PLANNING FOR LOCAL STRIP COMMERCIAL AREAS

by

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ABSTRACT

Declining strip commercial areas are a common problem. Typically, they appear unattractive and often have significant vacancy rates. Without positive municipal action, they appear to have undesirable or at least uncertain futures. Yet the complexity of these areas makes it difficult for planners to suggest a viable development policy.

The main purpose of this thesis is to explore conceptual frameworks and analytical techniques that municipal planners can use in studies of these problem areas.

The first step is a review of the planning and retail market structure literatures, with particular attention to the development and functions of commercial strips. An important conclusion from this review is that while retail strips face strong competition from planned shopping centres, there is a somewhat limited range of functions that require or prefer strip locations.

The concepts developed in the literature review are applied to a case study area on Hastings Street in Burnaby, B.C. Land use studies indicate the area has the characteristic structure of an unplanned shopping centre, but with a larger proportion of services and a limited range of retail

facilities. A market study indicates modest potential for expansion, but virtually no potential for major new facilities. Marginal sales estimates for some retail outlets are attributed to competition with other retail facilities, particularly those in the Brentwood Mall two miles away, and to deficiencies in the appearance and structural condition of buildings in the area. Policy proposals include redevelopment in accordance with the existing Community Plan for the area and a rehabilitation and revitalization plan developed from the analysis.

Evaluation of these proposals is based initially on the return on investment criterion. The high density, mixed residential and commercial redevelopment alternative is rejected because the land residual value generated by the residential component is shown to be less than the land assembly costs, and the commercial development greatly exceeds the available market. The revitalization plan includes street beautification, renovation of some of the existing buildings, and encouragement of lower density selective redevelopment compatible with the present character of the area. Significant economic benefits from the beautification and renovation elements are inferred from the market study by cost effectiveness analysis. Lower density development is shown to be feasible despite a lower land residual value than the Community Plan proposals because of reduced land assembly costs. The

results of the economic evaluation are combined with an evaluation of social costs and benefits for a wide range of interest groups affected by the project using Litchfield's Planning Balance Sheet framework. Revitalization produces significantly higher social benefits due to reduced disruption of the community and more immediate benefits for the majority of affected interest groups.

The concluding discussion is primarily concerned with methodological issues in the context of what can be accomplished by a small planning team using readily available public information. It is argued that the use of detailed land use data within a conceptual framework derived from the retail location literature is the fundamental tool for analyzing the internal structure of strip commercial areas and assessing the competitive potential of retail facilities.

The land residual approach to analysis of redevelopment proposals, despite the scope, diversity, and uncertainty characteristic of projects involving redevelopment and rehabilitation over an extended period of time, is shown to have value in the assessment of municipal policies. Furthermore, these market and investment oriented methods of analysis can be integrated into the more comprehensive evaluation methodology necessary for government decision making. The conclusion from the analysis is that while planned shopping centres have not made strip commercial

areas obsolete, they have necessitated adjustment to a more limited role. In general, that role is best achieved by revitalization of the existing structure, rather than redevelopment.

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CHAPTER I

INTRODUCTION

Strip commercial development along major traffic arterials constitutes the largest component of retail development in North American cities. Much of this is located in neighbourhood business districts serving the needs of local residents. Yet increasingly shoppers are turning their backs on these areas in favour of more modern facilities located in planned shopping centres. A major issue for urban planning is whether strip commercial development is still a viable form of retailing, or whether it should be replaced by more modern forms of development.

The main problem is that major retailers no longer see strip commercial areas as the place to be. This has reduced the level of investment in these areas. Existing businesses have generally been unable or unwilling to invest sufficient capital to remain competitive. The result has been noticeable physical deterioration, a declining share of total retail sales, and in many cases, a decline in the level of quality of goods and services offered. There has been growing pressure from affected

merchants, and surrounding residents for whom the "strip" is often the focus of neighbourhood activity, for public intervention to reverse these trends.

Since the physical aspects of decline are the most noticeable, they are often perceived as the cause of the problem. Yet they are generally only symptoms of deeper economic problems which must be addressed if an effective long term solution is to be found. Planners need a working knowledge of the economic forces affecting the retail industry in order to understand the nature of the problem and to develop realistic strategies of public intervention. It is the purpose of this thesis to outline a methodology for analyzing retail strips which can be applied by a small planning team working in the public sector on a limited budget.

Understanding the problem requires an assessment of the operation of the existing retail facilities. Retailing is an industry which lends itself well to analysis. It is dependent on readily studied socio-economic forces such as population and income characteristics, consumption patterns, and acquired shopping habits which make its performance on a market or area wide basis highly predictable. There is a need to account for the level of competition at the local level, but this is not an insurmountable problem. Techniques will be presented

in this thesis for analyzing the function of strip commercial areas in relation to other competitive centres, classifying areas of strip commercial development in accordance with its dominant functional character, and estimating retail sales by class of retail space. This information is necessary for assessing the competitive potential of retail facilities relative to other business opportunities, evaluating the need for existing retail space, and identifying new business opportunities.

Planners have developed two basic solutions for responding to the decline of strip commercial areas. Either the existing development is replaced with a new form of development more suited to the present economic situation, or a means is found which results in existing facilities being more competitive with other forms of retail development. The most appropriate response is determined by the nature of the market and the respective costs of implementation.

Redevelopment has until recently been the most commonly accepted approach. For redevelopment to occur spontaneously, there must be sufficient economic incentive to landowners to justify the replacement of obsolete facilities. This is normally provided by density incentives in zoing regulations. Redevelopment of strip commercial areas is often hindered by the fragmented land

ownership pattern. This slows the redevelopment process and adds to the cost. The introduction of federal sponsored urban renewal programs in the United States and Canada during the 1960s allowed many municipalities to speed up the process under legislation allowing compulsory property acquisition and initiating redevelopment in a comprehensive fashion. While some of the worst problem areas were eliminated, this approach was not altogether favourable as it often resulted in the disruption of established communities and personal hardship for parties displaced by redevelopment.

More recently planners have developed a less disruptive approach termed revitalization. Generally these programs have focused on issues of urban design, environment, general attractiveness, and the functional relationship between the businesses in an existing commercial area as a means to make them more competitive. The response to this approach from the public has generally been favourable as it results in immediate improvements to the condition of declining commercial areas without the degree of disruption associated with redevelopment. Improvement in the economic condition is less certain, however. Some centres benefit from revitalization while others do not.

Planners need to assess the economic consequences of these policies in order to determine whether they are

feasible of implementation. In theory, a thorough cost-benefit analysis should be able to provide these answers, but in most cases costs and benefits cannot be specified with sufficient accuracy. Partial methods of analysis are normally the best indicators available. Methods developed in the fields of real estate investment analysis and evaluation research to judge the feasibility of development proposals will be illustrated in this thesis.

Related to the question of economic feasibility is the incidence of social costs and benefits resulting from a development policy. These include both monetary and non-monetary factors and are much more difficult to quantify than factors affecting economic feasibility. Yet their incidence is crucial to the question of direct public intervention. Significant social benefits may justify the selection of a policy with lower direct economic benefits, or the subsidization of an uneconomic proposal. Evaluation research provides a means for decision makers to consider all costs and benefits within a consistent framework. This thesis will also contain an example of Litchfield's Planning Balance Sheet, one of the more advanced techniques of evaluation available.

These techniques are presented by means of a literature review and a case study. The literature review is contained in Chapter II. It discusses the evolution of

strip commercial areas and their present function relative to their main competitor, the planned shopping centre. A major purpose of this chapter is to determine whether the planned shopping centre has made strip commercial areas obsolete.

Chapters III to VI focus on the case study, an older strip commercial area located on Hastings Street in Burnaby, British Columbia. It is generally considered to be in a state of decline due to the poor physical condition of buildings in the area. The present Community Plan for the area proposes their replacement with high density residential and commercial development. Retail facilities in the area face strong competition from the Brentwood Mall, a nearby planned shopping centre.

Chapter III begins with an evaluation of the competitive position of Hastings Street relative to other retail centres by means of a comparative land use survey. Later, a more detailed land use survey is used to show the functional relationship between retail outlets in the study area to enable comparision with the Brentwood Mall.

Chapter IV consists of a market share analysis by line of retail trade for residential districts surrounding the study area. The purpose of these first two chapters is to show how the function of retail districts can be

analyzed for public sector land use planning, using readily available public information.

Chapters V and VI consist of an evaluation of two alternate development policies for the study area. The first is the Community Plan proposed for the area by the Burnaby Planning Department. The second is a revitalization plan developed by the author in the course of the analysis. Chapter V consists of a description of the two plans and an analysis of their economic feasibility. A land residual analysis is used to determine the feasibility of the various proposals. Benefits anticipated from the revitalization plan are inferred from the market analysis of the previous chapter through the use of cost effectiveness analysis.

Chapter VI contains an explanation and illustration of Litchfield's Planning Balance Sheet. The purpose of this chapter is to show that alternate policies on commercial redevelopment can have significantly different implications for affected interest groups.

The final chapter is a summary of conclusions regarding the Hastings Street area in particular and the effectiveness of the techniques used in the study. Revitalization is recommended as the best development plan for the area due to the lower incidence of social costs and the greater immediacy of benefits. The principal value of the thesis is that it provides a concise explanation of methods of analysis applicable to the study of strip commercial areas.

CHAPTER II

THE VIABILITY OF STRIP COMMERCIAL DEVELOPMENT

Introduction

The purpose of this chapter is to discuss the development of strip commercial retailing, its nature, and relationship to other forms of retail development. Effective planning for strip commercial development requires a thorough understanding of its strengths and weaknesses in relation to other forms of retailing.

The points which I intend to address are as follows:

i. the theoretical basis for the study of retailing
ii. the evolution of strip commercial development and its relationship to other sectors of the retail economy
iii. the major factors underlying changes that have occurred in the function of commercial areas
iv. the function of the main component of strip commercial development in relation to its main competitor, the planned shopping centre
v. the prospects for future viability of strip commercial developments.

Arguments in support of commercial strip development will be developed in subsequent sections of the paper on the basis of these points.

Theoretical Concepts for the Study of Retailing

Relationship to Population and Income Growth

Before looking at any specific part of the retail sector, it is helpful to understand the basis for the overall sector. Ultimately, the growth of the retail sector is linked directly to the growth of the population and per capita income of a community. Any variation in these factors will have major implications on the viability of the retail sector. In one of the most comprehensive studies of retail structure ever completed, Brian Berry calculated that between 84% and 89% of the variation in the number of retail firms operating in Chicago between 1948 and 1958 was due to various aspects of population growth and decline.[1] In a similar study of Metro Toronto, James Simmons concluded that 83% of the change in the number of retail units was due to similar factors.[2] Reaction of the retail sector in both communities to changes in either population or income was both rapid and direct. This close relationship between retail strength and population growth provides a basis for discussion of separate sectors of the retail economy.

Operation of the Individual Retail Firm

An understanding of the operation of the individual firm is also useful in a study of the retail economy. A key premise is that individual firms attempt to maximize profits. This provides a consistent basis for operation. It requires that marginal cost equals marginal revenue. In a condition of perfect competition this requirement results in an optimum scale of production at the point of minimum average cost. However, as is generally known, retailing is not a perfectly competitive industry. In order to maximize his profits a retailer may vary the scale of his operations, change his production function, or vary his product. The latter factor would include the width of his product line, the product mix, and the type and amount of extra service.[3] Location is considered to be part of the production function. A retailer who feels that his overall profit picture will be improved by a better location will bid for such a location against competing uses. The body of knowledge which best explains that bidding process is central place theory.

Central Place Theory

Central place theory was originally developed to account for the size, number, and distribution of towns providing retail goods to surrounding rural areas. To

make it applicable to intra-urban location problems, Berry and Garrison restated central place theory using the following concepts:[4]

i) threshold (an economic concept)--the minimum amount of purchasing power to support the supply of a central good from a central place

ii) the range of a good (a spatial concept)--and market area of a central place for a central good. Its lower limit encloses the threshold purchasing power, while its upper limit is the distance beyond which the good cannot be sold, because the demand for it is zero (the ideal limit) or a competing centre is more convenient (the real limit).

These concepts were used to explain the existence of a hierarchy of centres based on a continuum of threshold requirements for various goods. While in theory businesses should tend to arrange themselves randomly throughout the city in accordance with the range of the respective goods sold, in practice the irregularities of the transportation system tend to make some locations more accessible than others, and there are transfer effects to be gained by clustering together with other businesses to take advantage of the multi-purpose shopping trip. Consequently, businesses tend to arrange themselves in clusters to serve a market

area more or less defined by the average range of goods sold.

There are a number of ways by which central places can be identified. The simplest approach is to count the number of functions within business areas and arbitrarily derive a heirarchy of centres based on the expected range of goods sold. Berry suggests two more accurate methods in his study Commercial Structure and Commercial Blight.[5] The first approach is to look at the land value gradient for a city and derive a hierarchy from the peaks that occur. This provides a reasonably accurate representation since it has been well established that commercial land value is a function of accessibility to residents, accessibility to moving traffic, site economics, and the reputation of an area.[6]

The most accurate method is to derive the hierarchy from the distribution of shopping trips made by consumers. This information can be obtained from the Origin-Destination surveys, that are a routine part of transportation studies.

Using one of these methods, it is possible to derive a hierarchy of business areas for a given city which will include both unplanned and planned shopping centres. Unplanned shopping centres are concentrations of individual retail firms, occurring at regular intervals along major urban arterials. They are typically located at the

intersections of major transportation routes and are generally part of a much larger retail strip. Berry has shown in his Ph.D. dissertation that these centres exhibit regularly occurring patterns of land use due to the benefits derived from the exchange of customers as a result of the multi-purpose shopping trip.[7] Commercial uses bid up the price of the most accessible locations in these areas and arrange themselves in a fashion which maximizes the value of the locational advantage available.

The planned shopping centre is also a collection of individual firms. However, it is conceived and managed as a unit to maximize the return for a single owner rather than the return of a large number of individual firms. This results in a number of fundamental differences in structure as compared to the unplanned shopping centre. The management is able to co-ordinate the activities of centre merchants and provide a number of non-price services and amenities which customers desire as part of the shopping experience.

Unplanned centres are most common in the inner city areas which developed prior to the advent of planned shopping centres. High land prices have provided some protection for these centres from the development of more modern forms of retail development. In the more recently developed suburban areas, the planned shopping centre has become the dominant form of retail development.

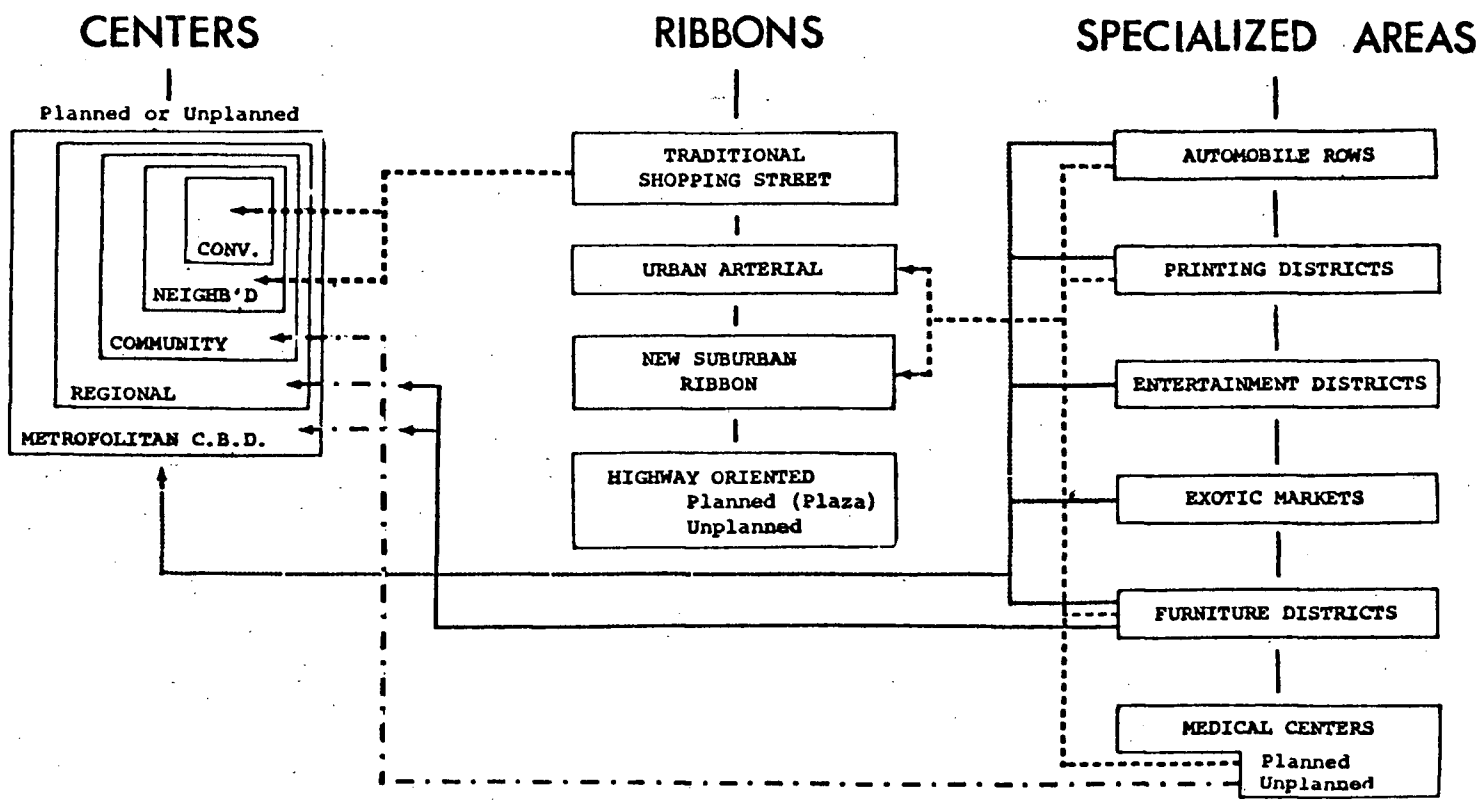
Unplanned and planned shopping centres are only a portion of the total range of commercial development. A concise statement of the various forms of retail development and relationship to one another is provided by Berry's typology of the Structure of Business and Commerce shown in Figure No. 1.[8] Berry identifies three basic physical forms of commercial development--centres, ribbons, and specialized areas. Each of these forms may in turn be sub-classified by function. The major functions are as follows:

i) a hierarchy of business centres--As mentioned previously, these consist of clusters of businesses that benefit from customer interchange. The number and size of businesses in the cluster depends on the extent of the market area. The smaller centres of the hierarchy in older urban areas are often sections of ribbon commercial streets. Newer centres are generally in the form of a planned shopping plaza.

ii) urban arterial and new suburban strip developments--These areas are also located along strip commercial streets but tend to attract uses that do not require the kind of customer interchange that characterizes the hierarchal centres. They

FIGURE NO. 1

THE STRUCTURE OF BUSINESS AND COMMERCE



Source: B.J.L. Berry
Commercial Structure
and Commercial Blight

benefit from the exposure and ease of access gained from the location. Examples of this type of business are automobile sales and service, furniture stores, and radio-television sales. A variant on this basic form is the new suburban strip which features a wider range of service functions such as fast food restaurants, dry cleaners, print shops, etc., commonly found in unplanned shopping centres in the inner city but unable to locate in planned shopping centres.

iii) specialized function areas--These are areas characterized by close interrelationships between a number of different businesses with a high degree of customer interchange. Unlike centres of the first type, these centres deal in only one aspect of retailing and serve the whole urban market. Examples of this type are the "automobile row" and the "furniture row" found in larger cities.

iv) highway oriented areas--These provide services to the motoring public such as gasoline, auto repair, and over-night accomodation. They can be in either a planned or unplanned configuration.

