident that certain areas were more preferred than others. Although the study demonstrated that there is a 20-30% level of objections by the whole sample to all areas of the region, it was noted that there were some locations for which the level of objections was outweighed by the level of acceptance.

The area in which acceptances outweighed objections by the greatest margin was central James Bay, where the acceptance rate was 50% compared to objections of 20-30%. This would seem to indicate that the public is willing to allow the continuation of the current concentration of high rises in James Bay. However, before one can recommend this area for future high rise development, the conflict between the local neighbourhood and the rest of the community must be noted. A dilemma occurs for city planners, should they give priority to the city as a whole or to the feelings of the individual neighbourhoods when planning controversial features? At the time of writing, a new plan for James Bay, prepared by the City of Victoria planning in consultation with the James Bay Community Association, has been proposed, although it has not yet been adopted by the city council. Its recommendations, to zone no further areas in James

Bay for high rise residential development and to reduce the size of the existing area zoned for high density, will have very important implications for future high rise developments as developers would be forced to consider areas outside the present area of concentration.

This makes the study of preference surfaces for the whole Greater Victoria region more relevant because decision makers may have to consider areas beyond James Bay for the location of high rise apartments. The preference maps indicate that there are other areas which possess a higher degree of acceptance relative to objection (Table 5). The principal areas for consideration here are Beacon Hill, the city centre, the south-east of Victoria West, and along the traffic arteries of Bay, Douglas, Blanshard, Quadra and Hillside, where acceptance is approximately equal to the level of objections.

In addition to these areas, decision makers might also consider a third level of acceptance for high rise developments in close proximity to the shopping centres of Burnside, Town and Country, Mayfair, Junction, Fairfield and Esquimalt. The reduced size of the preference maps masks, in some cases, the slight peakings of up to 10% in the vicinity of these centres. However the location of high rises around Junction and Fairfield would have to be given very careful consideration as objections outweigh acceptances by over 15% in both cases.

Not only should the decision makers refer to the public's preferred locations, but they should also consider the areas to which

the public object. Avoidance of high rise proposals for the most objected locations will minimise public antagonism towards high rise apartment buildings. The sample studied appears to have a consistent objection to waterfront development with up to 70% objecting to high rise development along the Oak Bay waterfront, over 50% for Victoria, 40% for Saanich, though only 20% in Esquimalt. Even in Esquimalt, however, objections are twice the level of acceptances, this being an area for which little opinion was expressed. A very noticeable feature of the objection surfaces is that, for all age groups, the isopercepts decline fairly regularly up to one mile inland, suggesting that if high rises are to be proposed for this area public opposition may perhaps be minimised if the heights of the buildings were to be staggered inland from the waterfront.

Factors Affecting Preference

The regression analyses support the evidence of the preference maps showing age to be a highly significant variable in the determination of preference. The regression analyses took this a step further by also examining age related factors. The first indication that age was important stemmed from the fact that the level of explained variation in the dependent variable (R^2) was vastly improved when the total sample was subdivided into three age groups. The explanation increased from 36% for the whole sample to 81%, 48% and 93% for the young, middle and old age groups respectively. The second indication of the importance of age as a predictor of preference

arose from the fact that the variables having the most significant functional relationships with the dependent variable were specific to particular age groups.

Certain variables are seen to be highly important, even though the small size of the age samples prevented many variables from being significant. The basic factor affecting preference for all age groups was familiarity with the high rise concept. However, for all age groups, familiarity was unique in either its derivation or its consequences with regard to whether high rise development should be continued in James Bay. For the young, the degree to which the extension of the current concentration was preferred depended on the familiarity with high rises obtained by shopping and working in the areas in which high rises already exist. Such familiarity apparently led to a desire for a continuation of the existing concentration, although it was observed that young people who live in high density conditions were more inclined to reject this notion. For the middle aged, the familiarity gained through the experience of living in areas where high rises exist contributed to a desire for development outside the current concentration, while for the elderly this familiarity contributed the opposite opinion. That these two age groups saw the consequences of high rise development with opposing viewpoints can be attributed to their divergent lifestyles and their differing requirements for living space and accessibility to downtown. The elderly, for whom a rental apartment offers a realistic alternative to the

traditional single family dwelling, acquiesced to a continued concentration of developments. The middle aged, on the other hand, who require large amounts of space and who are not as dependent on public transport or access to downtown services were opposed to continued development.

Thus in considering areas for high rise development, the decision makers would be well advised to examine the age structure of a neighbourhood in order to determine the possible reaction to any proposed development. On the basis of this study, areas with a very high proportion of middle aged people are likely to be most resistant to high rise development because of their needs for space and neighbourhood services, while the most favourable responses could be expected from the young and old, who have the most need for this type of accommodation, and for whom the accommodation would be more transient in nature.

Thus in making a decision to locate a high rise, those who are technically, financially and politically involved should give some attention to the opinions held by the public. This study has demonstrated that the public does not have one opinion, but has many, depending on the area for proposed location and the age groups of those asked for an opinion. The findings of this study would indicate that the public can be integrated into the planning process through sampling preference surfaces. Such a method would be a useful preliminary step for the decision maker whereby not only response to general

areas may be determined, but also by requesting local communities and community groups to draw preference maps for their particular neighbourhoods, more specific locations for high rise apartment buildings may be suggested. In any event, it is only through more conscientious appraisal of public feeling and preferences that real estate developers and local planners will be able to integrate citizens into decision processes which affect their daily urban environment.

FOOTNOTES

Chapter I

1. Metropolitan Victoria includes that area designated as the Census Metropolitan Area by Statistics Canada, i.e. the City of Victoria, the municipalities of Saanich, Oak Bay, Esquimalt, Central Saanich, Sidney and North Saanich, and the unorganised territory of View Royal, Colwood, Langford and Metchosin.