There is a great deal of overlap in the types of businesses found in each classification. It should be

emphasized that central place theory does not adequately account for the urban arterial highway oriented and specialized area functions. Despite this limitation, it is still a useful way of characterizing urban retail structure.

Growth of North American Commercial Structure

Historical Background

To understand the structure of retail development, it is useful to know something about its evolution. Simmons identifies three stages in the growth of retailing in North America.[9] Until the early 1900s, most retail development was concentrated in the central business districts with only scattered lower order uses such as food stores in the outlying areas. After 1910 more substantial businesses began to develop in the outlying areas at the intersections of major traffic routes and spread out from there. These became unplanned shopping centres and ribbon commercial developments. Expansion of this form of development continued until the depression and World War II forced its curtailment. The post-war period brought extensive population growth and rapid expansion of retail facilities, but this time they were largely in the form of planned shopping centres. Each new form of development was largely superimposed on the previous one. As each new

development occurred, it produced changes in the form and function of previous commercial developments.

Dynamic Factors Affecting Commercial Structure

The factors which resulted in changes in the form of commercial development are outlined in a paper by Vance.[10] He attributes the bulk of the changes to improvements in transportation. Most large cities came into existence during a time of mass transport, and the early office and commercial development at the centre were the creation of these fixed lines of movement. Improvements in transport lead to the spreading out of commercial development, first along street car lines, and then along major arterials as the automobile became more prevalent. Increased congestion on these arterials and a need for increased parking resulted in the development of the planned shopping centre.

A second dynamic factor has been changes in purchasing power and tastes. Per capita earnings after inflation have advanced tremendously in both Canada and the United States since the beginning of the century. Tastes have also changed due to the mass production of consumer goods and the prevalence of advertising.

A third major factor was the development of new forms of housing. The development of low density suburbs diluted the strength of the local market and made stores within walking distance impractical. This forced customers to

drive to retail outlets. Since a car was now essential for shopping, it became relatively easy for retailers to expand their market penetration even further by offering a wider selection of goods and other incentives. This topic will be discussed in greater detail later in this paper.

Related to the third factor was the adoption of commercial zoning restrictions. Their effect was to regularize the urban land use pattern and make locational innovation difficult for retailers. Zoning has been used to protect residential development from the undesirable effects of commercial development such as increased traffic. Generally, this has resulted in the development of larger, more concentrated retail units in a limited number of central locations. It has also tended to protect established retail areas from new competition.

A final important factor has been changing retail practices which have produced significant benefits for both the consumer and the retailer. One of the most important changes is the increase in store size. The consumer benefits due to the wider selection of goods offered and is willing to travel longer distances to shop. The retailer benefits from the larger potential market available and the economies of scale possible from a larger operation. Advertising can be more effective as the impact of loss leader advertising is spread over a wider range of products.[11]

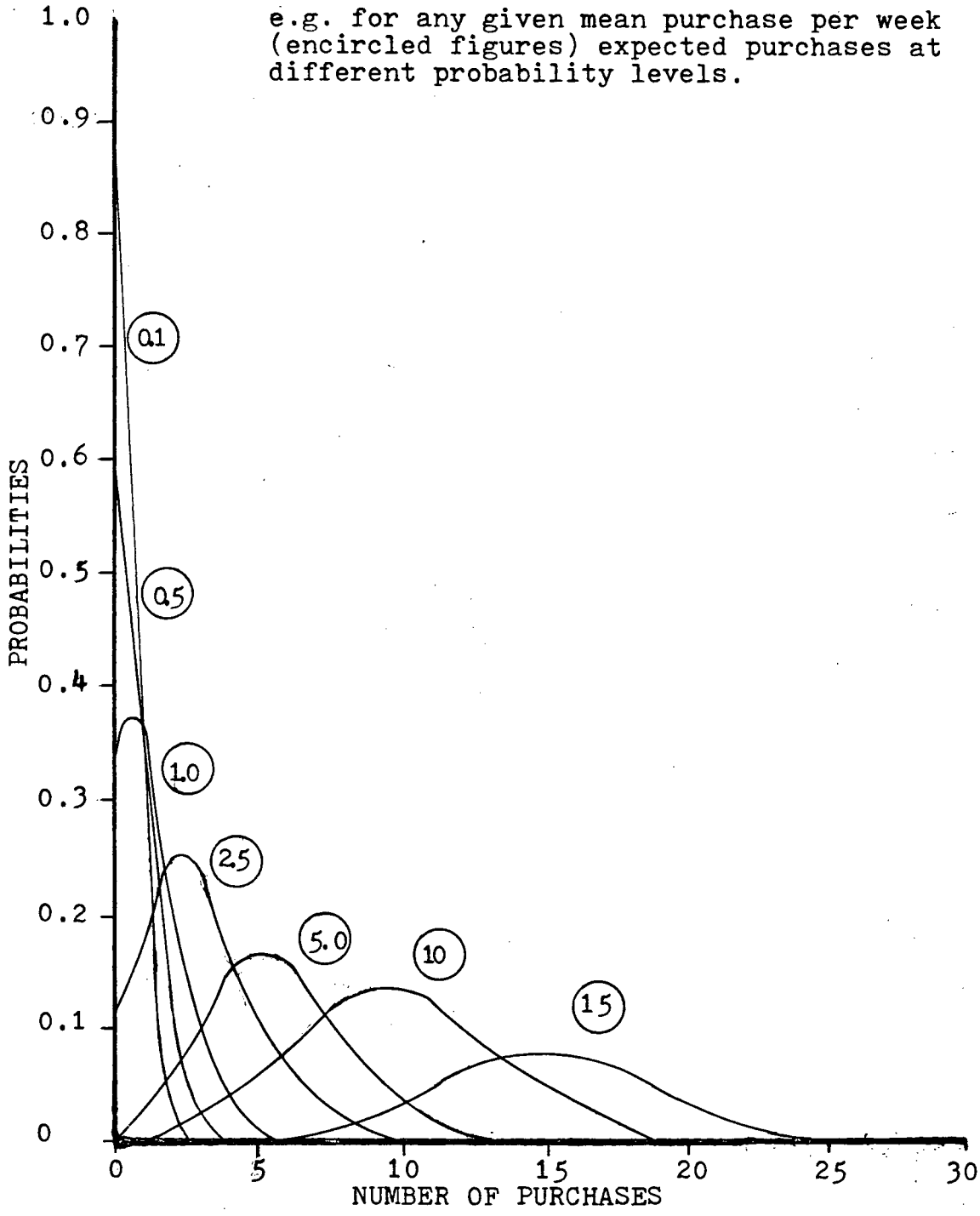
Distribution of merchandise can be more efficient since proportionately less inventory is required to meet peaks in demand. The probability of such peaks occurring is reduced as the size of the total market increases. Curry shows this relationship by means of the Poisson distribution in Figure No. 2.[12] This shows the relationship between the mean number of purchases in a retail store per week and the probability of experiencing high peaks in demand. If a firm faces a very low mean rate of demand for a product, the probability that it will occasionally face very high peak rates in demand increases. The firm will have the option of carrying very high inventories to meet these demand peaks or turning customers away. The latter policy may not only involve the loss of potential revenue but also the loss of a future customer. If on the other hand a firm faces relatively frequent average demand for a product, peaks will average out the retailer need not carry as high a proportion of inventory stock. Holdren provides evidence in a study of supermarkets that a lower inventory to sales ratio results in lower costs.[13]

Another important innovation for both the consumer and the retailer has been the introduction of labour saving practices such as self-serve shopping. The consumer benefits through lower prices and improved convenience since waiting time is generally reduced. The opportunity for personalized

FIGURE NO. 2

TYPICAL POISSON DISTRIBUTIONS

e.g. for any given mean purchase per week (encircled figures) expected purchases at different probability levels.



service which many customers value is reduced. However, many retailers have been able to compensate by providing a superior shopping environment, thus reducing the need for service. The layout of the store is very clear; a standardized range of goods is offered; and a high standard of amenities is maintained. The retailer benefits from these innovations by substituting fixed capital costs for variable labour costs, thus permitting profit margins to be more easily maintained. Simmons provides evidence that labour costs have increased more rapidly than any other cost factor in retailing.[14]

Technological and cultural factors have also favoured the trend to larger scale retail facilities. The development of home refrigeration permitted the reduction in the frequency of grocery shopping trips, thus allowing consumers to make larger purchases. The increase in the number of women in the labour force and the trend towards more leisure activities has reinforced the trend for less frequent shopping trips. The widespread availability of consumer credit has also reduced the resistance of consumers to paying for larger expenditures. In most cases, the large scale retailer has been able to take better advantage of these factors than has the small scale retailer.

The businesses located in strip commercial areas

have been affected by these changes to varying degrees depending on the type of products carried and the manner in which they are sold. The most dramatic impact has been on the high volume operations such as gasoline and food retailing where competition is most intense. The difficulty of assemblying larger development sites in an established retail area has resulted in many replacement facilities being built in new locations. The impact on other types of business has been more subtle. Some have been able to increase the scale of their operations in their present locations and remain competitive with reduced margins in an expanded market. Others have been able to maintain their profit margins by shifting product lines to include items with a higher profit margin. The range of goods that can be carried by a retail outlet has expanded greatly due to the combined effects of income and technology. Despite these options, many firms have been forced out of business by the increased competition and resulting squeeze on profit margins. Berry's study of commercial structure in Chicago between 1950 and 1960 showed that the net loss of retail establishments due to technological change amounted to 5.7% per annum. Only where the size of the total market increased in population or disposable income were business centres able to maintain their original extent.[15]

To understand how this selection process has affected retial areas, it is necessary to review the development

of both planned and unplanned shopping centres and compare their strengths and weaknesses.

Factors Influencing the Function of Shopping Centres

The Unplanned Shopping Centre

As discussed previously, unplanned shopping centres grew in response to changing modes of transportation. They generally developed around a major intersection where traffic was heaviest and expanded in incremental fashion. There was little co-ordination among the large number of independent entrepreneurs who developed the individual building units in these centres. They tended to follow the existing subdivision pattern whether it was suited to their purpose or not. Usually there was no coherent building style, particularily when buildings were added to a centre over a number of years. Exceptions to this rule occurred when businesses developed quickly in a standardized fashion during a period of economic prosperity or after the original business centre was destroyed by some disastrous event such as a fire. The present character of Vancouver's Gastown and Seattle's Pioneer Square owes its existence to rapid rebuilding after fires which occurred in both of these cities in 1889.[16]

Local variation often has a strong influence on the function of unplanned shopping centres. Most

important is the mix of retail outlets. In theory this is largely a function of the surrounding market. However, in practice many shops appear to derive no locational advantage from their premises and draw their customers from a wider market. Successful shops can have a beneficial effect on the entire area by attracting a wider group of potential customers to the area than would normally be present. Public institutions and local landmarks can act in a similar fashion either helping or hindering the retail function of an area.

Corner sites are the most valued in unplanned shopping centres due to the exposure to traffic in two directions that they receive. Consequently, uses capable of generating high profit margins without consuming large amounts of space tend to locate there. Less profitable and space consuming uses tend to locate in less exposed locations.

E.M. Horwood has noted the existence in unplanned shopping centres of two distinct areas of land use similar to those noted by many authorities in the central business district.[17] The first area is termed the core and is characterized by the greatest intensity of activity. Only retail uses capable of generating a high volume of trade locate here. The second area is termed the frame and is characterized by service and retail uses which generate a much lower volume of trade. It benefits from the

pedestrian traffic generated by the core.

The concentration of development at major intersections causes a restriction in the traffic flow. This can be beneficial to retail uses if there is sufficient parking available to accomodate stopping traffic. Parking demand is a function of the nature and intensity of commercial land use. The supply of parking is determined by the amount of on-street parking available and the amount of supplementary off-street parking. For retail uses, the most critical component is on-street parking since it is immediately accessible to adjoining shops. It is important to free this area from long term parking by employees of the area. Providing that development is not too intense, streets adjoining the core commercial area can provide overflow parking without undue intrusion on surrounding residential areas. Excessive office development is frequently the cause of inadequate parking in unplanned shopping centres.

Despite the orientation of unplanned shopping centres to traffic arterials as a means of primary access, shopping itself is primarily a pedestrian activity. From the viewpoint of the pedestrian, an unplanned shopping centre has a number of essential environmental requirements.[18] First, there must be a feeling of activity, variety, and interest. This can be partly provided by crowds. The

effect of activity can also be heightened by a variety of shop frontages and shop front designs and by careful control of the relationship between the heights of buildings and the width between building facades. It is best achieved by narrowness, but this conflicts with the needs of vehicular traffic for wide streets.

A second requirement is safety from traffic. Ideally, pedestrians should be free to cross at any time from one side of the street to another, but again there is an obvious conflict with the needs of the automobile. Pedestrian-vehicle conflicts are a major source of accident fatalities in urban areas.[19]

A third requirement related in part to safety is comfort. While some protection from the weather is desirable, total enclosure is not, since climate tends to add variety and interest to the environment. A compromise solution is the use of awnings combined with wide sidewalks to permit shoppers to move at a relaxed pace.

Shopping is not solely a necessity, but it is also a chance to mix with other people. It is a form of social entertainment and window shopping is a significant leisure activity. The shopping environment must therefore be one which people can enjoy in total fashion. The components of the shopping environment, many of them essentially conflicting, are linked in such a way that the whole is

greater than the sum of the parts. Given the way in which unplanned shopping centres have developed, is it any wonder that the result is sometimes less than ideal?

The Planned Shopping Centre

The planned shopping centre is the product of careful analysis of the strengths of unplanned shopping centres combined with the introduction of a number of significant innovations. Like the unplanned shopping centre, its location is dictated by major transportation routes, and the size and number of functions are dictated by the extent of the trading area. Other factors are quite different. The form of a planned shopping centre is dictated by the need for large amounts of vehicle parking, rather than by the prevailing subdivision pattern. Perhaps most important is the management of the centre by a single developer, which permits the tailoring of the total environment to the needs of the shopper to a much greater extent than is possible in an unplanned centre.

The developer of a planned shopping centre is motivated by a desire to maximize his own profits as well as those of his tenants. This produces a somewhat different organization of uses than in an unplanned centre. The need of an extensive area for parking in a planned centre often limits potential sites to areas which are unable to intercept traffic in the same way as unplanned shopping

centres fronting on major traffic routes. A developer must rely on the inherent attractiveness of the uses in the centre. It is the largest uses--the department stores and supermarkets--that generate much of the traffic. Consequently, they pay a lower level of rent than is the case for smaller businesses which benefit from their close proximity to the major traffic generators.

A developer exercises great care in the selection of businesses for a planned shopping centre. Where possible, only retail businesses are allowed into shopping centres since they generate the highest return of all commercial uses. The number of non-retail uses is restricted to the minimum required to provide essential services. Rents in shopping centres are calculated as a percentage of gross sales. Since retail sales tend to rise at a rate equal to or in excess of cost-of-living increases, this gives the shopping centre investor a good hedge against inflation.

To maximize profits, the businesses allowed into a planned shopping centre should complement rather than compete directly against one another. Each business should be directed at a specific segment of the market. Chain stores are a favoured tenant in planned shopping centres since they adhere closely to this principle through a combination of advertising, store layout, and retail practice. They also permit a shopping centre developer to obtain easier financing as creditors consider them to be a better

risk than independent retailers. Consequently, the range of variation in uses found in planned shopping centres is much more restricted than in an unplanned shopping centre.

Comparison Between Unplanned and Planned Shopping Centres

From the previous discussion it is evident that unplanned and planned shopping centres have certain strengths and weaknesses. A basis for the comparision of these strengths and weaknesses is provided by the eight principles of retail location developed by R.L. Nelson.[20] These principles are as follows:

i) adequacy of present trading area potential
ii) growth potential
iii) accessibility of site to trading area
iv) business interception
v) minimization of competitive hazard
vi) cumulative attraction
vii) compatability
viii) site economics

The following section consists of a comparison of unplanned and planned shopping centres based on the above principles. Adequacy of the existing trade area refers to the number of potential customers and their per capita disposable income. In most cases planned

shopping centres have a marked advantage over unplanned shopping centres in this regard, as they are located in the suburbs. The population in these areas is younger and generally more affluent than in the inner city. Planned shopping centres have also had the advantage of zoning protection from their inception. The nature of the planning process works to ensure that they will remain economically viable. Unplanned shopping centres, on the other hand, have to compete against large tracts of existing commercial development. In areas where the per capita income has declined, there may in fact be a glut of commercial facilities. So far, Vancouver has managed to avoid this problem which has plagued many American cities.

Growth potential in a trade area is necessary to allow the adoption of economies of scale by retailers to counteract declining profit margins. Planned shopping centres have benefitted from the rapid population growth of the suburbs. Most unplanned shopping centres have suffered from stable or declining levels of population. To maintain the extent of unplanned shopping centres, either the range of businesses in the centre must change, or there must be periodic growth of the market in terms of total consumer expenditure.

The key factor in determining the extent of the trading area is accessibility. The route which customers travel must be clear and direct and there must be sufficient parking. The unplanned shopping centre generally has excellent access as it is located on a major throughfare, but it often lacks sufficient parking. Here the planned shopping centre has a clear advantage. Provision of off-street parking can improve the situation. On the other hand, the linear form of the unplanned shopping centre is better suited to the requirements of public transit. Should the energy crisis curtail the use of the automobile, the planned shopping centre may be at a disadvantage.

Business interception is the tactic of locating a business between the bulk of the customers and their accustomed market place. All other things being equal, most people will shop at the first opportunity presented to them. This was one of the principal reasons for the proliferation of strip commercial areas during the 1920s. Planned shopping centres, on the other hand, tend to generate their own traffic by offering a wider range of attractions than does the competition. With their high land requirements, they generally can not afford the types of sites needed to intercept customers headed elsewhere.

Minimization of competitive hazard refers to the risk to a business of competition from an alternate shopping facility. Planned shopping centres provide

protection for their tenants by restricting the entry of similar types of businesses. The centres themselves are protected by zoning and the rigidity of urban structure. It is just not possible to construct anything large enough to compete with them. Similar zoning protection could be extended to unplanned shopping centres, but seldom is. It is difficult to design controls that provide a sufficient degree of protection to an unplanned shopping centre without unduly stifling innovation. Direct competition between businesses can be beneficial to the consumer, provided that it does not affect the long term viability of the area.

Cumulative attraction refers to the clustering of businesses to increase trade through the effects of the multi-purpose shopping trip. The ability to exploit this factor is one of the key reasons for the success of the planned shopping centre. Unplanned shopping centres have the same quality to a varying degree depending on the selection and spatial arrangement of businesses. Their real strength, however, lies in the presence of large numbers of independent firms free to compete without the interference of a profit maximizing developer. This allows the consumer a degree of choice not found in the planned shopping centre.

Compatibility is determined by the degree of customer interchange between businesses as a result of the

multi-purpose shopping trip. Planned shopping centres maximize compatibility by restricting entry to a narrow range of stores specializing in shopping goods. Unplanned shopping centres typically have a much broader selection of commercial outlets permitting them to more fully serve the needs of consumers.

Site economics is by far the most important factor to any business. It is a function of the total cost of the site plus the potential revenue available from the site. In general, rents tend to be higher in planned shopping centres than in unplanned shopping centres. This is to be expected because of the cost of the parking provided and the higher quality of the amenities and space available.

Most businesses that locate in planned shopping centres find that the higher costs are compensated for by the greater share of the market that they receive. On the other hand, there are many kinds of businesses that find that planned shopping centres do not project the required image for them to gain sufficient market penetration. The image of a store is an important part of whatever competitive advantage a retailer has. This can come from any number of factors such as advertising, store appearance, the type of business area, or the surrounding community. Generally, it is more difficult for a small store to create a distinct image by locational factors alone in a planned centre than in an unplanned centre, because

of the dominance of the overall centre identity and the isolation from environmental factors.

Only as businesses become widely recognized are they able to locate in planned shopping centres. For example, the health food store was until recently a counter culture phenomenum located for the most part in strip commercial areas. Now that health food has become widely accepted, it is commonly found in planned shopping centres.

Prospects for the Continued Viability of Strip Commercial Areas

From the previous discussion, it is evident that strip commercial areas have a number of advantages and disadvantages. Their function is more varied than is that of the planned shopping centre, and this allows them to adapt to a variety of different roles depending on the particular circumstances.

It is evident that certain strip commercial centres will enjoy continued success due to their inherent locational advantage. As urban areas increase in size, their major problem will be an excess of development pressure. Inevitably they will tend to assume a regional rather than a purely district commercial function. A limited number of regional uses can add interest and vitality to a district centre but too many will generate

conflict. Particularly difficult to accomodate are major office developments due to the need for increased long term parking. Land use policies should clearly prescribe the scope of development anticipated in these centres. For example, the City of Vancouver has restricted office development in the West Broadway district commercial area due to the difficulty of developing additional off-street parking.[21]

Another role for strip commercial areas, particularly in the inner city, is as a provider of specialty goods. An interesting study of Vancouver points out that increasingly the central business district is not the supplier of higher order goods to the entire region.[22] Because of the freedom of movement granted by the automobile and the high level of congestion in the central city, customers find it easier to get to outlying centres. Thus, the most exclusive art galleries, jewellery shops, and boutiques are not located downtown but in South Granville, West Fourth Avenue, and Kerrisdale, all district commercial centres. Merchants find that the proximity of a surrounding high income district combined with the more relaxed, distinctive image of these centres allows them to compete more effectively.

Other unplanned shopping centres in low income markets are developing a role as suppliers of low order

goods to specialized markets. With higher incomes, higher levels of education, and the entrenchment of large immigrant populations, the market for many kinds of goods has become increasingly fragmented. Mass merchandisers find it impossible to compete effectively allowing small businesses to dominate the market. Thus, we see development of a counter culture shopping area along West Fourth, a Greek area along West Broadway, and an Italian area along Commercial Drive. While this is a new role for these areas, it is one that allows them to maintain and enhance their essential character.

In outlying areas strip commercial areas have developed a role as providers of services and other types of low overhead businesses that cannot meet the high site cost and compatibility requirements of planned shopping centres. Several empirical studies have shown a direct relationship between the growth of planned shopping centres and the expansion of strip commercial areas.[23,24] Unfortunately these types of businesses are not particularly compatible with retail outlets since they do not generate the volume of pedestrian traffic necessary to support a lively commercial area. It may be possible to improve the situation by regulating the types of uses entering the centre and adopting a program of revitalization to enhance the image of the centre to potential customers. This problem will be addressed in subsequent chapters.

Summary and Conclusion

The purpose of this chapter has been to discuss the nature of strip commercial development and the implications that more modern forms of retail development have for its continued function. While the degree of competition from other retail centres is the most critical factor in continued success, there are many individual factors which contribute to its success or failure. The next two chapters will introduce techniques for the analysis of strip commercial areas using the case study of Hastings Street in Burnaby, B.C.

Footnotes

[1]B.J.L. Berry, Commercial Structure and Commercial Blight, Department of Geography, Research Paper No. 85 (Chicago: University of Chicago, 1963), p. 171.

[2]J.W. Simmons, Toronto's Changing Retailing Complex, Department of Geography, Research Paper No. 104 (Chicago: University of Chicago, 1966), p. 51.

[3]J.W. Simmons, The Changing Pattern of Retail Location (Chicago: University of Chicago Press, 1964), p. 21.

[4]B.J.L. Berry and W.L. Garrison, "Recent Developments in Central Place Theory," Papers and Proceedings of the Regional Science Assoc., IV (1958), 110.

[5]Berry, Commercial Blight, p. 47.

[6]R.L. Nelson, The Selection of Retail Locations (New York: F.W. Dodge, 1958), p. 45.

[7]B.J.L. Berry, "Shopping Centres and the Geography of Urban Areas," (unpublished Ph.D. dissertation, University of Washington, 1958).

[8]Berry, Commercial Blight, p. 20.

[9]Simmons, Pattern of Retail Location, p. 6.

[10]J.E. Vance, Emerging Patterns of Commercial Structure in American Cities, Lund Series in Geography, Series B, No. 24 (Lund: C.W.K. Gleerup Publishers, 1962), pp. 485-518

[11]B.R. Holdren, The Structure of a Retail Market and the Market Behaviour of Retail Units (Englewood Cliffs, N.J.: Prentice-Hall, 1960), p. 140.

[12]C.W. Curry, The Geography of Service Centres within Towns: The Elements of an Operational Approach, Lund Series in Geography, Series B, Human Geography, No. 24 (Lund: C.W.K. Gleerup Publishers, 1962), p. 36.

[13]Holdren, Market Behaviour of Retail Units, p. 31.

[14]Simmons, Pattern of Retail Location, pp. 65-69.

[15]Berry, Commercial Blight, p. 173.

[16]W.C. Speidel, Sons of the Profits (Seattle: Nettle Creek Publishing Co., 1967), pp. 238-239.

[17]E.M. Horwood, Studies of the Central Business District and Urban Freeway Development (Seattle: University of Washington Press, 1959), p. 22.

[18]J.C. Barford, "Environmental Traffic Standards," (unpublished M.A. Thesis in Community and Regional Planning, University of British Columbia, 1968), pp. 21-24.

[19]National Safety Council, Accident Facts (Chicago: The Council, 1967).

[20]Nelson, Retail Locations, pp. 51-54.

[21]Vancouver City Planning Department, Kitsalano Area Planning Program: West Broadway Plan (Vancouver: City Managers Report, Jan. 22, 1976), p. 8.

[22]R. Leigh, Specialty Retailing: A Geographical Analysis Vancouver, B.C. Geography Series, No. 6 (Vancouver: Tantalus Research, 1966), pp. 110-113.

[23]Berry, Commercial Blight, pp. 156-159.

[24]Simmons, Changing Retailing Complex, p. 92.

CHAPTER III

CASE STUDY LAND USE ANALYSIS: HASTINGS STREET, BURNABY

Introduction

The purpose of the next two chapters is to analyze the operation of a typical strip commercial area. The objectives are to determine the dominant functions of the case study area, and whether it is capable of providing effective competition to a planned shopping centre. This type of information is essential for planners to determine whether these areas should be saved or redeveloped in more profitable uses. Extensive use will be made of the theory presented in the previous chapter to develop a system for the analysis of other strip commercial areas.

This chapter begins with a brief characterization of the Municipal District of Burnaby to provide a context for more specific attention to North Burnaby retail facilities. The differences between the Hastings Street study area and the competing regional centre are shown to be matters of size, range of goods, and business organization. Detailed analysis of the study area using land use data leads to the identification of the core, frame, and ribbon commercial areas, as suggested by Horwood, and is

shown to be consistent with land values. The conclusion from this analysis is that the competitive situation and internal dynamics of retail activities can be understood using land use and land value data which are readily available public information.

The first requirement for the analysis of retail patterns is a system for classifying and interpreting business and spatial relationships. Peter Scott, a noted British marketing geographer, lists five basic requirements which any comprehensive analysis must address in order to yield significant data regarding retail location patterns and competition between centres. They are as follows:[1]

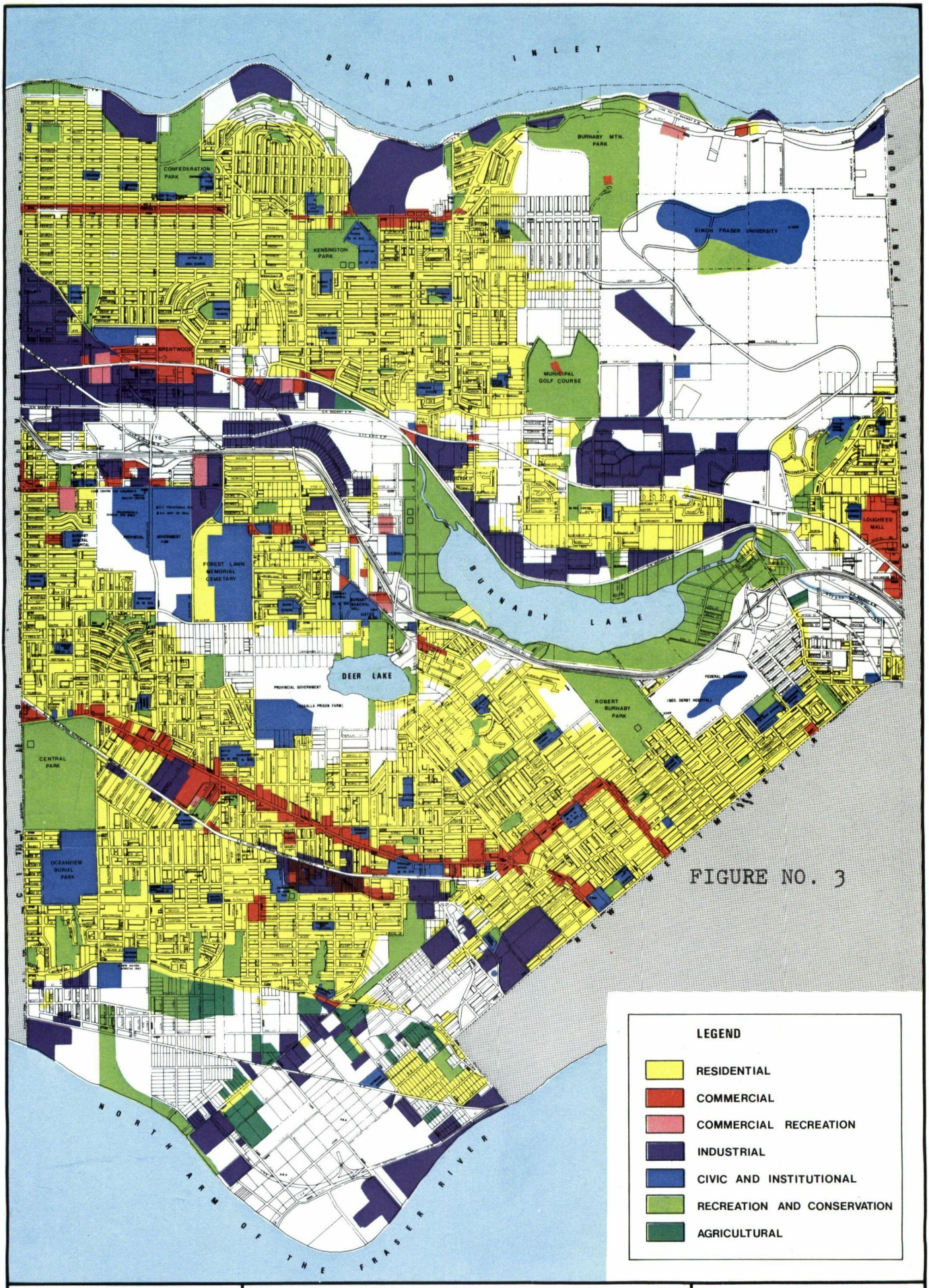
i. The aggregate importance of a centre
ii. the composition of the centre by type of trade
iii. the composition by size of establishment
iv. the composition by form of organization
v. the size and structure of the market

The first four factors relate to the supply of retail facilities and will be discussed in this chapter. The fifth factor relates to the demand for retail facilities and is the subject of the following chapter.

Physical Setting

Burnaby is a mature suburb of the City of Vancouver with an estimated 1978 population of 137,400.[2] Figure No.3 shows the generalized land use of the municipality. North Burnaby is a largely self-contained residential area cut off from other areas by Burrard Inlet to the north, Burnaby Mountain to the east, the industrial uses of the central valley to the south, and the Pacific National Exhibition site to the west. These major natural boundaries make it an excellent site for the study of competition between retail centres. The Lougheed Highway and Hastings Street are the major east-west arterials, while Willingdon Avenue is the major north-south arterial.

The three major commercial centres in the area straddle these arterials--the Lougheed Regional Centre surrounding the intersection between the Lougheed Highway and Willingdon Avenue, the twelve block long district commercial centre on Hastings Street between Boundary Road and Delta Avenue, and the much smaller district commercial centre to the east along Hastings Street centered on the Kensington shopping centre. All three are well served by bus transport. The Lougheed Centre has a total of 1,009,495 square feet of retail space of which 490,000 square feet is contained in the Brentwood Shopping Mall. The two district centres have a combined total of


BURRARD INLET
CONFEDERATION PARK
BURNABY MTN. PARK
KENSINGTON PARK
SIMON FRASER UNIVERSITY
BRENTWOOD
MUNICIPAL GOLF COURSE
LOUGHEED MALL
FOREST LAWN MEMORIAL CEMETARY
BURNABY LAKE
DEER LAKE
PROVINCIAL GOVERNMENT
ROBERT BURNABY PARK
CENTRAL PARK
OCEANVIEW BURIAL PARK
NORTH ARM OF THE FRASER RIVER
FIGURE NO. 3
LEGEND
RESIDENTIAL
COMMERCIAL
COMMERCIAL RECREATION
INDUSTRIAL
CIVIC AND INSTITUTIONAL
RECREATION AND CONSERVATION
AGRICULTURAL
SCALE: 1" = 1600'
GENERALIZED LAND USE
BURNABY PLANNING DEPARTMENT
APRIL, 1975.

655,558 square feet of retail space available with no major shopping malls.[3] Unfortunately, no exact data on the distribution of space between the two centres is available. Based on the length of commercial frontage present, it is estimated that the study area contains about 450,000 square feet of space and the area to the east about 200,000 square feet. Their function is similar, so for the purposes of the next section they will be treated as a unit. This will consist of a comparison between the regional and district centres of the range of functions present using land use data as the medium of analysis.

Classification of Retail and Service Facilities

Land use is the most visible component of the retail supply system and is readily available data. Sales data is a better medium for analyzing retail patterns, but it is generally not available at the level of dissagregation required for a small scale study due to confidentiality problems. As will be shown, a considerable amount can be done with land use data.

The first step in the procedure is to adopt a classification system to aggregate the range of possible retail facilities into a more manageable number of categories. Classification systems for retail facilities can be divided into three major types:

i. those that focus on the demand for facilities by type of commodity sold

ii. those that focus on the supply of facilities by type of outlet

iii. those that focus on the spatial conformations of commercial land use resulting from the interaction between supply and demand

Any useable system will inevitably involve some arbitrary classifications which may be unsatisfactory, but the latter system is generally the most effective for the analysis of land use data and was the one selected for this study.