2. High density development is a general term denoting a higher number of persons per acre than the traditional single family housing, and includes not only high rise developments, but also developments such as low rise apartments, garden apartments and multiplexes.

3. High rise development is a specific term denoting all buildings over the height of four storeys which, to conform to building regulations, must have a concrete/steel frame.

4. C.R.P.B. is used throughout as the abbreviation for the B.C. Capital Region Planning Board.

5. L.M.R.P.B. is used throughout as the abbreviation for the B.C. Lower Mainland Regional Planning Board.

6. Victoria Daily Times, Editorial, March 12, 1969.

7. _____, August 17, 1970.

8. _____, September 12, 1970.

9. The Daily Colonist, September 15, 1970.

10. The Vancouver Sun, June 23, 1972.

11. Greater Victoria refers to the municipalities of Victoria, Saanich, Oak Bay and Esquimalt only.

Chapter II

12. Definition of census tract, Dominion Bureau of Statistics, Census of Canada, Vol. 1, 1966.

13. B.C. Telephone Co. estimates that 95% of households in the Capital Region have telephones.

Chapter III

14. The term Oak Bay here refers to the bay of this name, not the municipality.

Chapter IV

15. In this analysis, the F level for inclusion was specified as 0.1.

REFERENCES

Acres Western Ltd. (1968) Market Analysis and Economic Feasibility, Downtown - Inner Harbour Urban Renewal Scheme : A Preliminary Investigation. Prepared for the City of Victoria, Vancouver, B.C.

Appleyard, D. (1969) "Why Buildings are Known : A Predictive Tool for Architects and Planners," Environment and Behaviour, Vol. 1, No. 2, pp. 131-156.

Arnstein, S.R. (1969) "A Ladder of Citizen Participation," Journal of the American Institute of Planners, Vol. 35, No. 4, pp. 216-224.

Bourne, L.S. (1967) Private Development of the Central City, Dept. Geography, University of Chicago, Research Paper No. 112, pp. 71-96.

_____, (1968) "Market, Location and Site Selection in Apartment Construction," Canadian Geographer, Vol. 12, No. 4, pp. 211-226.

Burgess, E.W. (1925) "The Growth of the City," in The City, R. E. Park and R. D. McKenzie (eds.), Chicago, Illinois, University of Chicago Press, pp. 47-62.

C.R.P.B. (1963) High Rise Apartments in the Capital Region, C.R.P.B. Victoria, B.C., p. 6.

_____, (1969) Retirement in the Capital Region of B.C., C.R.P.B. Victoria, B.C., p. 8.

City of Victoria, Planning Dept. (1967) James Bay Transportation and Land Use Plan, City of Victoria, Victoria, B.C.

_____, Dept. of Community Development (1973) James Bay, City of Victoria, Victoria, B.C.

Davidoff, P. (1965) "Advocacy and Pluralism in Planning," Journal of the American Institute of Planners, Vol. 31, No. 4, pp. 331-338.

Derbyshire, C.M. (1972) Citizen Participation in Urban Affairs in Greater Victoria. Unpublished report. Ottawa, Ontario, Ministry of State for Urban Affairs, pp. 7-9.

Downs, R. M. (1970) "Geographic Space Perception : Past Approaches and Future Prospects," in Progress in Geography, C. Board (ed.), Vol. 2, p. 81.

Edwards, A. L. (1957) Techniques of Attitude Scale Construction, New York, Appleton-Century-Crofts, pp. 149-171.

Frieden, B. J. (1961) "Locational Preferences in the Urban Housing Market," Journal of the American Institute of Planners, Vol. 27, No. 4, pp. 316-324.

Gayler, H. J. (1971) "Private Residential Development in the Inner City," Journal of the Town Planning Institute, Vol. 57, No. 1, pp. 15-20.

Gould, P. R. (1967) "Structuring Information on Spacio-temporal Preferences," Journal of Regional Science, Vol. 7, No. 2, pp. 2-16.

_____, (1969a) "Problems of Space Preference Measurss and Relationships", Geographical Analysis, Vol. 1, No. 1, pp. 31-44.

_____, (1969b) "The Structure of Space Preference in Tanzania," Area, No. 4, pp. 29-35.

_____, and Ola, D. (1970) "The Perception of Residential Desirability in the Western Region of Nigeria," Environment and Planning, Vol. 2, No. 1, pp. 73-87.

_____, and White, R. R. (1968) "Mental Maps of British School Leavers," Regional Studies, Vol. 2, No. 2, pp. 161-182.

Halkett, I. P. B. (1971) The Preservation of Open Space on the Saanich Peninsula, British Columbia. Unpublished M. A. Thesis, Victoria, B. C., University of Victoria.

Harris, C. D. and Uhlman, E. L. (1945) "The Nature of Cities," Annals of the American Academy of Political and Social Science, Vol. 242, pp. 7-17.

Hinshaw, M. and Allot, K. (1972) "Environmental Preferences of Future Housing Consumers," Journal of the American Institute of Planners, Vol. 38, No. 2, pp. 102-107.

Hollingshead, A. B. (1965) Two Factor Index of Social Position, New Haven, Connecticut : Yale University Press.

Hoyt, H. (1939) The Structure and Growth of Residential Neighbourhoods in American Cities, Federal Housing Administration, Washington, D. C.

James Bay Community Association (1972) Brief to the Province of B.C., Victoria, B.C., p. 7.

Jephcott, A. P. and Robinson, H. (1971) Homes in High Flats, University of Glasgow Social and Economic Studies, Occasional Paper No. 13, Edinburgh : Oliver and Boyd.

Johnston, R. J. (1972) "Activity Spaces and Residential Preferences : Some Tests of the Hypothesis of Sectoral Mental Maps," Economic Geography, Vol. 48, No. 2, pp. 199-211.

Kain, J. F. (1962) "The Journey to Work as a Determinant of Residential Locations," Papers and Proceedings of the Regional Science Association, Vol. 9, pp. 137-160.

King, L. (1969) Statistical Analysis in Geography, Englewood Cliffs, New Jersey, Prentice-Hall, pp. 145-148.

Little, C. E. (1969) The Challenge of the Land : Open Space Preservation at the Local Level, New York : Pergamon Press.

L. M. R. P. B. (1967) Apartment Development and its Place in the Community, L. M. R. P. B. Vancouver, B. C., p. 2.

Lowrey, I. S. (1970) Model of Metropolis, Santa Monica : Rand Corporation RM-4125-RC, quoted by Wheeler, J. O. in "Residential Location by Occupational Status," Urban Studies, Vol. 5, No. 1, pp. 24-32.

Lynch, K. (1960) The Image of the City, Cambridge, Mass. : M. I. T. Press.

Michaelson, W. (1966) "An Empirical Analysis of Urban Environmental Preferences," Journal of the American Institute of Planners, Vol. 32, No. 4, pp. 355-360.

Murphy, P. E. (1973) "Apartment Location : the Balance between the Developer and the Community," Western Geographical Series, Vol. 5, Dept. of Geography, University of Victoria, Victoria, B. C., pp. 149-177.

Murphy, P.E. and Golledge, R.G. (1972) Comments on the Use of Attitude as a Variable in Urban Geography. Discussion Paper No. 25, Dept. of Geography, Columbua, Ohio, Ohio State University Press.

Newman, O. (1973) "A Theory of Defensible Space," Intellectual Digest, March 1973, pp. 57-64.

Porteous, J.D. (1971) "Design with People : the Quality of the Urban Environment," Environment and Behavior, Vol. 3, No. 2, pp. 155-178.

Price Waterhouse Associates (1971) Summary Report on Cost Benefit Study on Land Use Within the Borough of York (Toronto), Toronto, pp. 8-15.

Province of B.C. (1973) Land Commission Act, Victoria, B.C.

Rushton, G (1968) "The Scaling of Location Preferences," in Behavioral Problems in Geography : a Symposium, Cox, K.R. and Golledge, R.G. (eds.). Studies in Geography No. 17, Dept. of Geography, Northwestern University, Evanston, Ill., Northwestern University Press, p. 198.

Simmie, J.M. (1971) "Public Participation : A Case Study from Oxfordshire," Journal of the Town Planning Institute, Vol. 57, No. 4, pp. 161-162.

Simmons, J.W. (1968) "Changing Residence in the City : A Review of Intra-urban Mobility," Geographical Review, Vol. 58, No. 4, pp. 622-651.

Sonnenfeld, J. (1966) "Variable Values in Space and Landscape : an Inquiry into the Nature of Environmental Necessity," Journal of Social Issues, Vol. 22, No. 4, pp. 71-82.

Styles, B.J. (1971) "Public Participation - a Reconsideration," Journal of the Town Planning Institute, Vol. 57, No. 4, pp. 163-167.

Wilkinson, R.K. and Sigsworth, E.M. (1972) "Attitudes to the Housing Environment : an Analysis of Private and Local Authority Households in Batley, Leeds and York," Urban Studies, Vol. 9, No. 2, pp. 193-214.

Wolpert, J. (1965) "Behavioral Aspects of the Decision to Migrate," Papers and Proceedings of the Regional Science Association, Vol. 15, pp. 159-169.

Zech, F. H. (1972) Life Style Indicators and Reaction to Multiple Family Dwelling Types. Unpublished M. A. Thesis. University of British Columbia, Vancouver, B. C.

SELECTED BIBLIOGRPHY

1. Books, Research Papers, Technical Reports

Acres, Western Ltd. Market Analysis and Economic Feasibility, Downtown - Inner Harbour Renewal Scheme : a Preliminary Investigation. Prepared for the City of Victoria, Vancouver, B. C., 1968.

Bourne, L. S. Private Redevelopment of the Central City, Dept. of Geography, University of Chicago, Research Paper No. 112, 1967.

Darke, J. Health and Environment : High Flats, London, Centre for Environmental Studies, 1970.

Downs, R. M. "Geographic Space Perception : Past Approaches and Future Prospects," in Progress in Geography, Vol. 2, Board, C. (ed.), 1970.

Goodman, R. After the Planners, New York : Simon and Schuster, 1971.

Jacobs, J. The Death and Life of Great American Cities, New York : Random House, 1961.

Jensen, R. High Density Living, New York : Praeger, 1966.

Jephcott, A. P. and Robinson, H. Homes in High Flats : Some of the Problems Involved in Multi-Storey Housing. University of Glasgow, Social and Economic Studies, Occasional Paper No. 13, Edinburgh : Oliver and Boyd, 1971.

Little, C. E. The Challenge of the Land : Open Space Preservation at the Local Level, New York : Pergamon Press, 1969.

Lynch, K. The Image of The City, Cambridge, Mass. : M. I. T. Press, 1960.

_____, "City Design and City Appearance," in Principles and Practice of Urban Planning. Goodman, W. I. and Freund, E. C. (eds.), Washington D. C. : Institute for Training in Municipal Administration, pp. 249-276, 1968.

Mumford, L. The Highway and the City, London : Secker and Warburg, 1964.

Murray, J. and Fleiss, H. Family Housing : a Study of Horizontal Multiple Housing Techniques, Ottawa : Canadian Housing Design Council, 1970.

Muth, R. F. Cities and Housing, Chicago : University of Chicago Press, 1969.

Newman, O. Defensible Space : Crime Prevention Through Urban Design, New York : Macmillan Company, 1972.

Price Waterhouse Associates. Summary Report on Cost Benefit Study on Land Use within the Borough of York, Toronto, 1971.

Richardson, B. The Future of Canadian Cities, Toronto : New Press, 1972.

Wheaton, W. C. "Housing and the Environment," in No Deposit - No Return. Johnson, H. D. (ed.), Reading Mass.: Addison Wesley Publishing Co., 1970.