As a first step in the analysis, the establishments were classified by commodity lines as indicated in Table I, the left hand column. The classification was developed from the commodity line groupings suggested by the Urban Land Institute for shopping centre development. (refer to Appendix A) These categories were then aggregated in accordance with spacial affinities observed in other land use studies.[4] Retail development was aggregated into two categories--convenience and shopping.

Convenience facilities are defined as the most widely distributed retail outlets and include food, drug, and liquor stores. In these outlets the tendency is for customers not to shop around to any great extent for items but to rely on the nearest facilities which satisfy their requirements in terms of price structure, variety, and convenience. Shopping facilities tend to be

TABLE I

CLASSIFICATION OF BUSINESS TYPES

Levels of Aggregation			
I*	II	III	IV
1	Food	Convenience	Retail
2	Drug		
18	Liquor		
5	General-merchandise	Shopping	
6,7	Soft lines		
8	Hard lines		
9	Building Supplies		
10	Other Retail		
3	Automotive		
12	Personal service	Service	
13	Business service		
11	Finance		
17	Other office		
14	Home Maintenance		
16	Entertainment		
4	Restaurant		
15	Residential	Non-commercial	
19	Non-commercial		
20	Vacant		

* Code number for business types, Appendix A.

less widely distributed because of the nature of the demand for their products and the tendency for consumers to be more discriminating in their purchases. Comparison shopping is the rule rather than the exception. Firms selling these products tend to cluster into larger aggregations than convenience outlets in order to benefit from cross shopping and the exposure to a wider potential market.

Automotive facilities were grouped separately in the classification since they tend to have different space requirements than do other retail outlets.

Services were divided in three classifications on the basis of their use of space. The most intensive use of space is achieved by the personal service and office uses. Less intensive use of space is generally achieved by the entertainment and restaurant categories.

Non-commercial, residential, and vacant outlets were aggregated as non-commercial uses.

This classification system tends to break down due to the combining of retail functions through the actions of the multi-product firm. In practice, this is not a serious problem as most multi-product firms can be classified through sales of a limited number of product lines from which they receive the bulk of their revenue.

Aggregate floor areas in the level II aggregations are shown for the two district commercial centres on Hastings Street and the Lougheed Regional Centre in Table II. A number of general observations can be made by comparing the relative proportions of facilities in the two areas. Convenience stores have the same proportion of floor space in both areas indicating that these facilities take a similar share of the market in both district and regional centres. This conflicts with the previously stated definition of convenience goods. If convenience goods are the most widely distributed, one would expect regional shopping areas to have a lower proportion of these facilities than the district shopping areas. Their dominance in the regional shopping area is perhaps explained by the benefits that consumers gain from the multi-purpose shopping trip, plus the convenience of parking in a lot rather than on a street, and the other benefits of a larger scale operation discussed in the previous chapter. Once convenience facilities reach a certain scale, it would appear that they require exposure to a wider potential market just as shopping facilities do. Automobile related facilities have approximately the same proportion of facilities in each area and perhaps should be considered in the same light as convenience goods.

It is in the remaining categories that the true distinction between district and regional centres becomes

TABLE II

COMMERCIAL FLOOR SPACE IN NORTH BURNABY

	Classification	Lougheed		Hastings		Total	
		Sq.ft.	%	Sq.ft.	%	Sq.ft	%
1.	Convenience	85,027	8.4	55,594	8.4	140,621	8.5
2.	Shopping	448,138	44.4	185,367	28.3	633,505	38.1
3.	Automotive	86,861	8.6	68,611	10.4	155,472	9.3
4.	Service	218,418	21.6	178,068	27.2	396,486	23.8
5.	Entertainment	151,006	14.9	24,422	3.7	175,428	10.5
6.	Restaurant	17,900	1.8	26,504	4.0	44,404	2.7
7.	Non-commercial	2,145	0.3	96,900	14.8	99,045	5.8
8.	Vacant	----	---	20,092	3.1	20,092	1.3
9.	Total	1,009,495	100	655,558	100	1,662,908	100

Source: Western Realesearch Ltd., Commercial Floor Space Inventory, 1978

evident. Shopping facilities have a much higher proportion of total floor space in the Lougheed area than in the other centres. This is due to the presence of the Brentwood Mall. Entertainment facilities are also better represented in this area because of several large recreation complexes. In the district commercial centres, service, restaurant, and non-commercial uses have the greatest representation. It is of interest whether the more localized nature of these facilities is due to a more restricted market threshold than for other classes of retail activities, or whether it is due to a more advantageous production function for these facilities in the Hastings Street area.

Size and Ownership of Commercial Outlets

Two attributes which affect the production function of the retail firm are the size of the operation and the form of ownership. Their implications were discussed in the previous chapter. To obtain an indication of the average firm size in the district centres as opposed to the regional centre, gross floor space was divided by the number of retail firms occurring in the two areas. The numbers of firms were taken from lists of occupants in the Vancouver City Directory.[5] To determine the form of ownership, the names of retail chains known by the author were extracted from the overall totals. The results of the analysis are shown in Table III.

TABLE III

SIZE OF FIRM AND FORM OF ORGANIZATION IN NORTH BURNABY

	Hastings Street	Lougheed Highway
Total Floor Area	655,558 sq.ft.	1,009,495 sq.ft.
Total Number of Firms	378	153
Average Square Footage/Outlet	1,734 sq.ft.	6,598 sq.ft.
Total Number of Chain Stores	46	81
% Chain Stores of the Total	12.2%	56%

Sources: Realesearch
Commercial Floor Space Inventory
1978

B.C. Directories Ltd.
Vancouver City Directory
1977

It is quite evident from this table that the district centres are characterized by a large number of small, independent firms, while the regional centre is characterized by a limited number of large firms, predominantly connected with national or regional chains. The regional centre is the preferred location for these firms because it straddles two major traffic arterials and is accessible to a wider potential market than are the district centres. Chains are able to take greater advantage of these sites because their larger size gives them superior access to capital to purchase them. Private firms are restricted to less accessible sites and receive a smaller share of the potential market. The nature of their production function is further discussed in the following section.

Analysis of Functional Linkages Between Land Uses in the Hastings Street Study Area

The spatial relationships between businesses in a retail area is an important factor in determining the nature of the competition between retail centres because of the effects of the multi-purpose shopping trip. As was discussed in the previous chapter, this is an important aspect in the success of the planned shopping centre. A developer selects uses which tend to complement one another by generating cross shopping from one store to another. To some degree, a similar selection process

occurs in unplanned shopping centres because of the competitive bidding of firms for good sites, but as Scott has pointed out, "... a high degree of complementarity cannot be achieved through the free operation of the rent mechanism ..."[6] It is not only competition between retail outlets, but variations in the organization and size of shops as determined by competition between landowners which determines the spatial organization of unplanned shopping centres. Consequently, seldom is the degree of complementarity present in a planned shopping centre ever achieved without some form of co-ordination.

The method described here for judging the compatibility of retail uses in an unplanned shopping centre involves the visual analysis of land use data using the classification system discussed earlier. Since detailed land use data for the Hastings Street study area was not available, frontage lengths for the various types of land use disaggregated to the block level were substituted. This technique permits the spatial organization of an unplanned shopping centre to be determined and the degree of complementarity between retail outlets based on linkages due to proximity within the same block to be assessed. The information is useful for judging the effectiveness of competition with planned shopping centres and the effect that new uses would have on an existing centre.

Table IV shows the overall distribution of land use in the Hastings Street Study Area by percentage of total frontage occupied by each class of land use. The figures show a much higher proportion of shopping facilities on the south side of the street than on the north. This dominance by one side of a commercial strip has been noted in other land use studies.[7] Perhaps this is related to the direction of the main evening rush hour traffic stream, since a location on that side of the street allows motorists to stop without the inconvenience of a left hand turn. The north side of the strip has the largest proportion of auto oriented facilities. This may be due to the direction of the morning rush hour traffic stream, or more probably to the need for larger parcels, which limits the rent paying ability of these uses and restricts them to areas which are not in as high demand by other uses. Overall, service facilities occupy the largest proportion of frontage, confirming the findings of the analysis of floor space data for the three centres contained in the previous section.

Figure No. 4 graphically shows the land use distribution by block. The most noticeable aspect of the diagram is the development of three distinct clusters of retail facilities along the south side of the street. There is also a concentration of service and convenience outlets in the 4200 and 4300 blocks, which is caused by

TABLE IV

DISTRIBUTION OF BUSINESS TYPES BY PERCENTAGE OF TOTAL FRONTAGE

HASTINGS STREET STUDY AREA

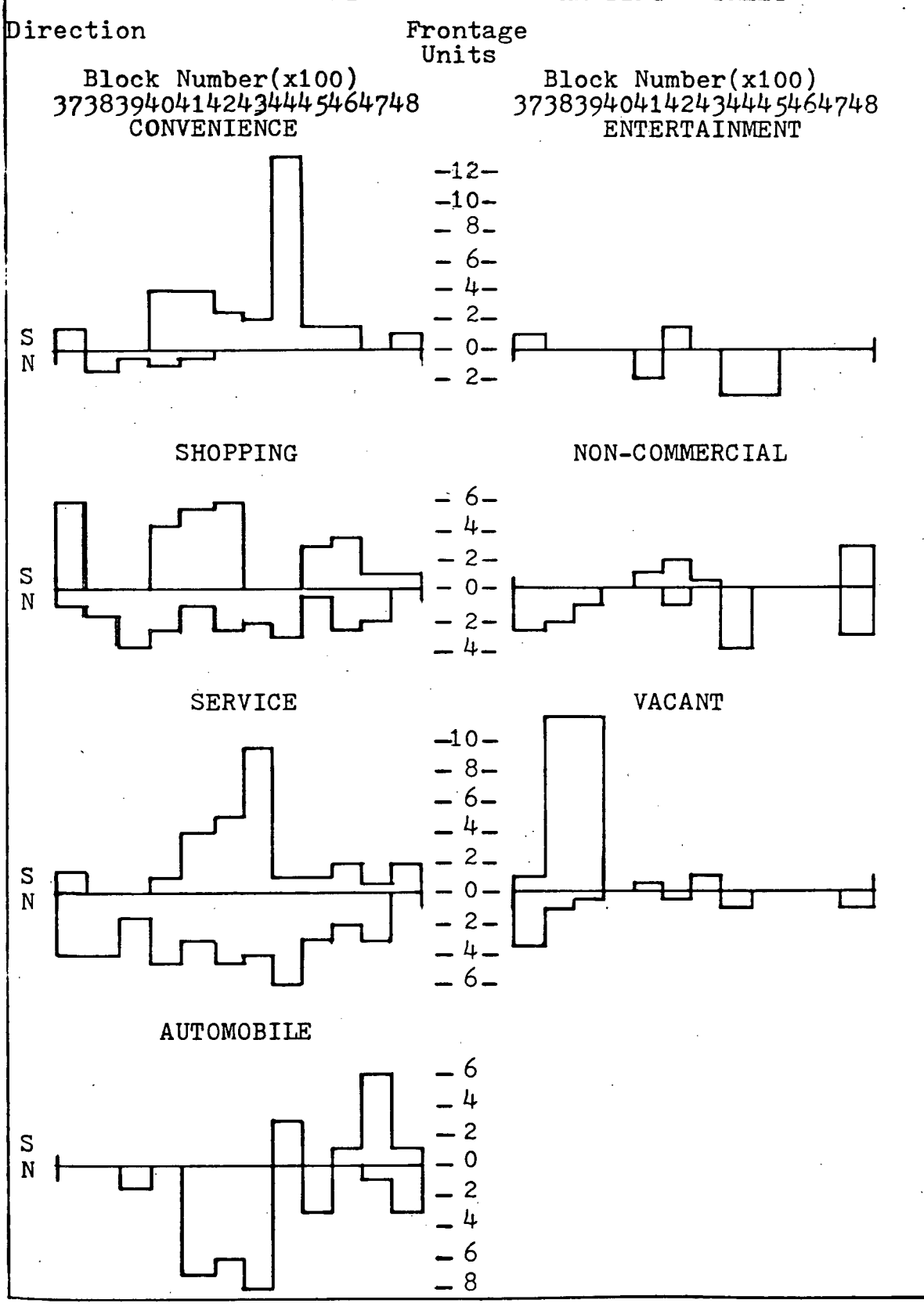
	Classification	South Side	North Side	Total
1.	Convenience	18.0	3.8	11.0
2.	Shopping	22.8	16.7	19.8
3.	Automotive	8.1	22.3	15.1
4.	Service	21.3	28.4	24.8
5.	Entertainment	0.7	6.1	3.4
6.	Restaurant	5.1	6.8	6.0
7.	Non-commercial	4.9	10.2	7.5
8.	Vacant	17.6	5.7	11.7
9.	Total	98.5	100	99.3

Source: Land use survey by author

February 1979

FIGURE NO. 4

LAND USE DISTRIBUTION: HASTINGS STREET



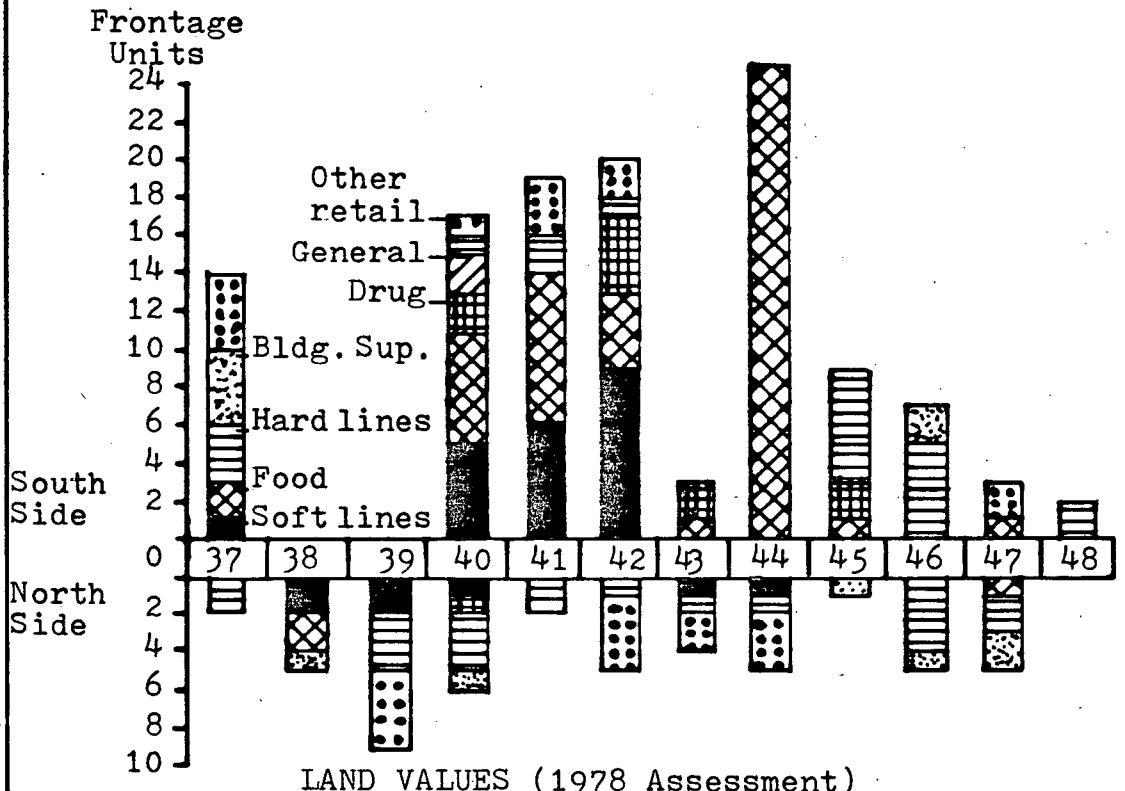
the clustering of financial institutions around the sole supermarket in the area. Other classes of business are spread fairly evenly throughout the district.

Figure No. 5 shows a detailed breakdown of retail facilities in the area by block. Immediately evident is the strong clustering of soft line and food outlets on the south side of the 4000 to 4200 blocks. Soft line outlets--such as clothing and shoe stores--are characterized by a high degree of comparison shopping and are strongly complementary. The food stores in this instance are also very complementary because they are highly specialized and benefit from the effects of the multi-purpose shopping trip. Such a strong clustering of retail activities does not occur elsewhere, indicating that this is likely the centre of the commercial area.

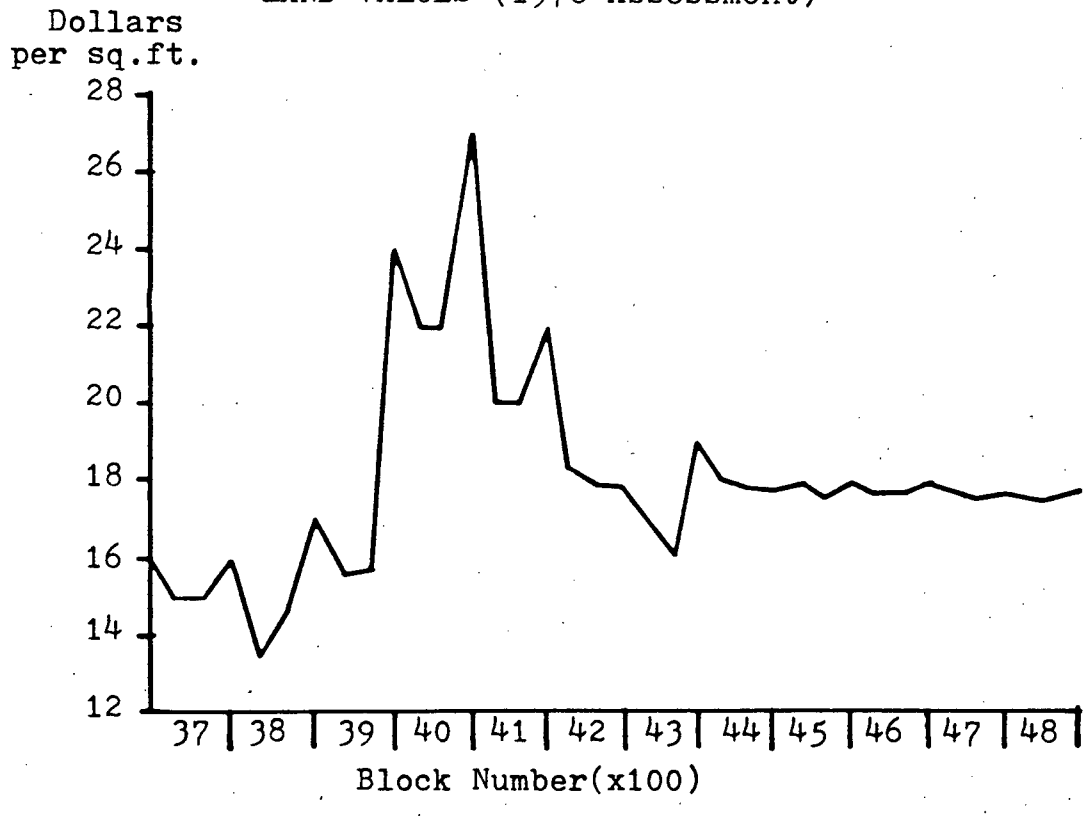
Confirmation of this fact is provided by the graph of land values for the area shown in Figure No. 5. These values were extracted from the British Columbia Assessment Authority Records which use annually adjusted market value for commercial assessments. A stratified sample of four values was selected from each block to provide the data base for the graph. Each figure was converted to a per square foot value to permit comparison. Depending upon which side of the street had the highest proportion of commercial land use, either the north or the south

FIGURE NO. 5

DISTRIBUTION OF RETAIL GROUP: HASTINGS STREET



LAND VALUES (1978 Assessment)



side was plotted.