2. Periodicals

Arnstein, S. R. "A Ladder of Citizen Participation," Journal of the American Institute of Planners, Vol. 35, No. 4, 1969, pp. 216-234.

Bacon, E. N. "Urban Design as a Force in Comprehensive Planning," Journal of the American Institute of Planners, Vol. 29, No. 1, 1963, pp. 2-8.

Bourne, L. S. "Market, Location and Site Selection in Apartment Construction," Canadian Geographer, Vol. 12, No. 4, 1968, pp. 211-226.

Calvin, J. S., Dearinger, J. A. and Curtin, M. E. "An Attempt at Assessing Preferences for Natural Landscape," Environment and Behavior, Vol. 4, No. 4, 1972, pp. 447-470.

Canter, D. and Thorne, R. "Attitudes to Housing : A Cross Cultural Comparison," Environment and Behavior, Vol. 4, No. 1, 1972, pp. 3-32.

Davidoff, P. "Advocacy and Pluralism in Planning," Journal of the American Institute of Planners, Vol. 31, No. 4, 1965, pp. 331-338.

Feldman, A.S. and Tilly, C. "The Interaction of Social and Physical Space," American Sociological Review, Vol. 25, 1960, pp. 877-844.

Frieden, B.J. "Locational Preferences in the Urban Housing Market," Journal of the American Institute of Planners, Vol. 27, No. 4, 1961, pp. 316-324.

Gayler, H. J. "Private Residential Development in the Inner City," Journal of the Town Planning Institute, Vol. 57, No. 1, 1971, pp. 15-20.

Gould, P.R. "Structuring Information on Spacio-Temporal Preferences," Journal of Regional Science, Vol. 7, No. 2, 1967, pp. 2-16.

_____, "Problems of Space Preference Measures and Relationships," Geographical Analysis, Vol. 1, No. 1, 1969, pp. 31-44.

_____, "The Structure of Space Preferences in Tanzania," Area, No. 4, 1969, pp. 29-35.

_____, and Ola, D. "The Perception of Residential Desirability in the Western Region of Nigeria," Environment and Planning, Vol. 2, No. 1, 1970, pp. 73-87.

_____, and White, R. R. "Mental Maps of British School Leavers," Regional Studies, Vol. 2, No. 2, 1968, pp. 161-182.

Herbert, J.D. and Stevens, B. H. "A Model for the Distribution of Residential Activity in Urban Areas," Journal of Regional Science, Vol. 2, No. 2, 1960, pp. 21-36.

Hinshaw, M. and Allot, K. "Environmental Preferences of Future Housing Consumers," Journal of the American Institute of Planners, Vol. 38, No. 2, 1972, pp. 102-107.

Hoffman, M. "The Outlook for Downtown Housing," Journal of the American Institute of Planners, Vol. 27, No. 1, 1961, pp. 43-55.

Hoinville, G. "Evaluating Community Preferences," Environment and Planning, Vol. 3, No. 1, 1971, pp. 33-50.

Johnston, R. J. "On Spatial Patterns in the Residential Structure of Cities," Canadian Geographer, Vol. 13, No. 4, 1970, pp. 361-366.

Johnston, R. J. "Mental Maps of the City : Suburban Preference Patterns," Environment and Planning, Vol.3, No. 1, 1971, pp. 63-72.

_____, "Activity Spaces and Residential Preferences : Some Tests of the Hypothesis of Sectoral Mental Maps," Economic Geography, Vol. 48, No. 2, 1972, pp. 199-211.

Kain, J. F. "The Journey to Work as a Determinant of Residential Locations," Papers and Proceedings of the Regional Science Association, Vol. 9, 1967, pp. 137-160.

Kaiser, E. J. and Weiss, S. F. "Some Components of a Linked Model for the Residential Development Decision Process," Proceedings of the Association of American Geographers, Vol. I, 1969, pp. 75-79.

Long, N. E. "Planning and Politics in Urban Development," Journal of the American Institute of Planners, Vol. 25, No. 4, 1959, pp. 167-169.

Michaelson, W. "An Empirical Analysis of Urban Environmental Preference," Journal of the American Institute of Planners, Vol. 32, No. 4, 1966, pp. 355-360.

Murphy, P. E. "Apartment Location : the Balance between Developer and Community," Western Geographical Series, Vol. 5, 1973, Department of Geography, University of Victoria, Victoria, B. C., pp. 149-177.

Passow, S. S. "Stockholm's Planners Discover People Power," Journal of the American Institute of Planners, Vol. 39, No. 1, 1973, pp. 23-24.

Peterson, G. L. "A Model of Preference : Quantitative Analysis of the Visual Appearance of Residential Neighborhoods," Journal of Regional Science, Vol. 7, No. 1, 1967, pp. 19-31.

Plumridge, A. "Great Dunmow Town Appraisal - an Exercise in Public Participation," Journal of the Town Planning Institute, Vol. 55, No. 5, 1969, pp. 214-215.

Porteous, J. D. "Design with People : the Quality of the Urban Environment," Environment and Behavior, Vol. 3, No. 2, 1971, pp. 155-178.

Richardson, N.H. "Participatory Democracy and Planning - the Canadian Experience," Journal of the Town Planning Institute, Vol. 56, No. 2, 1970, pp. 52-55.

Rushton, G.R. "Analysis of Spatial Behavior by Revealed Space Preference," Annals of the Association of American Geographers, Vol. 59, 1969, pp. 391-402.

_____, "Behavioral Correlates of Urban Spatial Structure," Economic Geography, Vol. 47, No. 1, 1971, pp. 49-58.

Ravitz, M. J. "Use of the Attitude Survey in Neighborhood Planning," Journal of the American Institute of Planners, Vol. 23, No. 4, 1957, pp. 179-184.