As was noted in the previous chapter, Berry used land values in the study, Commercial Structure and Commercial Blight, to delineate the boundaries of unplanned shopping centres. Berry states:

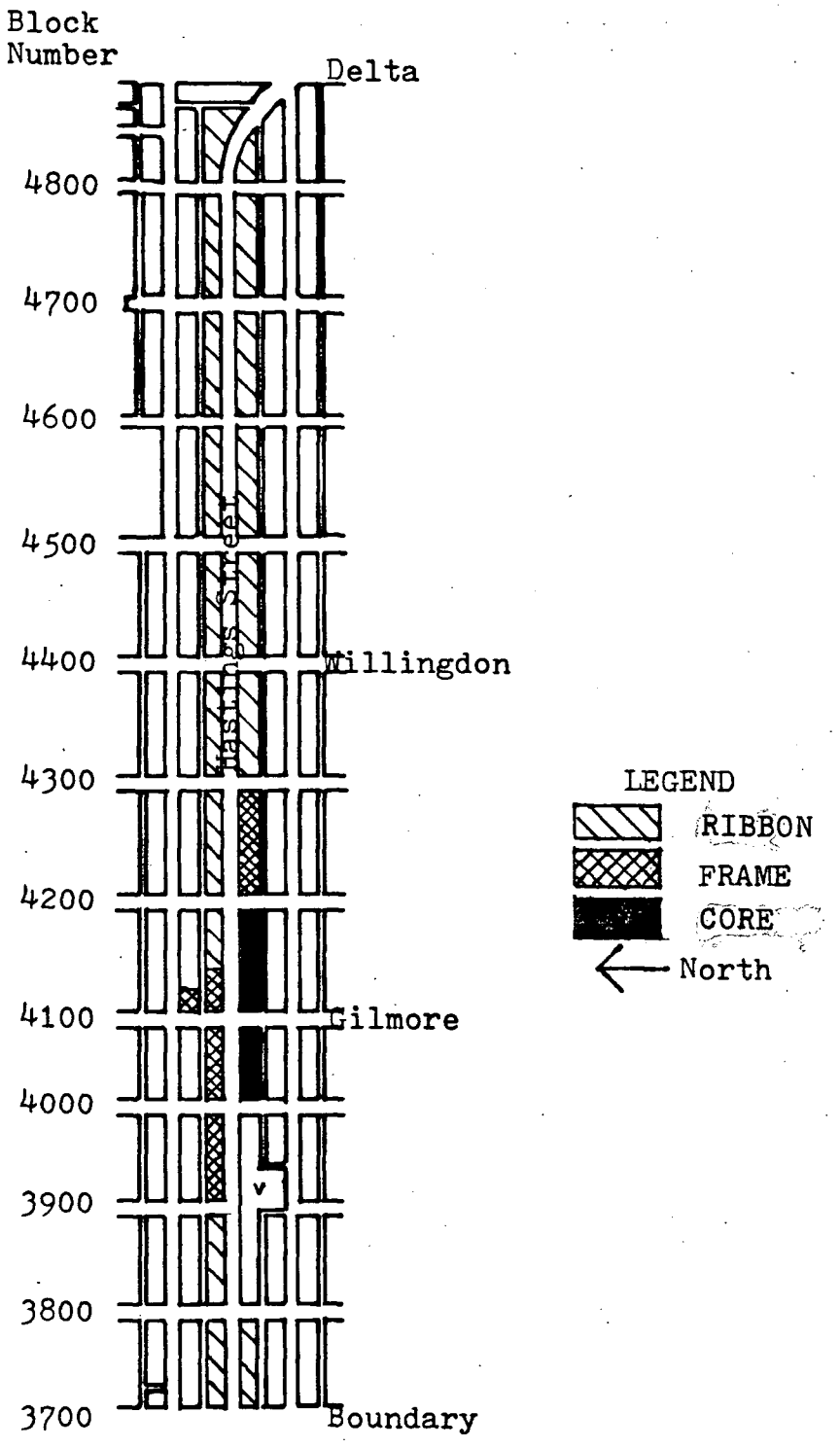
> ... it is relatively easy to distinguish the peaks (commercial centres) from the ridges (commercial ribbons). Outer limits of the peaks are given by those points at which values turn upwards from the levels of the ridges towards the heights of the cores.[7]

Using this rule, it appears that the commercial centre is limited to the 4000 and 4100 blocks. Despite having a higher level of soft line activity, the 4200 block is not included in the core. In general, this appears to be in agreement with the reality of the situation. The appearance of the area, the selection of shops, and the already excessive length of the strip tend to down grade this block as an integral part of the core. Previous studies have indicated that 400 feet is roughly the maximum distance that customers are willing to walk in an unplanned shopping area.[8]

By applying these procedures, it is relatively easy to identify the three components of the strip commercial area discussed in the previous chapter--the core, the frame, and the ribbon. They are delineated in Figure No. 6. The core area is very small in comparison

FIGURE NO. 6

FUNCTIONAL ASSOCIATION: HASTINGS STREET



to the total commercial area and is confined to the south side of the street. Service and miscellaneous shopping facilities that benefit from the high pedestrian traffic levels found in the core make up the frame. The remainder of the commercial area is ribbon development with a wide variety of functionally unlinked uses present. These uses tend to stand on their own merits and customers must be willing to make a special trip to seek them out.

The beginnings of a second major core commercial centre on the strip can perhaps be seen in the 4300 and 4400 blocks, adjacent to the major supermarket on the strip. It would appear to be a good location for such a centre because of the drawing power of such a facility for complementary businesses. At present, it does not appear to be functioning very well. Several new banks have been constructed in the area, but this type of development does not generate the large number of multi-purpose shopping trips characteristic of a successful retail centre. The inability of banks and other types of financial institutions to generate pedestrian traffic for other businesses has long been recognized by shopping centre developers, who relegate them to the more inaccessible areas of planned shopping centres if they are included at all.[9]

Table V gives a breakdown of the floor area of the study area core and frame by class of use. The equivalent

TABLE V

COMPARISON OF HASTINGS STREET CORE-FRAME AREA WITH BRENTWOOD MALL BY CLASS OF FLOOR SPACE

	Classification	Hastings Street Core-frame %	Hastings Street Core-frame Area (sq.ft.)	Brentwood Mall* %	Brentwood Mall* Area (sq.ft.)
1	Food	8.8	21,417	9.4	38,900
2	Drug	3.1	7,670	0.5	2,200
3	General-merchandise	8.3	20,327	51.4	210,700
4	Soft lines	8.8	21,488	11.5	47,000
5	Hard lines	11.2	27,368	2.2	8,900
6	Building supplies	-	-	-	-
7	Other retail	5.9	14,445	13.9	56,900
8	Automotive	-	-	1.2	5,000
	Total Retail	46.1	112,715	90.1	369,600
9	Personal Service	12.9	31,640	2.2	8,900
10	Business Service	-	-	2.3	9,380
11	Finance	4.5	10,996	2.2	8,900
12	Other office	10.1	24,709	1.5	6,300
13	Entertainment	6.5	15,906	-	-
14	Restaurant	4.6	11,197	1.6	6,700
15	Non-commercial	15.3	37,317	-	-
16	Vacant	-	-	-	-
	Total Commercial	100.0	244,480	99.9	409,780

*Estimate based on partial floor area breakdown and on analysis of the building plan

figures for the Brentwood Mall, the effective core of the Lougheed centre, are shown for comparison. Immediately evident is the low proportion of retail uses in the study area, 46.1% as opposed to 88.9% in the Brentwood Mall. Services and non-retail uses occupy over half of the available floor space. Only a token amount of non-retail space is included in Brentwood, a typical shopping centre development practice.

The figures show the relative commercial strengths of the two areas. Personal service is still the largest single class of uses in the study area despite the increased importance of retail uses. Brentwood provides virtually no competition. The study area is also the major competitor in convenience lines. While Brentwood has more total floor area devoted to food sales, only 8900 square feet is occupied by specialty stores directly competitive with those on Hastings Street. In the drug line, Hastings Street is clearly dominant due to the presence of a major chain store outlet and several smaller stores.

Other areas of retail strength in the study area are in soft and hard lines. The study area has close to one third of the total soft line activity in North Burnaby, primarily in clothing and yard goods. These uses generate a high degree of comparison shopping and are, together with the convenience uses, the key to the areas continued existance as a district centre. While hard line

activity in the study area is much greater than Brentwood, it is not nearly as important to the function of the centre as the previously mentioned uses. Much of the space is devoted to furniture sales which don't generate the degree of pedestrian traffic that other more complementary businesses do. These outlets also face strong competition from other retail furniture outlets located elsewhere in North Burnaby, but not included in the study.

In other lines, Brentwood is clearly dominant. The presence of a major department store explains the dominance in general merchandise. More surprising is the dominance in other retail lines. Brentwood has an unusually wide selection of high quality specialty retail outlets for a shopping centre of its size. In contrast, the specialty outlets in the study area tend to be low volume, space consuming uses attracted to the area by its low rents. As was pointed out in the previous chapter, Leigh's study of specialty retailing in Vancouver, showed a marked tendency for these outlets to locate in unplanned shopping centres.[10] So far, these outlets have not chosen to locate in the study area. An increase in the number of specialty outlets in the study area would increase the vitality of the area and make it a more attractive alternative to Brentwood for area residents.

Summary and Conclusion

In this chapter, a method for analyzing the operation of retail facilities using land use data was presented. The hierarchal relationship between retail centres was shown by the comparison of total commercial floor space. Differences between centres were clarified by the classification of retail units by type of goods sold, size of unit, and by form of organization. A method for analyzing the structure of an unplanned shopping centre was presented that enabled the retail core to be identified. Comparision with core uses in a competing planned shopping centre showed significant areas of strength and weakness.

The analysis shows that the major function of the Hastings Street area is as a provider of services and automobile related goods and services. Most firms are small, independently owned and managed operations. They tend not to be directly competitive with the larger, more efficient operations found in the Lougheed Regional Centre. This is particularly true of shopping goods due to the dominance of the Brentwood Mall over other retail facilities in the area.

The sections of the study area designated as the core and frame do function as an unplanned shopping

centre, providing some competition for the Brentwood Mall in a limited range of outlets. The viability of these facilities is crucial to the success of the study area as a district commercial centre. The following chapter focuses on their market potential.

Footnotes

[1]Peter Scott, Geography and Retailing (London: Hutchinson & Co., Ltd., 1970), p. 106.

[2]Burnaby Planning Department, "Burnaby Reference Information," Burnaby, 1978. (Mimeographed.)

[3]Western Realesearch Ltd., Commercial Floorspace Inventory, Greater Vancouver, British Columbia (Vancouver: G.V.R.D., 1978).

[4]David Alexander Montgomery, "The Internal Arrangement of Urban Arterial Business Districts" (unpublished M.A. Thesis in Geography, University of British Columbia, 1968).

[5]B.C. Directories Ltd., Vancouver City Directory (Vancouver: B.C. Directories Ltd., 1977).

[6]Peter Scott, Geography and Retailing (London: Hutchinson & Co. Ltd., 1970), p. 29.

[7]B.J.L. Berry, Commercial Structure and Commercial Blight, Department of Geography, Research Paper No. 85 (Chicago: University of Chicago, 1963), p. 31.

[8]Community Builders Council, The Community Builder's Handbook (Washington: Urban Land Institute, 1968), p. 278.

[9]Richard L. Nelson, The Selection of Retail Locations (New York: F.W. Dodge Corp., 1958), pp. 244-245.

[10]R. Leigh, Specialty Retailing: A Geographic Analysis Vancouver, B.C. Geography Series, No. 6 (Vancouver: Tantalus Research, 1966).

CHAPTER IV

CASE STUDY TRADE AREA ANALYSIS: HASTINGS STREET, BURNABY

Introduction

The previous chapter dealt at length with various aspects regarding the supply of retail facilities in North Burnaby. This chapter is concerned with the size and structure of the market for retail facilities in the Hastings Street area. This is the key factor in the planning of any retail venture. As shown by studies quoted in Chapter II, there is a direct relationship between the size of the retail sector and the extent of the population and respective income available. A developer planning a major retail project in the Hastings Street area would undoubtedly do extensive market surveys to determine the economic viability of the project. Similarly, public sector planners generally undertake a market survey prior to the implementation of any type of revitalization scheme. Though their objectives vary, the techniques of analysis are essentially the same.

Due to the importance of market research to all forms of retail development, there is a large body of literature on the subject. Unfortunately, most studies

focus either on the determination of the market for the individual retail firm, or on the determination of intra-urban trade relationships within an entire community. Few studies appear to have looked at the nature of the market for retail facilities found in strip commercial areas. There are numerous problems--the wide range of facilities present; the diverse nature of the potential market; and the question of trade area boundaries between competing centres. Most planning studies that have examined the problem have used either commonly accepted planning standards to derive a potential trade area, or have conducted a simple consumer survey of shoppers present in the area at any given time. Both of these methods give only partial answers to the problem since they do not examine the competitive situation which exists between alternate retail facilities.

This analysis will attempt to define the nature of the market for retail facilities in the Hastings Street study area with somewhat more precision. The analysis contained in the previous chapter showed that most of the shopping goods facilities are located in the central area which was designated as the core and frame. The remainder of the area consists of a diverse range of functionally unrelated land uses and was designated as the ribbon. Central place theory indicates that core and frame areas

operate as hierarchal unplanned shopping centres drawing trade from the surrounding area. This permits the overall market for retail facilities in these areas to be determined with some certainty. There is a much wider range of facilities in ribbon commercial areas, so individual facilities must be analyzed separately. For this reason, only the nature of the market for retail facilities contained in the core and frame areas of the study area will be analyzed in this chapter.

The chapter begins with a brief review of the principal approaches to trade area analysis. A modified version of the step-by-step approach to trade area analysis is used to estimate a market share for retail facilities in the study area from the surrounding residential districts based on current levels of population and income. The expected increase in sales from future population increases is then determined. These estimates are used to project growth in the study area of floor space devoted to various classes of retail facilities. Some comments follow regarding the prospects for expansion of the range of retail facilities presently available in the study area under either a comprehensive redevelopment scenario as proposed by the Burnaby Planning Department, or a revitalization scenario. The conclusion from the analysis is that major redevelopment of retail facilities located in the area is not feasible due to

lack of sufficient growth potential and strong competition from other centres. Modest increases in the volume of trade and range of retail outlets presently located in the area might be possible through a revitalization program.

Methods of Trade Area Analysis

There are basically two main approaches to trade area analysis. The simplest and most widely used is known as the step-by-step approach. The principles of this approach have been well established since the 1920s, and it enjoys a high degree of acceptance among the marketing profession. Briefly, the steps necessary to implement the approach are as follows:

i) Establish a tentative trade area for evaluation.
ii) Establish the nature of the business types represented.
iii) Determine the applicable purchasing power of the area.
iv) Analyze competing centres.
v) Survey consumers to validate initial assumptions.
vi) Estimate a market share
vii) Evaluate initial assumptions regarding the extent of the trade area.
viii) Make a final estimate of the expected trade area population.

Data for the step by step approach can be derived from surveys of the market area, or from estimates based on published census data. The analysis relies to a large extent on subjective evaluations of the situation. The public nature of retailing, however, makes this a valid form of research. Results from this approach are generally comparable to the alternate approach to trade area analysis, which focuses on the application of retail gravity models.

The interest in gravity models by market researchers grew out of a desire to find regularities in the empirical data obtained from market studies conducted for the step-by-step approach. The basic premise of gravity models is that consumers attempt to maximize satisfaction through their shopping behaviour, and that the principal variables are the selection of goods available in a given centre and the expenditure of effort necessary to travel to a given centre. The earliest form of a gravity model to gain widespread acceptance is known as Reilly's Model of Retail Gravitation. It was developed by W.J. Reilly during the 1920s and is commonly stated in two forms, the first being:

$$\frac{Ba}{Bb} = \left(\frac{Pa}{Pb}\right)^{N} \times \left(\frac{Db}{Da}\right)^{n}$$

where Ba = trade area drawn by city A from any given intermediate city

Bb = trade drawn by city B from the same intermediate city

Pa = population of city A

Pb = population of city B

Da = distance of city A from the intermediate city

Db = distance of city B from the intermediate city

N = 1

n = 2

The key variables in the formula are the exponents which were determined by Reilly on the basis of extensive empirical studies.[1] The second statement of the law, derived from the first, is as follows:

$$DB = \frac{Dab}{1 + \sqrt{\frac{Pa}{Pb}}}$$

where Dab = the distance between A and B

= Da + Db

DB = distance from B to the outer limit of the trade area

The outer limit of the trade area was defined by Reilly as the breaking point, where a consumer would be indifferent between trading in either city A or city B. Consumers were assumed to perfectly optimize their shopping choices on this basis. Common sense indicates that this is not always the case.

To be fair to Reilly, it should be stressed that the law was developed from inter-urban trade area research and was never intended to be applied to intra-urban situations. Other researchers have suggested its use for that purpose in order to obtain a rough approximation of possible trade areas for commercial centres.[2] Proxy variables for selection of goods that are used by researchers include retail floor space, length of commercial frontage, employment, and assessed land value. Proxy variables for the distance variable include straight line distance, road distance, travel time, and travel cost.

The chief limitation of the law of retail gravitation is the assumption that consumers attempt to optimize their consumer behaviour in a deterministic fashion. In fact, they tend to behave in a probalistic fashion, choosing among a range of shopping alternatives on the basis of numerous criteria, both subjective and objective. Consequently, trade areas tend to overlap based on the competitive advantages enjoyed by each centre and cannot be broken into distinct market segments.

A solution to this conceptual problem was suggested by Huff.[3] He developed the probalistic formulation of the gravity model shown below.

$$Pij = \frac{\frac{Aj}{dij^{\lambda}}}{\sum_{j=1}^{n} \frac{Aj}{dij^{\lambda}}} \quad \text{(for any zone)}$$

Subject to the constraint that $\sum_{j=1}^{n} pij = 1.0$

where Pij = the probability that consumers in zone i will be attracted to center j

Aj = the attractiveness of center j

dij = the distance from zone i to centre j

λ = a parameter value which is to be calibrated to reflect the effect of distance or some other proxy variable

The calibration of λ necessitates a market survey. The chief advantages of the probalistic gravity model are that it permits analysis of the competitive relationship among any number of centres and the underlying assumptions of the model can be easily varied. Probalistic gravity models are generally programmed for routine solution by a computer.

Two improvements to Huff's basic gravity model have been developed. Lakshmanan and Hansen suggest that the attractiveness function as well as the distance function be raised to a power to reflect differences in the

selection of goods carried by a given centre.[4] A further revision to the basic formulation by the British researcher, Alan G. Wilson, has an exponential function being substituted for a power function to achieve a better fit between the model and survey results.[5] Tests of this model in a Canadian context to analyze the merits of shopping centre proposals have achieved better results than tests using Huff's model.[6]

The question of which method of trade area analysis is best for a given situation depends largely on circumstances and the resources available. The step-by-step approach is conceptually simpler and adaptable to many different situations. The data requirements are generally less onerous, since estimates and subjective evaluations can be used when hard empirical data is lacking. On the other hand, the analysis is usually limited to one centre and the results can be questionable, given the subjective nature of many of the estimates used.

Gravity model analysis is generally considered to to be conceptually superior and to be based on more objective data sources. While the results may not be more accurate, they can be duplicated by another party. The analysis can be extended to include any number of different shopping facilities with ease. Once the basic

parameters of the model have been programmed, the components of the model can be varied easily. Disadvantages of the gravity model approach over the step-by-step approach are that it is conceptually more complex and more expensive due to extensive data requirements and the need for computerized data processing. The approach has generally only been used to analyze retail facilities of the same class. Little research has been done on the competitive situation existing between large and small scale centres, such as the Brentwood Shopping Mall and the Hastings Street commercial area.

For this reason and a general lack of both data and resources to invest in the project, the step-by-step approach was chosen for this study. Details of the methodology are contained in the following section.

Case Study

Methods of Analysis

The analysis is based on the step-by-step method but due to time and resource constraints, no trade area survey was conducted. A survey to measure the degree of competition between a planned regional shopping centre and an unplanned district shopping centre would have been extremely difficult to design and administer. Trade flows were estimated using a combination of published income and expenditure data, a floor space survey of the area by type of commodity,

and subjective assessment of the competitive position of the area.

The following four assumptions are central to the analysis:

i) Shoppers tend to move toward the dominant trading centre.

ii) Shoppers tend to patronize the closest centre with equal facilities.

iii) Shoppers tend to follow traditional circulation patterns.

iv) Average levels of retail sales and consumption by line of commodity within the area of analysis are proportionate to those of the Vancouver Census Metropolitan Area throughout the period of analysis.

Computational procedures have been adapted from an article by William E. Cox, Jr.[7]

The first step in the analysis was to determine a tentative market area for the centre. Following this, the total expenditure for retail consumption by market area residents was determined. The basic equation used was

$$E = (c)(I)(b)$$

where E = expenditure for retail goods and services

c = consumer units (families and unattached individuals)

I = average income levels

b = expenditure ratio

The second equation allocates the total amount of retail expenditure to the various retail facilities present in the study area and provides a measure of retail sales for each class of business per square foot.

$$S = \frac{(E)(d)(e)(f)(g)(h)}{i}$$

where S = the expected level of retail sales by class of business per square foot

d = resident trade flow ratio

e = the percentage allocation of consumer expenditure (E) by class of retail space

f = shopping pattern ratio

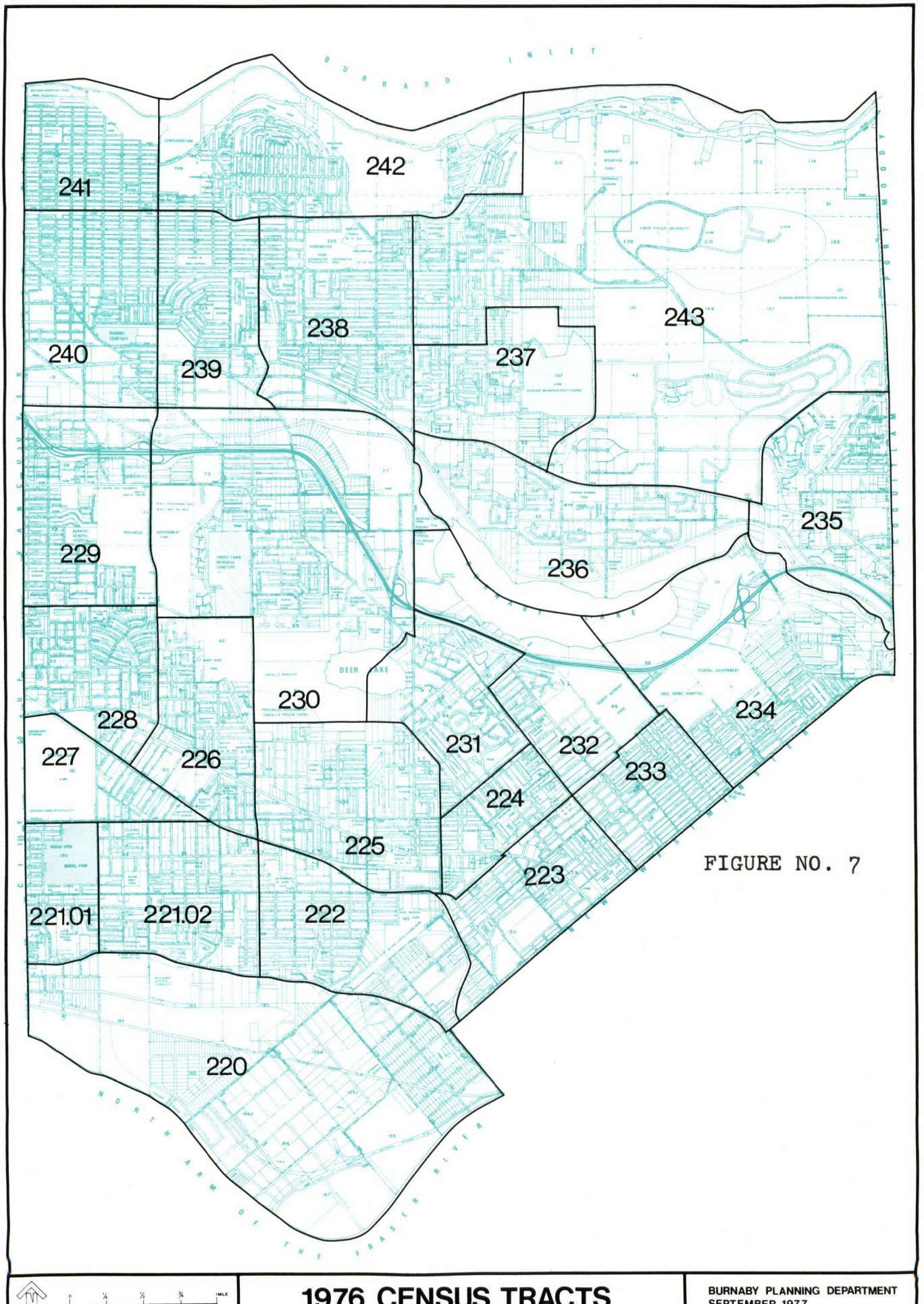
g = attractiveness factor

h = non-resident trade flow factor

i = total square footage by class of business within the core area

Data Sources

Wherever possible, published data sources were used. Statistics Canada publishes extensive population and income data in their census tract series, so these areas were used to form the tentative trade area. The location of the four census tracts forming the tentative trade area is shown in Figure No. 7. The area is confined to Burnaby due to


BURRARD INLET
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221.01
221.02
222
220
DEER LAKE
NORTH ARM OF THE FRASER RIVER
1976 CENSUS TRACTS
BURNABY PLANNING DEPARTMENT
SEPTEMBER 1977

FIGURE NO. 7

the proximity of other commercial facilities to Vancouver residents. Data used for the first equation and the summary of results is shown in Table VI. The base population figures are taken from the 1976 census, as virtually no growth in the housing stock has occurred since that date.[8] The two estimates of future population are taken from projections of future housing stock for the area prepared by the Burnaby Planning Department.[9] Family households and unattached individuals are treated as separate consumer units because of considerable variation in respective income levels. The incomes shown are the levels reported in the 1971 census tract series projected at the average rates reported in the Consumer Expenditure Surveys for Vancouver to 1978 levels.[10,11] The 1986 projection uses this base, but it has been projected forward at a rate of 3% per annum. This is the rate of real family income growth forecast by the Economic Council of Canada, assuming no federal economic stimulus.[12] The projection is in constant dollars. The expenditure ratio of 0.5 for retail goods and services is derived from the 1974 Urban Family Expenditure Survey for Vancouver and is assumed to remain constant for the length of the projection due to the modest expected rate of income growth.[13] The Economic Council of Canada expects that stabilization of the labour force participation rate will make the previously experienced high levels of income growth

TABLE VI

POPULATION AND RETAIL CONSUMPTION ESTIMATES:
HASTINGS STREET TRADE AREA

		1978	1986 (estimate 1)	1986 (estimate 2)
1.	Population (No.)			
	Census Tract 239	5841	5841	5841
	240	6520	6520	6520
	241	6207	7304	13298
	242	6480	6480	6480
2.	Family Units (No.)			
	Census Tract 239	1560	1560	1560
	240	1745	1745	1745
	241	1630	1689	2053
	242	1760	1760	1760
3.	Unattached Individuals (No.)			
	Census Tract 239	715	715	715
	240	1020	1020	1020
	241	1075	1875	4782
	242	980	980	980
4.	Average Family Income ($)	*	**	**
	Census Tract 239	23405	29724	29724
	240	19730	25057	25057
	241	20093	25518	25518
	242	21695	27553	27553
5.	Average Non-Family Income ($)			
	Census Tract 239	8889	11289	12289
	240	7482	9502	9502
	241	7421	9425	9425
	242	7115	9036	9036
6.	Expenditure Ratio	0.5	0.5	0.5
7.	Consumption (Million $)			
	Census Tract 239	21.43	26.36	26.36
	240	21.03	25.87	25.87
	241	20.36	30.17	48.52
	242	22.58	27.77	27.77

* (income 1971) $(1.125)^5(1.08)^2$

** (income 1978) $(1.03)^8$

unlikely.[14] Total retail expenditure in 1978 for the market area is estimated at $85,406,496. The projections are discussed later.

Data for the second equation is shown in Table VII and VIII. Table VII attempts to link the range of consumer expenditure by class of good to retail sales by class of retail outlet for Metro Vancouver. Data is expressed as a ratio of total sales and total expenditure respectively and is derived from a variety of sources.[15,16,17] It is evident that with the exception of convenience and shopping goods, the ratios of retail expenditure correspond reasonably well to the ratios of retail sales in a particular class. The ratio of convenience goods expenditure is much lower than the ratio of convenience goods outlet sales. The opposite is true of the ratio of shopping goods expenditure and shopping goods outlet sales. The primary reasons for this are: first, the broadening of product lines by shopping goods stores--particularly department stores--to include convenience goods; second, sales of shopping goods to commerce and industry; third, tourist sales by shopping goods outlets. This apparent transfer of sales from convenience goods outlets to shopping goods outlets makes retail sales ratios a better measure of the true level of retail sales in a given business sector than consumer expenditure ratios. They are used in the second equation as variable d_i. All of the information necessary for the

TABLE VII

COMPARISON BETWEEN FAMILY EXPENDITURE
AND CLASSES OF RETAIL SALES

VANCOUVER C.M.A.

	Family Expenditure	%		Retail Sales	%	
1.	Convenience Goods		38.0%	Convenience Goods		28.7%
	Food	26.8%		Outlets		
	Cleaning, paper, and misc. supplies	3.2%		Combination food	14.2%	
	Toilet preparations	1.6%		Specialty food	5.8%	
	Drugs	0.8%		Pharmacies	2.5%	
	Cigarettes and Tobacco	2.0%		Government liquor Stores	6.2%	
	Alcohol	2.6%				
	Reading materials	1.0%				
2.	Shopping Goods		26.6%	Shopping Goods		35.6%
	Furniture and appliances	5.4%		Outlets		
	Other household equipment	3.4%		Department stores	16.7%	
	Clothing	11.6%		General merchandise	2.9%	
	General merchandise	6.2%		Hard lines	5.9%	
				Soft lines	4.4%	
				Other goods	5.7%	
3.	Meals outside the home		6.0%	Restaurants		4.9%
4.	Services		4.8%	Service Outlets		4.4%
	Cleaning	0.8%		Cleaning	1.1%	
	Personal care	1.2%		Personal care	1.0%	
	Repairs	0.6%		Miscellaneous	2.3%	
	Miscellaneous	2.2%				
5.	Entertainment		2.2%	Entertainment		3.3%
	Alcohol consumed outside the home	1.2%		Facilities		
	Admissions	1.0%		Licensed liquor outlets	0.9%	
				Commercial entertainment	2.4%	
6.	Automobile		21.6%	Automobile Related		22.9%
	Purchase expense	9.2%		Outlets		
	Operating costs	9.4%		New car dealers	13.6%	
	Other vehicles	2.9%		Service outlets	9.3%	
7.	Total Retail Expenditure		99.2%	Total Consumer Receipts		99.7%
8.				Other Retail Receipts		13.7%
				Services to businesses	8.6%	
				Accomodation and food (tourism)	4.9%	
				Heavy equipment rental	0.2%	
9.				Total Retail Receipts		113.7%

Sources: 1971 Census of Retail Trade
1971 Census of Service Trade
1974 Consumer Expenditure Survey

TABLE VIII

ESTIMATED RETAIL SALES BY CLASS OF FLOOR SPACE:

HASTINGS STREET CORE-FRAME AREA

Variables	Census Tracts				Class of Floor Space								
					Specialty Food**	Drugs	General Merch.	Soft Goods	Hard Goods	Other Goods	Services	Restaurant	Total
	239	240	241	242									
1. Retail Consumption (E) ($000,000) 1978	21.43	21.03	20.36	22.58									
2. Retail Consumption (E) ($000,000) 1986 estimate 1	26.36	25.87	30.17	27.77									
3. Retail Consumption (E) ($000,000) 1986 estimate 2	26.36	25.87	48.52	27.77									
4. Resident Trade Flow Factor (d)	0.3	0.75	0.9	0.4									
5. Expenditure Ratio by Retail Class (e)					0.058	0.025	0.029	0.044	0.059	0.057	0.044	0.049	0.308
6. Shopping Pattern Ratio (f)					0.71	0.51*	0.37	0.31	0.75	0.20	0.78	0.20*	
7. Attractiveness Factor (g)					1.0	1.0	0.6	0.6	0.8	1.0	1.0	1.0	
8. Non Resident Trade Flow Factor (h)					1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	
9. Floor space by Retail Class (i)					21417	7670	20327	21488	27368	14445	31640	11197	155552
10. $ Sales Per Square Foot by Retail Class (S) 1978					109.97	99.99	19.30	23.21	78.84	48.10	66.12	53.34	61.43
11. $Sales Per Square Foot by Retail Class (S) 1986 estimate 1					155.06	140.99	27.21	32.73	111.18	67.82	93.22	75.20	86.61
12. $Sales Per Square Foot by Retail Class (S) 1986 estimate 2					194.65	176.98	34.16	41.08	139.56	85.14	117.03	94.77	108.73

* includes some competition outside of Brentwood

** Sample calculation: Specialty Food

$[(21.43x0.3)+(21.03x0.75)+(20.36x0.9)+(22.58x0.4)] \times 0.058x0.71x1.0x1.23 \div 21417 = 109.97$

second equation is shown in Table VIII, together with the final results. The source and significance of the remaining variables are briefly discussed in the following paragraphs.

Variable e, defined as the shopping pattern ratio, weights the amount of floor space of a particular land use class in the Hastings Street core-frame area against the total supply of similar retail facilities competing for the surrounding market. Except where indicated in Table VIII, the only effective competition in the area in the range of retail facilities being considered is Brentwood Mall. Purchases made outside of these facilities by area residents are assumed to be compensated for by purchases made in the area by outside residents. The effect of the shopping pattern ratio is to calculate a market share of area consumption for retail facilities located in the Hastings Street core-frame area.

Variable f, the resident trade flow ratio, is a subjective weighting of distance and circulation patterns for each of the four census tracts which define the market area. Circulation patterns were given more emphasis in the rating, since in all instances, driving times to retail facilities are under ten minutes and do not constitute a significant barrier. Habit and convenience are considered to be more important factors.