Shafer, E. L. Jr., Hamilton, J. F. Jr., and Schmidt, E. A. "Natural Landscape Preferences : a Predictive Model," Journal of Leisure Research, Vol. 1, No. 1, 1969, pp. 1-19.

Simmie, J. M. "Public Participation : a Case study from Oxfordshire," Journal of the Town Planning Institute, Vol. 57, No. 4, 1971, pp. 161-162.

Simmons, J. W. "Changing Residence in the City : A Review of Intra-Urban Mobility," Geographical Review, Vol. 58, No. 4, 1968, pp. 622-651.

Sonnenfeld, J. "Variable Values in Space and Landscape : An Inquiry into the Nature of Environmental Necessity," Journal of Social Issues, Vol. 22, No. 4, 1966, pp. 71-82.

Stegman, M. A. "Accessibility Models and Residential Location," Journal of the American Institute of Planners, Vol. 35, No. 1, 1969, pp. 22-29.

Styles, B. J. "Public Participation - A Reconsideration," Journal of the Town Planning Institute, Vol. 57, No. 4, 1971, pp. 163-167.

Wheeler, J. O., "Residential Location by Occupational Status," Urban Studies, Vol. 5, No. 1, 1968, pp. 24-32.

Wilkinson, R. K. and Sigsworth, E. M. "Attitudes to the Housing Environment : an Analysis of Private and Local Authority Households in Batley, Leeds and York," Urban Studies, Vol. 9, No. 2, 1972, pp. 193-214.

Wilson, A. G. "Developments of some Elementary Residential Location Models," Journal of Regional Science, Vol. 9, No. 3, 1969, pp. 377-385.

Winkel, G. H., Malek, R. and Thiel, P. "The Role of Personality Differences in Judgements of Roadside Quality," Environment and Behavior, Vol. 1, No. 2, 1969, pp. 199-223.

Wolpert, J. "Behavioral Aspects of the Decision to Migrate," Papers and Proceedings of the Regional Science Association, Vol. 15, 1965, pp. 159-169.

Wood, L. J. "Perception Studies in Geography," Transactions of the Institute of British Geographers, Vol. 50, 1970, pp. 129-142.

3. Planning Reports on High Density Developments in British Columbia and Legislation

C. R. P. B. Population Forecasts and Land Use Requirements, C. R. P. B. Victoria, B. C. 1958.

_____, High Rise Apartments in the Capital Region, C. R. P. B. Victoria, B. C., 1963.

_____, Esquimalt Apartment Report, C. R. P. B. Victoria, B. C. 1964.

_____, Overall Plan for the City of Victoria, C. R. P. B. Victoria, B. C., 1965.

_____, A Plan for Oak Bay, C. R. P. B. Victoria, B. C., 1967.

L. M. R. P. B. Apartment Development and its Place in the Community, L. M. R. P. B. New Westerminster, B. C., 1967.

North Vancouver (District) Planning and Property Dept., Apartment Report, North Vancouver, B. C., 1968.

Province of British Columbia, Land Commission Act, Victoria, 1973.

Saanich Planning Dept., Apartment Study, Victoria, B. C., 1969.

City of Victoria, Planning Dept., James Bay Transportation and Land Use Plan, Victoria, B. C. : City of Victoria, 1967.

_____, Dept. of Community Development, James Bay, Victoria, B. C. : City of Victoria, 1973.

West Vancouver Planning Dept., Apartment Buildings in West Vancouver, West Vancouver B.C., 1964.

4. Unpublished Material

Derbyshire, C.M. Citizen Participation in Urban Affairs in Greater Vancouver, Ottawa, Ontario : Ministry of State for Urban Affairs, 1972.

Halkett, I.P.B. The Preservation of Open Space on the Saanich Peninsula, British Columbia. Unpublished M.A. Thesis. Victoria, B.C., University of Victoria, 1971.

West End Community Council. Brief to the City Council of Vancouver, Vancouver, B.C., 1971.

Zech, F.H. Life Style Indicators and Reaction to Multiple Family Dwelling Types. Unpublished M.A. Thesis. University of British Columbia, Vancouver, B.C.

5. Local Newspaper Articles on the High Rise Controversy, 1968-1973

Victoria Daily Times, "Oak Bay Throws Out High Rise Apartment," Nov. 20, 1968, p. 7.

_____, "$25 Million Harbour Development," March 11, 1969, p. 1.

_____, "The Fort Victoria," Editorial, March 12, 1969, p. 4.

Daily Colonist, "New Apartment Taxes by Air Space," Nov. 8, 1969, p. 38.

_____, "Three-Storey 'Cells' Highly Popular Because of Price," Feb. 13, 1970, p. 25.

Victoria Daily Times, "Public Should Speak on Wharf Proposal," Aug. 17, 1970, p. 17.

_____, "A Matter of Vision," Editorial, Sept. 2, 1970, p. 4.

_____, "Hearing on Reid Project Must Await Ottawa Ruling," Sept. 12, 1970, p. 21.

Daily Colonist, "Centre Will Spoil Victoria," Sept. 15, 1970, p. 21.

Victoria Daily Times, "Yes, No, or Maybe?", Editorial, Dec. 14, 1970, p. 4.

Victoria Daily Times, "High Rises Proposed for Oak Bay," July 20, 1971, p. 21.

_____, "Oak Bay Seeks High-Rise Answers," Aug. 4, 1971, p. 18.

_____, "Reid Allowed Two Towers - Both Higher," Aug. 12, 1971, p. 11.

_____, "Turning Point," Editorial, Aug. 13, 1971, p. 4.

_____, "Pollen on Committee to Police Reid Plan," Aug. 13, 1971, p. 21.

_____, "Apartments to Get Higher and Handsomer," Aug. 14, 1971, p. 21.

_____, "Reid Hassle Shows Just Where the Public's At," Editorial, Aug. 21, 1971, p. 5.

_____, "Oak Bay Highrise Hearing Tonight," Sept. 20, 1971, p. 3.

_____, "Oak Bay Crowd Sinks High Rise," Sept. 21, 1971, p. 17.

_____, "Haddock Opposes Reid Plan," Sept. 21, 1971, p. 1.

_____, "Planning a Key Issue," Dec. 1, 1971, p. 49.

_____, "High-Density Housing the Answer?", Jan. 4, 1972, p. 5.

Daily Colonist, "Academy Site : Rough Ride," Jan. 5, 1972, p. 32.