Another subjectively derived variable is the attractiveness ratio g. It is used to compensate for deficiencies in the quality of study area retail facilities which hinder competition. This factor was derived by the author and another planner knowledgeable of the retail field following a tour of the area. The major deficiencies were considered to be poor exterior appearance and poor display and selection of merchandise. Lack of parking which is commonly considered a problem in other unplanned shopping centres was not considered a significant deficiency. The small size of the core-frame area makes parking readily available on adjoining streets.

Variable h, the non-resident trade flow ratio, is used to estimate the amount of trade attributable to passing traffic. This source of business has always been considered an important reason for a strip commercial location, though it is likely more important to businesses located in the ribbon than to businesses located in the core. The ratio is derived from a published research study by F. W. Boal and D. B. Johnson which indicated that 18.7% of the business of core type establishments in a strip commercial area similar to Hastings Street was derived from passing traffic.[18] The non-resident trade flow ratio was derived by inverting the residual of that percentage subtracted from unity, giving a figure of 1.22.

The final variable i is simply the gross floor area by class of retail space for the Hastings Street core-frame area, taken from Table V in the previous chapter. The effect of this is to give a measure of retail sales by class for the area per square foot, rather than a total figure. Sales per square foot are a well recognized measure of retailing efficiency and are used in the industry as a criterion for planning further expansion of the retail sector.

Implications of the Present Situation

Line ten of Table VIII presents the results of equation two at present population and income levels. The results of the two projections to 1986 are discussed in the following section. The trends are more significant than the actual numbers, since estimated data is used.

The selection of businesses in the core area limits potential trade to a maximum of 30.8% of total retail expenditure by the market area. This translates to average potential square foot sales of $169.11. A weighted average of the sales estimates per square foot of each class of retail space derived from the equation indicates that the probable level is only $61.43 per square foot or 36.3% of maximum potential trade, including the effects of passing traffic. Data from the Urban Land Institute on planned community and neighbourhood shopping

centres indicates that this is relatively low in comparison to other similar Canadian situations.[19]

Sales per square foot by class of retail space show considerable variation. Specialty food and drug outlets have the highest levels. The selection of facilities is good and there is relatively little competition for the potential market. Hard goods also appear reasonably strong, though furniture lines may be facing competition from large furniture supermarkets such as Woodwards' Furniture Fair, which was not included in the analysis. Sales of other goods lines are relatively low due to the wide variety of such facilities found in the Brentwood Mall. Services and restaurants appear to be doing well despite competition from the ribbon commercial area. By far the weakest areas are general merchandise and soft goods lines. They face strong competition from outlets in Brentwood Mall, and with few exceptions, their image is weak and their selection of goods poor.

Clearly, convenience goods outlets and services are the strongest retail facilities in the area. The dominance of services is even more evident when non-retail services are considered. Four banks occupy key corner sites in the core. Other non-retail services include medical and dental clinics, real estate offices, insurance and travel agents, and accountants.

In some sections of the study area, non-commercial uses occupy virtually all of the frontage. They benefit from the high volumes of pedestrian traffic seeking out retail outlets in the area. However, they do not attract as high a volume of pedestrian traffic as retail outlets and tend to detract from the image of a pedestrian shopping area. The problem is the result of inadequate demand for retail space in the core-frame area. It might correct itself if increased demand for retail space were to cause rents in the core-frame area to rise further above those in the ribbon commercial area. Non-commercial uses would likely trade off accessibility for lower rent payments at locations outside the core. The prospects for further retail development are discussed in the following section.

Projections of Future Retail Sales

Lines eleven and twelve of Table VIII show the level of retail sales per square foot that the existing retail sector could attain if population and income were to rise to levels projected by the Burnaby Planning Department without any further retail expansion. The gross increase in the level of retail sales per square foot over existing levels would be 41% for projection No. 1 and 77% for projection No. 2. These levels of increase would likely generate increased expansion of the retail sector to absorb any excess profits that might be available.

All of the expected growth is unlikely to be available for expansion of the retail sector. Returns in some lines of trade might be insufficient to generate expansion even in an expanded market. In addition, the trend towards higher overhead costs, which was discussed in Chapter II, requires existing retail space to be used more efficiently. Berry estimates that the efficiency of retail space use in Chicago increased at a rate of 5.7% per annum between 1950 and 1960.[20] A recent Canadian study estimated that retail efficiency would have to increase at a rate of 3% per annum to meet increased overhead costs.[21] That figure is considered reasonable for this example.

Applying the 3% efficiency factor to the existing levels of retail sales results in a net increase in retail sales available for retail expansion of only 10.9% for the first projection and 40% for the second projection. Returns in all lines of trade except general merchandise and soft lines are considered adequate to generate further expansion. This translates to a 12,396 square foot expansion of the core area under the first projection and a 43,143 square foot expansion under the second projection. Specific amounts for each line are shown in Table No. IX.

In both cases, expansion of the retail sector is not of any great magnitude. The most optimistic

TABLE IX

PROJECTED INCREMENTAL COMMERCIAL EXPANSION

BY CLASS OF FLOOR SPACE TO 1986:

HASTINGS STREET CORE-FRAME AREA

Class of Floor Space	Existing Development (sq.ft.)	Population Estimate #1 (sq.ft.)	Population Estimate #2 (sq.ft.)
1. Food	21417	2334	8567
2. Drug	7670	836	3068
3. General Merchandise	20327	* -	* -
4. Soft Goods	21488	* -	* -
5. Hard Goods	27368	2983	8595
6. Other Goods	14445	1574	5778
7. Services	31640	3449	12656
8. Restaurant	11197	1220	4479
9. TOTAL	155552	12396	43143

* Insufficient expected retail sales to generate additional expansion.

projection would only increase the existing retail sector by 27% and total core area space by 16.3% It is unlikely that additional retail space would be required, since new retail uses would probably displace non-retail uses which would move out of the core in response to higher rents.

Prospects for Increasing Present Retail Sales

The previous projections are based on the assumption that limitations now apparent in the study area in the quality of some retail outlets and in the range of retail facilities remain constant. Further increases in sales might occur if either of these limitations was improved.

The three classes of retail space most adversely affected by quality deficiencies are general merchandise, soft goods, and hard goods lines. The quality deficiencies relate primarily to the exterior appearance of the individual stores and surrounding area and to the poor display and selection of merchandise. These problems could be remedied by a program of comprehensive redevelopment or modest renovation, together with the adoption of better retailing practices. The feasibility of the two options would depend on the difference in total cost and the improvements in operating efficiency available from new retail space, as opposed to renovated retail space.

An increase in the range of retail facilities could result from the development of totally new facilities or the expansion of existing ones. The two major retail outlets not present in the area now are a department store and a supermarket. The selection of specialty (other goods) outlets is also rather limited. The following analysis shows that only the latter category has a reasonable chance for implementation.

Recent sources indicate that a supermarket must attain sales of at least $225.00 per square foot on a minimum area of 25,000 squre feet in order to meet expenses.[22] This requires a trading area population of approximately 20,000. Since the area is adequately served by two 30,000 square foot supermarkets, even the maximum anticipated population increase of 7,000 would not generate sufficient buying power to support another.

The possibility of a department store is even more remote. A successful full line department store must have sales of $100.00 per square foot on a minimum area of 70,000 squre feet, necessitating a trade area population in excess of 40,000. The Brentwood Mall has 176,088 square feet of department store space and appears to serve the market adequately. The additional population growth in the Hastings Street area alone would not justify the development of a new department store.

Expansion of other goods lines is limited by competition from the Brentwood Mall which contains most of the possible high volume uses. The study area presently provides a limited selection of low volume, space consuming uses such as a bookstore, a musical instrument shop, and a crafts store. Some expansion of these types of uses appears possible due to the high cost of the Brentwood location and the lack of other suitable locations in North Burnaby. Due to their low rent paying ability however, these uses would not be attractive tenants for a major redevelopment project. They require older, low rent forms of accomodation. A general program of revitalization in the area would enhance their prospects of success, since more than any other type of use, they depend on impulse buying generated by a high volume of pedestrian traffic. Pleasant surroundings are a necessary pre-condition for the development of that traffic.

Summary and Conclusion

The purpose of this chapter has been to examine the size and structure of the market for facilities in the core-frame area of the Hastings Street study area. Following a brief survey of current approaches to trade area analysis, an estimate of the potential volume of trade available at present and expected future population levels was made using a market share approach. The analysis indicated that even with the most optimistic population growth estimates for the surrounding area, only modest increases in the scale of existing retail facilities were likely to occur. They could be accomodated within the existing stock of commercial buildings in the area.

Opportunities for expansion of both the scale and range of facilities represented in the study area were then explored. Moderate increases in the retail trade of soft line, general merchandise, and hard line outlets were estimated to be available through improvements to the appearance of stores and better methods of merchandise display and selection. The prospects for expansion of the range of facilities present in the study area were then evaluated. Major expansion was shown to be impractical due to lack of sufficient available market. Some expansion of the other goods lines was thought feasible, provided that the condition of the area was

upgraded and rents remained near present levels.

The conclusion from this analysis is that the nature and extent of the market does not favour the redevelopment of retail facilities presently located in the area. Lack of sufficient growth potential and strong competition from the Brentwood Mall make it unlikely that a developer would be able to attract the high volume tenants necessary to permit construction of a major new retail facility.

The major problem of the area appears to be quality deficiencies in some retail lines competing directly with superior facilities located outside the study area. This has resulted in declining sales volumes. A revitalization program might provide a big enough incentive to reverse this trend if costs are kept to a modest scale. It might also encourage a wider range of retail outlets to locate in the area than are now present. The following chapter examines the economic consequences of both schemes to land owners to determine which has the greatest chance for implementation.

Footnotes

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CHAPTER V

ECONOMIC FEASIBILITY ANALYSIS

Introduction

The purpose of this chapter is to compare the economic viability of alternate development plans for the Hastings Street study area. The need to generate an adequate return on the required investment is fundamental to the success of any redevelopment scheme. To the extent that it is possible to judge these matters quickly and effectively from a third party perspective using publicly available information, planners should be aware of the economic consequences of alternate development proposals. Techniques used by the real estate development industry to judge economic feasibility will be presented in this chapter, using representative data from the Hastings Street study area. This data is derived from publicly available information and the analysis detailed in previous chapters.

The chapter begins with a discussion of the nature of real estate investment and the methods currently used by the real estate industry to judge the feasibility of development projects. The details of the Hastings Street Community Plan, currently sanctioned by the Municipal

Corporation of Burnaby, are presented together with the case both for and against large scale comprehensive redevelopment. A pro forma analysis of a development proposal under the terms of the Community Plan, using the land residual approach, is then presented. The conclusion from this analysis is that the returns from the development are insufficient to justify the cost of land assembly under current market conditions.

The next section discusses the feasibility of a revitalization program for the area. Some examples of the approach are mentioned and the basic steps in the implementation process are outlined. The case for revitalization of the Hastings Street study area is then stated together with methods for evaluating the feasibility of the various components of the program. Four separate activities are discussed--street beautification, rehabilitation of existing structures, selective redevelopment of new structures, and continued management programs for the area by the business community and municipality. The conclusion from this analysis is that revitalization offers a feasible alternative to comprehensive redevelopment in the Hastings Street study area.

Real Estate Feasibility Analysis

The role of feasibility analysis is to determine the ability of an investment to make a profit. Real estate

is a capital asset similar in some respects to any investment, but also with some unique features. The natures of these differences is important to the analysis process.

Perhaps the most important difference from other assets is that real estate has a fixed location. It must attract income and a market rather than moving to the most desireable market as can certain other types of investments. Consequently, the value of an investment property is greatly influenced by factors outside the property, indeed more so, than by other factors originating within the property.

There are significant imperfections in the market for real estate which also affect its value. The fixed location of real estate assets restricts the total supply. Further restrictions are caused by the long life of existing assets and the high cost of replacement of obsolete structures with more efficient assets. The rate of new construction is low in comparison to the total stock of assets in the market. Yet demand can change rapidly due to a wide variety of circumstances. Complicating the market is the fact that buyers and sellers frequently operate without any clear conception of how the rest of the market is operating. There are no good sources of information upon which to base investment decisions as there are in certain other markets.

Consequently, the real estate market is seldom in balance as to supply and demand. Risks are higher than in a field where the market is more predictable and must be compensated for in the rate of profit required to make investment attractive.

There are a variety of different sources of return on a real estate investment to attract investors into the market. The most important source is the net operating income after expenses that results from rental income. This is determined by the market and tends to rise along with real estate values because of inflation and growth of the economy. The tendency for asset value to appreciate accounts for the second major source of return on a real estate investment.

A further incentive results from the fact that the long life of real estate investments makes them excellent collateral for debt financing. For a small equity investment, investors are able to participate fully in the growth of property values, using fixed cost borrowed capital to increase the rate of return on their initial equity investment to be realized at the time the property is sold. This is known as leverage. Real estate tax regulations also provide an incentive not available to other forms of investment through accelerated depreciation schedules which allow additional income to be earned on

deferred taxes prior to the sale of the property. Most of the large fortunes in real estate have been created by the interplay of leverage and tax incentives operating within a growing economy.

The return from a real estate investment is determined by subtracting the initial cost of the asset from the stream of benefits which accrue to the owner. Specifically, the return should be determined in present value terms which is defined as the flow of monetary and non-monetary benefits, net of costs, discounted back to the date of the analysis.

Symbolically stated:

$$\text{Present Value} = \sum_{t=1}^{n} \frac{a_t - e_t}{(1 + r)^t} + \frac{EV}{(1 + r)^n} - C$$

Where a_t = the gross benefits expected from the property in year t

e_t = the expense of maintaining the property in year t

r = a discount rate representing net benefits foregone due to investment in the property

EV = the estimated value of the property at the end of the holding period

C = the initial cost of the property

A variation on the present value formulation is the Internal Rate of Return. Instead of using a discount rate representing net benefits foregone due to investment in the property, a discount rate is calculated which results in the Present Value being equal to zero. The Internal Rate of Return represents the actual rate of return on the initial equity investment in a property.

Whether the Present Value approach or the Internal Rate of Return is used, investment in the construction of new real estate is justified only when the return from existing comparable real estate investments on the market is sufficiently high to justify the additional risk and expense to new construction.

To determine the feasibility of redevelopment of an existing investment property, the analyst must make two calculations. A favourable decision will result only if:

$$\sum_{t=1}^{n} \frac{a_t^1 - e_t^1}{(1+t)^t} + \frac{EV^1}{(1+r)^t} - C_{ij} > \sum_{t=1}^{n} \frac{a_t - e_t}{(1+r)^t} + \frac{EV}{(1+r)^t} - C$$

The first term represents the sum of the expected benefits from the new development minus the expected initial cost (C_{ij}), while the second term represents the sum of the expected benefits from the existing development minus the market value of the property (C).

In most situations, an investor will have to purchase property for a redevelopment, and the stream of expected benefits from the property will have already been capitalized into the purchase price. Consequently, the key factor in the feasibility of most redevelopment projects is the cost of the land. Within certain limits, labour, capital, and entrepreneurship are mobile and will go where they can make the most competitive return. The residual after these demands are satisfied is the price that can be paid for land.

Like all real estate transactions, the market for redevelopment land operates under the price mechanism. Buyers have a certain ceiling price beyond which they will not pay, while sellers have a floor price beyond which they will not sell. In between these two figures is an area for negotiation. That area is generally larger for redevelopment properties than for other types of investment property. This is because the floor price is generally based on the continuance of the present use of the site, while the ceiling price is based on an estimate of the revenue available from the highest and best use of the site under the current market and zoning situation. Obviously not all property in a redevelopment area will be redeveloped at the highest and best use. Consequently, the difference between the floor and ceiling price is known as floating value since it can settle anywhere in a redevelopment area.

Occasionally, land prices will be higher than the highest and best use would indicate. This may result from an unrealistic view of the highest and best use of the property. This is generally due to the fact that floor prices for property do not tend to fall as quickly as they rise in the face of changing economic circumstances. The sales price represents a significant portion of the return on an investment, and investors are normally reluctant to sell at what they consider a loss. Many large investors are able to hold out indefinitely until such time as the market or the zoning changes sufficiently to support the higher valuation. This factor and the problem of floating value tend to slow the assembly of sites for redevelopment considerably.

Since the calculation of Present Values requires the estimation of future costs and revenues which tends to be very uncertain, the development industry generally uses a simpler technique known as the land residual approach to make the initial evaluation of the feasibility of a new development. The general formula for the technique is as follows:

(Market Value) - (Construction Costs) - (Profit) = Land Residual

Decision Criteria: Land Residual > Land Value

Application of the formula requires estimates of the net operating income anticipated from the property and the projected construction costs. An estimate of the

market value for the property is obtained by using the formula:

$$V = \frac{I}{R}$$

Where V = the estimated market value of the property

I = the net operating income after expenses

R = the estimated overall rate of return on the investment

The gross income from the property is a function of the market rent available from the development under normal operation and the amount of development that takes place on the site. Various uses generate different market rents. This is a function of supply and demand as influenced by the location of the property and its specific characteristics. Generally, commercial uses provide the highest rate of return, followed by office, then residential use. Prevailing market rents are determined by a survey of comparable properties. These are multiplied by the size of the building and then adjusted to reflect the efficiency of building space use, estimated vacancies, and anticipated expenses to determine the net operating income.

The overall rate of return is the figure which expresses the relationship between the total market value of the proposed property and the net operating income during the first year of normal operation for the property. It is also determined by analyzing the sales of comparable

properties. It differs from the Internal Rate of Return since it does not reflect the impact of leverage from mortgage financing, the holding period and the discount rate, or the final selling price. Thus, it provides only a rough estimate of the actual rate of return that the investor will experience, but this is sufficient for valuation purposes.

Construction costs are estimated by multiplying the size of the development by prevailing market rates per square foot of construction space. Adjustments can also be made to reflect the quality of the space, market conditions, and added amenities. Alternately, the estimated cost can be determined more precisely by estimating the labour and materials necessary to complete a specific design. A percentage is then added to reflect the developers overhead and the cost of interim financing.

To determine the developer profit, a sum equal to 15% of total expenses including land is added to construction costs. The total is subtracted from the estimated market value to determine the land residual. The previous discussion would appear to indicate that there is a precise point at which redevelopment will or will not take place, but this is not so. Various parties have differing perceptions of what risks a development opportunity presents and of what rate of return on investment they consider adequate.