Victoria Daily Times, "Potential Harbor Parkland Sold for New Apartment," Jan. 6, 1972, p. 1.

Daily Colonist, "Tallest Tower Approved," Jan. 6, 1972, p. 11.

_____, "Developer May Sue City Over Vic. West Rezoning," Jan. 7, 1972, p. 17.

Victoria Daily Times, "Federal Govt. to Protest City Rezoning Manoevre," Jan. 11, 1972, p. 13.

_____, "Pollen Plans Highrise Review," Jan. 11, 1972, p. 13.

Daily Colonist, "Developer Promises to Meet with Pollen," Jan. 12, 1972, p. 13.

Daily Colonist, "Highrise Plunges : Low Zoning Sought," Jan. 13, 1972, p. 21.

_____, "Economics May Solve Highrise Controversy," Jan. 14, 1972, p. 5.

Victoria Daily Times, "Hopes Look Dim for Bay Village," Jan. 14, 1972.

_____, "City Delays Barnard Rezoning Pending Crown Sale," Jan. 14, 1972, p. 17.

_____, "City's Prospects Soar for Waterfront Park," Jan. 18, 1972, p. 1.

_____, "14 Floors Enough - Pollen," Jan. 19, 1972, p. 27.

_____, "Barnard Saga : Righteous End, Questionable Means," Jan. 22, 1972, p. 5.

Daily Colonist, "Oak Bay Firmly Cautious," Jan. 26, 1972, p. 2.

Victoria Daily Times, "Vexed Council Balks on James Bay High Rise Approval," Jan. 28, 1972, p. 17.

_____, "New Policies, New Horizons," Jan. 29, 1972, p. 5.

_____, "Council Wrong Says Developer," Feb. 9, 1972, p. 15.

_____, "Bid Made to Shrink Highrise," Feb. 10, 1972, p. 21.

_____, "The Ultimate High Rise," Feb. 12, 1972, p. 5.

Daily Colonist, "Sweeping Zoning Change Considered by Victoria," Feb. 15, 1972, p. 1.

_____, "City Council Talks 14 Storeys, Building Aims Up To 24 Higher," Feb. 25, 1972, p. 21.

Victoria Daily Times, "Downtown Building Limits Approved," Feb. 25, 1972, p. 7.

Daily Colonist, "Broad Changes Due in Zoning," Feb. 27, 1972, p. 23.

_____, "Proposed Highrise Controls Prompt Freeze on Permits," March 1, 1972, p. 19.

Daily Colonist, "James Bay," May 14, 1972, p. 1 and p. 9.

_____, "High Rise Home of Silent Majority," May 16, 1972, p. 7.

The Vancouver Sun, "Too Much Emphasis put on Dream Home," May 27, 1972, p. 26.

Victoria Daily Times, "Curves!", June 8, 1972, p. 25.

The Province, "Victoria's City Centre Redesigned for People," June 14, 1972, p. 11.

Victoria Daily Times, "Development of Apartment Towers on Land now Used by Riding Academy," June 19, 1972, p. 17.

_____, "Use of Riding Academy land for development of apartments," June 20, 1972, p. 13.

The Vancouver Sun, "Embattled Reid Centre goes ahead in Victoria," June 23, 1972, p. 7.

Victoria Daily Times, "Open Gate, Closed Window," Editorial, June 24, 1972, p. 4.

Victoria Daily Times, "Controversial Highrise Twin Unavoidable," June 28, 1972, p. 13.

Daily Colonist, "Riding Academy - All Documents Being Made Public," July 11, 1972, p. 7.

_____, "Pen Stroke in Closed Council Gives Reid Centre Go-Ahead," July 11, 1972, p. 13.

_____, "Wharf Street Properties Next For Reid," July 19, 1972, p. 17.

The Vancouver Sun, "Victoria vetoes Highrise Proposal," August 23, 1972.

Victoria Daily Times, "Apartment Living Growing in Saanich," Oct. 18, 1972, p. 10.

_____, "Crime Rises With Building," Nov. 8, 1972, p. 5.

_____, "Oak Bay Stalls on Apartment Zoning By-Law, Nov. 8, 1972.

_____, "Go-ahead for Mace Highrise?", Nov. 9, 1972, p. 1.

Victoria Daily Times, "Down-Zone Says James Bay Plan," Dec. 15, 1972, p. 13.

_____, "High-Rises May Be Due For a Fall," Jan. 8, 1973, p. 5.

The Victorian, "Now ... let's hear it for the developer," Jan. 10, 1973, p. 1.

Victoria Daily Times, "Public Hearings on Bay Village," Jan. 25, 1973, p. 21.

_____, "Zoning Bid Fails For 49 Apartments," Feb. 6, 1973, p. 11.

_____, "Alderman's Survey : Apartments Unwanted," Feb. 6, 1973, p. 11.

_____, "Mace Cool To Hearing On Project," Feb. 12, 1972, p. 17.

_____, "Mace Plans Vetoed : Court Battle Looms," Feb. 23, 1973, p. 11.

_____, "Don't Overlook The People," Editorial, Feb. 23, 1973, p. 4.

The Victorian, "Co-op Housing : Is It The Coming Thing?", March 14, 1973, p. 1.

Victoria Daily Times, "Yes, the Wind Is Stronger : High Rises Are the Cause," March 21, 1973, p. 33.