Generally, the greater the margin between the calculated land residual and the cost of the site, the greater is the probability of development.

The land residual approach provides a quick and convenient method for determining the feasibility of real estate investment projects. It will be used later in the chapter to determine the feasibility of alternate development proposals for the Hastings Street study area. There are more advanced techniques for determining development feasibility, but their information requirements generally place them beyond the capabilities of a public sector analysis.

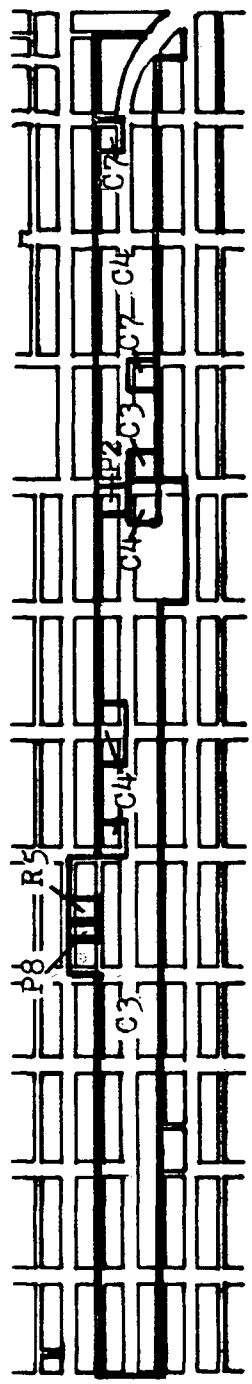
The Hastings Street Community Plan

The need for public intervention to correct the existing blight conditions on Hastings Street has been evident for some time. The area experiences high vacancy rates from time to time, has a rapid turnover of businesses, and exhibits a relatively low level of building quality. Approximately 25% of the building stock is rated as poor by the Assessment Authority of B.C.[1]

The first public intervention in the area occurred in 1963, when deteriorating building conditions and poor economic conditions in the area lead to a series of meetings between the municipality and property owners.

This resulted in a decision by the municipality to purchase all properties on the south side of the 3800 and 3900 blocks of Hastings Street, subject to receiving federal urban renewal funding. This was obtained and the resulting plan for the area proposed the development of a high density mixed use retail/office/residential development focusing on a public square. The intent of the plan was to provide a catalyst to spur on the eventual redevelopment of the entire western end of the Hastings Street area in Burnaby. The site for the project was acquired and cleared for disposal by public tender to a developer willing to build to the standards set by the plan. An offer from Summerhill Management Ltd. was received in 1972, but for some unspecified reason did not proceed. The 2.3 acre site remains vacant, awaiting a suitable proposal.

New developments in the Hastings Street area are governed by two municipal land use documents--the Zoning Bylaw and the Community Plan. The former was introduced in 1965 and divided the municipality into a number of land use districts. The zoning for the study area is shown in Figure No. 8. The two major districts in the area are the C3 General Commercial district and the C4 Service Commercial district. The former designation permits a floor area ratio of five (FAR 5.0), the highest level permitted in the municipality. The latter designation is intended for C4 low density auto-oriented commercial uses within a maximum permitted



LEGEND

R5	Residential District (Two-family)
P2	Administrative and Assembly District
P8	Parking District
C3	General Commercial District
C4	Service Commercial District
C7	Gasoline Service Station District

FIGURE NO. 8

← North

ZONING:

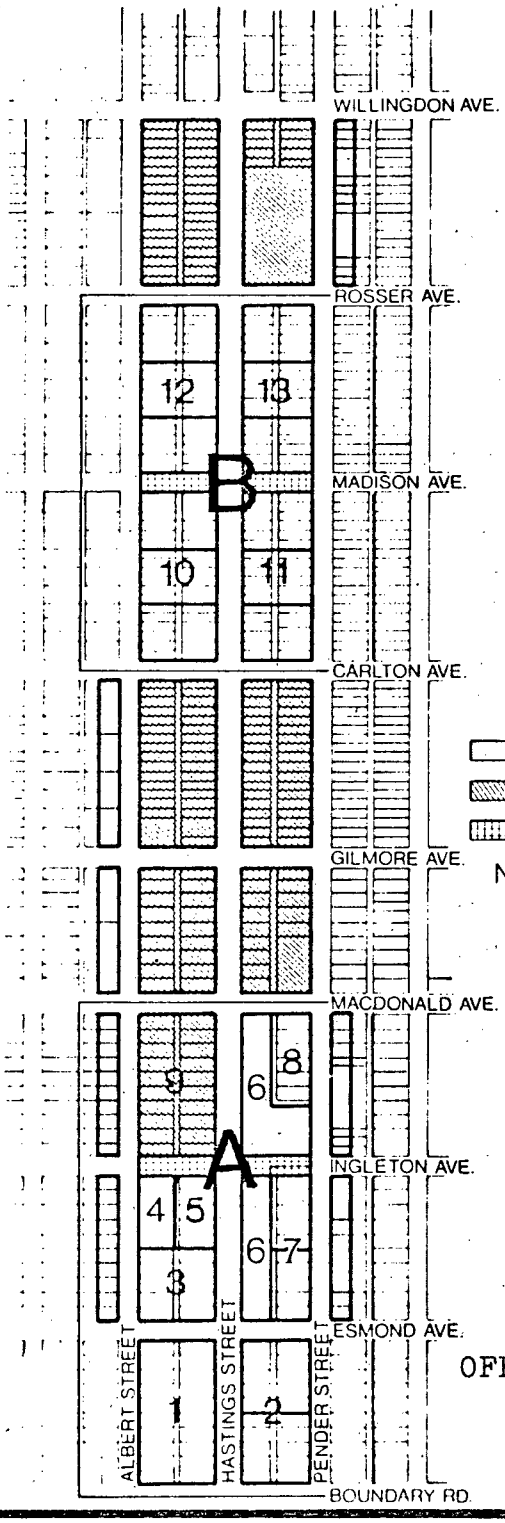
HASTINGS STREET STUDY AREA

FAR of 2.0.

Another significant feature of the Zoning Bylaw is the incorporation of a floating Comprehensive Development district. This permits the development of an area embracing more than one land use classification as an integrated unit based on a comprehensive plan which is approved at the time the area is rezoned. It is anticipated by the municipality that much of the Hastings Street area will be rezoned for redevelopment in accordance with the Comprehensive Development district regulations.

The overall municipal development policy for the major portion of the area is outlined in the Hastings Street Community Plan. This contains guidelines for the approval of Comprehensive Development districts. The official land use map and a schematic concept showing the ultimate projected form and scale of the redevelopment is shown in Figure No. 9 and Figure No. 10.

Adopted in 1969, the plan confirms the recommendations of the urban renewal plan by designating a high density Comprehensive Development district in the 3700 to 3900 blocks of Hastings Street. A further high density residential district is proposed for the 4200 and 4300 blocks, with other areas covered by the plan to remain in commercial development. Through lot development to Albert and Pender Street is proposed throughout the area. This would permit the development of point block highrise



Proposed RM5 High Density Apartment Sites

1 - Site Area - 3.03 ac.; Max. FAR - 2.2; Approximate Total Units 380; Population Density - 280 People/ac. (Approximate)

2 - Site Area - 2.80 ac.; Max FAR - 2.2; Approximate Total Units 360; Population Density - 290 People/ac. (Approximate)

3 - Site Area - 1.55 ac.; Max. FAR - 2.2; Approximate Total Units 190; Population Density - 280 People/ac. (Approximate)

7 - Site Area - 1.55 ac.; Max. FAR - 2.2; Approximate Total Units 190; Population Density - 280 People/ac. (Approximate)

8 - Site Area - 0.91 ac.; Max. FAR - 2.2; Approximate Total Units 100; Population Density - 250 People/ac. (Approximate)

10 - Site Area - 3.50 ac.; Max. FAR - 2.2; Approximate Total Units 445; Population Density - 290 People/ac. (Approximate)

11 - Site Area - 3.40 ac.; Max. FAR - 2.2; Approximate Total Units 430; Population Density - 290 People/ac. (Approximate)

12 - Site Area - 3.43 ac.; Max. FAR - 2.2; Approximate Total Units 440; Population Density - 295 People/ac. (Approximate)

13 - Site Area - 3.47 ac.; Max. FAR - 2.2; Approximate Total Units 445; Population Density - 295 People/ac. (Approximate)

4 - Existing RM3 Apartment Site

5 - Proposed C3 Commercial

6 - Hasting Street Urban Renewal Area

9 - Proposed C3 High Density Commercial

Existing & Proposed RM3 Medium Density

Proposed C3 Commercial

Major Pedestrian Links

Note: See revised subarea plan for the Urban Renewal Precinct adopted by Council on 78/01/23.

FIGURE NO. 9

OFFICIAL LAND USE PLAN:

(Ref. Date: June 1969)

North

0 200' 400'

COMMUNITY PLAN THREE

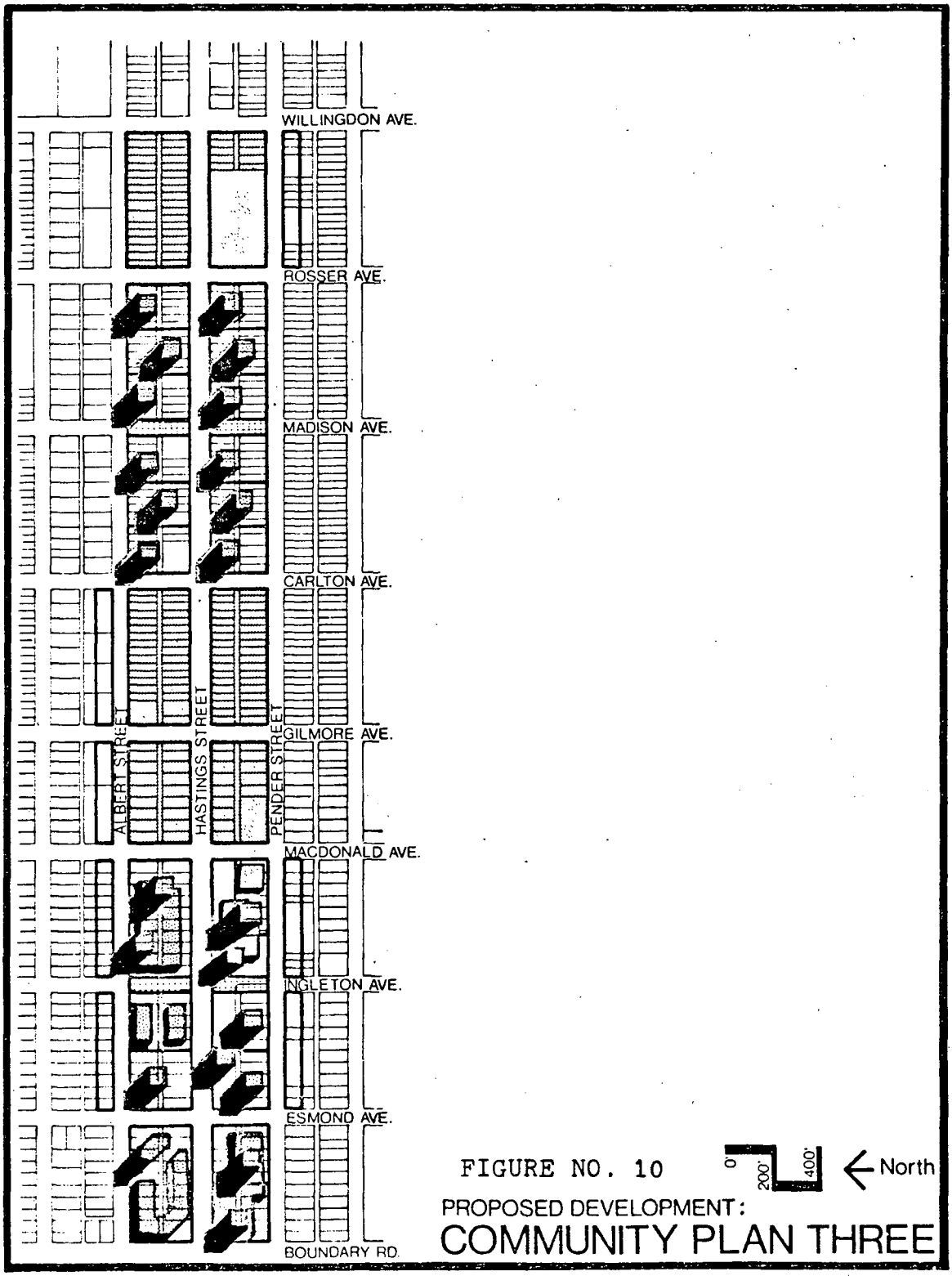


FIGURE NO. 10

PROPOSED DEVELOPMENT:

COMMUNITY PLAN THREE

buildings set well back from the street as specified in the schematic concept, and presumably, large integrated commercial developments focusing on an interior mall.

The effect of the plan, if fully implemented, would be to raise the population by 7,000 to approximately the saturation level estimate of the Burnaby Planning Department.[2] The existing ribbon commercial development within the designated area would gradually be eliminated. Some ground floor commercial space would be allowed under the terms of the Comprehensive Development zoning designation. The existing core commercial area and the convenience centre at the Willingdon Avenue intersection would remain in their present location, but would be redeveloped at a higher density.

Fundamental to the plan is the consolidation of the highly fragmented land ownership of the area, consisting chiefly of single, twenty five to fifty foot frontage lots, into large through lot parcels. The concept requires land closures plus extensive utility rerouting, and it has proven to be extremely difficult to implement. Apart from the urban renewal site, only one proposal to develop in accordance with the Community Plan has been received and that has not gone forward, even after several years of negotiation. Other projects do not appear to be under active consideration by developers, as an analysis of current

land ownership indicates that no serious move to assemble a major parcel for development is occurring[3].

Considerable pressure for additional small scale development has been received by the Burnaby Planning Department. Through the operation of their Preliminary Plan Approval process, they have followed a policy of discouraging new proposals for small scale commercial development, except in cases where they are located adjacent to areas of good quality two storey development, or where they could be integrated into a future comprehensive development in accordance with the Community Plan. Over the past ten years, a number of banks and two storey commercial buildings have been constructed under this policy. There may be some question as to the legality of this policy, since the Community Plan has not been officially adopted in accordance with Section 697 of the Municipal Government Act. Presumably, Section 702AA(1)(d) gives some legitimacy to the policy, since it allows municipalities to give consideration to "the fulfillment of community goals" in the exercise of zoning powers.

It would appear that the development objectives of the Community Plan have hindered normal redevelopment investment in the area. Burnaby has chosen to forego modest incremental commercial redevelopment in favour of large scale comprehensive redevelopment in order to

radically change the character of the area. Ten years later, the objectives of the plan have not been achieved. To understand the reasons for this, it is helpful to consider some of the advantages and disadvantages of large scale development projects as real estate investments.

The primary advantage of large scale redevelopment is that it has the potential to generate a larger overall return. All unit costs being equal, a large scale development will produce a larger return than a small scale development. More important are the economies of scale on fixed cost items in construction--principally land, but also amenity costs and overhead expenses. Large scale developments are able to provide better facilities and have higher quality design than small scale developments because costs are distributed more efficiently. Some of these fixed cost economies may be absorbed by more expensive construction costs due to higher standards of construction and additional structural requirements, but with careful design and choice of materials, in place unit costs for reinforced concrete highrise development equal to those for lowrise frame construction are feasible.[4]

Savings in maintenance costs can also be realized by utilizing fixed cost expenses such as janitor or caretaker services more efficiently. Insurance rates also tend to be lower, though the locale of the building is often more

important than the type of construction. As large scale developments tend to be constructed of more durable materials, a developer can frequently obtain a lower mortgage interest rate.

There are intangible benefits which can affect the value of the development. Size is an indication of status in our society, and this tends to make large scale developments immune to adverse neighbourhood effects which can affect the property values of small scale developments. The higher status also allows them to command higher rents.

On the other hand, there are also disadvantages to large scale development, primarily during the development process. These projects are more complex and there is a higher risk of loss of the initial investment. Fewer developers have the capacity to undertake major proposals. Markets for large scale structures are less common and sites are more difficult to obtain. Overhead costs prior to construction tend to be higher. This results in a greater need for a developer to be able to minimize risks by hedging them with other parties involved in the development, since the scale of the investment is so much greater. A developer must weigh the disadvantages against the apparent advantages prior to undertaking a development scheme.

Feasibility Analysis of Community Plan Proposals

In order to test the feasibility of the Hastings Street Community Plan, a pro forma land residual analysis of a typical high density residential project for the area was prepared. The results are shown in Figure No.11. The site is located on the eastern edge of the core commercial area. The development proposal is a 12 to 15 storey highrise condominium with a maximum FAR of 2.2, containing 122 residential units plus underground parking. Current Vancouver market rates for costs and revenues are used in the analysis.[5,6,7]

The overall land residual value of $1,216,679 is equivalent to a per square foot value of $24.72. This figure must cover the cost of assembling the site, holding it until the project receives official approval, clearing the existing improvements from the site, and paying for utility relocation and other site levies required by the municipality. Present land values in the Community Plan area are shown in Figure No.5, Chapter III. The range is from $13.50 to $27.00 per square foot. Since improvement values would increase these figures by a factor from 1.0 to 4, it is evident that only a few locations in the less intensely developed ribbon commercial area with low improvement value are feasible for redevelopment.[8] Locations of structures rated as poor quality by the

FIGURE NO. 11

PRO FORMA ANALYSIS:

HIGH DENSITY RESIDENTIAL CONDOMINIUM DEVELOPMENT

Assumptions

1. Location: Western 1/3 site 10 (refer to Figure No. 9)
2. Area 1.13 acres
3. FAR 2.2
4. Total Units 122

Cost Analysis

Building hard cost (average size of unit 800 sq.ft.) @ $27 per gross sq.ft. @ 90% building efficiency	$ 2,928,000
Plus parking @ 1.25 stalls per unit $ 4,500 per stall	$ 686,250
Total hard cost	$ 3,614,250
Soft cost @ 27% of hard cost	$ 975,848
Total capital cost excluding land	$ 4,590,098