_____, "A Pleasant Core Attracts Them," March 24, 1973, p. 15.

_____, "Landlord Boom," June 30, 1973, p. 13.

_____, "New Hierarchy in the Top 40," July 3, 1973, p. 15.

_____, "Vandalism City Wreckers," July 20, 1973, p. 5.

_____, "Just Another High-Rise City : 'Frisco Loses Its Heart," July 20, 1973, p. 5.

Daily Colonist, "City Highrise Curbs Fail To Dampen Developers," August 3, 1973, p. 17.

APPENDIX A

POPULATION GROWTH IN METROPOLITAN VICTORIA 1956-1971

Metropolitan Victoria : Population Growth 1956-1971

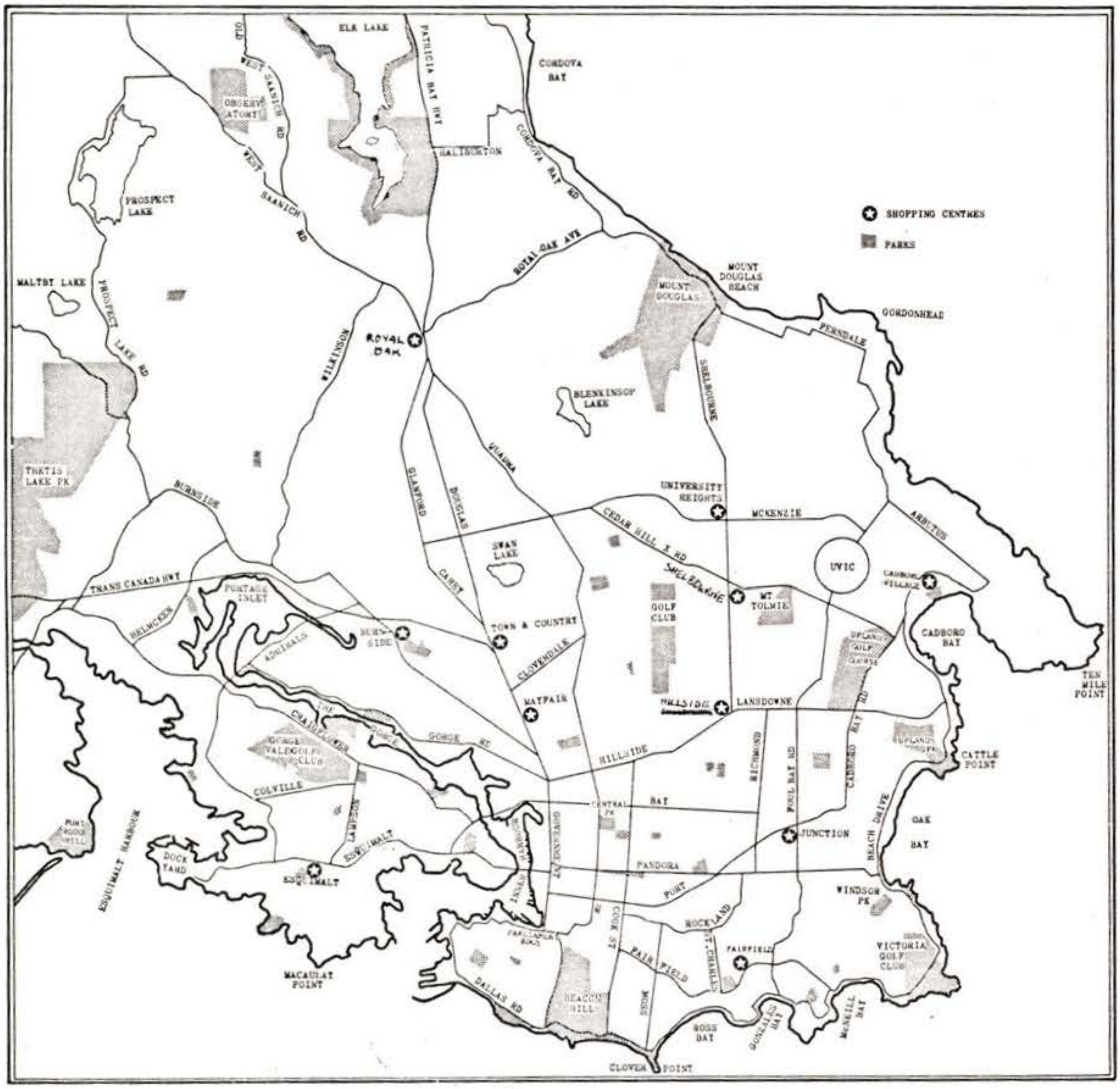
Area	1956	1961		1966		1971	
	Population	Population	% increase	Population	% increase	Population	% increase
Victoria	54,584	54,941	0.6	57,453	4.5	61,761	7.4
Saanich	38,358	48,876	27.4	58,845	20.3	65,040	10.5
Esquimalt	10,384	12,048	16.0	12,891	6.9	12,922	0.2
Oak Bay	14,857	16,935	13.9	18,123	7.0	18,426	1.6
Central Saanich	2,477	2,952	19.1	3,640	23.3	5,136	41.6
North Saanich	2,865	4,883[1]	15.2	2,891	26.8	3,601	24.6
Sidney	1,371			3,165		4,868	53.8
Unorganised (Langford, Colwood, View Royal)	8,382	12,587	50.1	15,614	24.0	22,949	46.9
Total:	133,829	154,152	15.1	173,455	12.5	195,703	12.8

Source: C.R.P.B. : Social Characteristics 1961, 1966.
Statistics Canada : Census of Canada, 1971, Vol. 1, Table 6.

[1] North Saanich and Sidney totals combined due to boundary changes 1961-66.

APPENDIX B

THE INTERVIEW


SHOPPING CENTRES
PARKS
ELK LAKE
CORDOVA BAY
PATRICIA BAY HWY
WEST SAANICH RD
OBSERVATORY
HALIBURTON
CORDOVA BAY RD
PROSPECT LAKE
ROYAL OAK AVE
MALTBY LAKE
PROSPECT LAKE RD
MOUNT DOUGLAS
MOUNT DOUGLAS BEACH
GORDONHEAD
FERNDALE
WILKINSON
ROYAL OAK
SHELBOURNE
BLENKINSOP LAKE
THETIS LAKE PK
BURNSIDE
QUADRA
BLANFORD
DOUGLAS
UNIVERSITY HEIGHTS
MCKENZIE
ARBUTUS
CEDAR HILL X RD
SWAN LAKE
UVIC
TRANS CANADA HWY
PORTAGE INLET
CAREY
MT TOLMIE
GOLF CLUB
HELMCKEN
ADMIRALS
TOWN & COUNTRY
CADBORO BAY
CLOVERDALE
TEN MILE POINT
MAYFAIR
HILLSIDE
LANSDOWNE
GORGE RD
GORGE VALE GOLF CLUB
RICHMOND
FOUL BAY RD
CATTLE POINT
COLVILLE
CENTRAL PK
BAY
JUNCTION
BEACH DRIVE
OAK BAY
ESQUIMALT HARBOUR
DOCK YARD
ESQUIMALT
PANDORA
FORT
WINDSOR PK
COOK ST
ROCKLAND
PARLIAMENT BLDG
FAIRFIELD
VICTORIA GOLF CLUB
MACAULAY POINT
DALLAS RD
BEACON HILL
MOSS
ROSS BAY
GONZALES BAY
McNEILL BAY
CLOVER POINT

Questionnaire - Section 1

1. How long have you lived in this house/apartment ____ years/months?
   If less than 10 years, then:-
   a) in which part of Victoria did you live before? _____
   b) if not Victoria, in which city did you live? _____
   c) what type of housing did you live in previously? _____

   single dwelling ____ duplex _____ row _____ conversion _____
   low rise apartment _____ high rise apartment _____

   d) how long have you lived in Victoria ? _____

2. Can you see any high rises from your house/apartment? Yes __ No __
   If yes, how many? _____
   From which rooms can you see them? _____

   _____

3. Can you list other high rises which you know of in Victoria?

   _____

   _____

   _____

4. Which do you think is the nearest high rise to your house/apartment?

   _____

5. In which area of town do you work? _____

6. In which area of town do you generally do your shopping?

   _____

7. Are there any other parts of the city which you visit regularly or know very well? _____

   _____

   _____

8. If plans for the construction of a high rise were announced for your neighborhood, how would you react?
   would you a) be pleased about it? _____
   b) be indifferent to it? _____
   c) object to it? _____

9. What was your reaction to the proposed Reid plan for development in the Inner Harbour?
   were you a) pleased about it? _____
   b) indifference to it? _____
   c) opposed to it? _____

Questionnaire Section 1 (Contd.)

10. What was your reaction to the proposed Windsor Park development in Oak Bay?
    were you a) pleased about it? _____
    b) indifferent to it? _____
    c) opposed to it? _____

11. Do you have any children living at home with you? Yes __ No __
    If yes, how many? _____
    What are their ages? _____

12. At what grade did you finish your education?
    before or at grade seven _____
    grade eight or nine _____
    grade ten or eleven _____
    grade twelve
    one to three years college or university _____
    college or university degree _____
    graduate professional training _____

13. What is your occupation? _____
    What is the occupation of your husband/wife? _____

14. Do you own or rent this house/apartment?

15. What is your age? _____

Questionnaire Section 2. The following statements have been made by Victorians about high rises in Victoria. Would you please consider each statement and check the category which corresponds with your opinion.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. In Victoria, high rises are pleasant places in which to live.					
2. There is never any need to build high rises in Victoria.					
3. High rises in Victoria are tastelessly designed.					
4. High rises in Victoria are like prisons.					
5. High rises in Victoria are not friendly places in which to live.					
6. High rises in Victoria are impressive.					
7. Have you opportunities to meet many people in high rises.					
8. High rises should not be built in Victoria.					

Questionnaire Section 3.

This is a map of the census divisions of Greater Victoria. Would you please list them according to your preference for high rise development in the area, so that at the top of the list is that area in which you would most prefer to see new high rises, and at the bottom of the list is that area in which you would least like to see high rises.

Would you now please divide the list into three parts: the areas in which you would like to see high rises; the areas to which you are indifferent; and the areas in which you would dislike to see high rises.

e. g.

V

U

Z

X

Y

W

Questionnaire Final Section

Would you look at the photograph and answer the following questions:

1. How does this photograph compare with your own impression of the height of high rises? (Check one)

   much taller
   taller
   the same
   smaller
   much smaller

2. How does this photograph compare with your own impression of the overall size of high rises? (Check one)

   much narrower
   narrower
   the same
   wide
   much wider

3. How does this photograph compare with your own impression of the materials used?

   a) Check one of the following:
   much brighter
   brighter
   the same
   duller
   much duller

   b) Check one of the following:
   much colder
   colder
   the same
   warmer
   much warmer

4. How does this photograph compare with your own impression of the design of high rises? (Check one)

   very appealing
   appealing
   the same
   unappealing
   very unappealing

Thank you very much for your co-operation. The information you have given will be most useful in analysing the feelings of Victorians in the matter of high rise location in the city. All sources of information will remain strictly confidential.

Questionnaire Supplementary Information

Name _____

Address _____

Telephone Number _____

Sex: F M

Type of dwelling: Single
Duplex
Row
Conversion
Low rise apartment
High rise apartment

Number of households living in the building _____

Census tract number _____

Number of high rises in census tract _____

Distance to nearest coastline _____

Distance to nearest high rise _____

Distance to city centre _____

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Title of Thesis

Age As A Determinant Of The Spatial Preference Surface For High Rise Apartment Locations in Victoria, B.C.

Author [redacted]

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20/12/1973

Date

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Publications: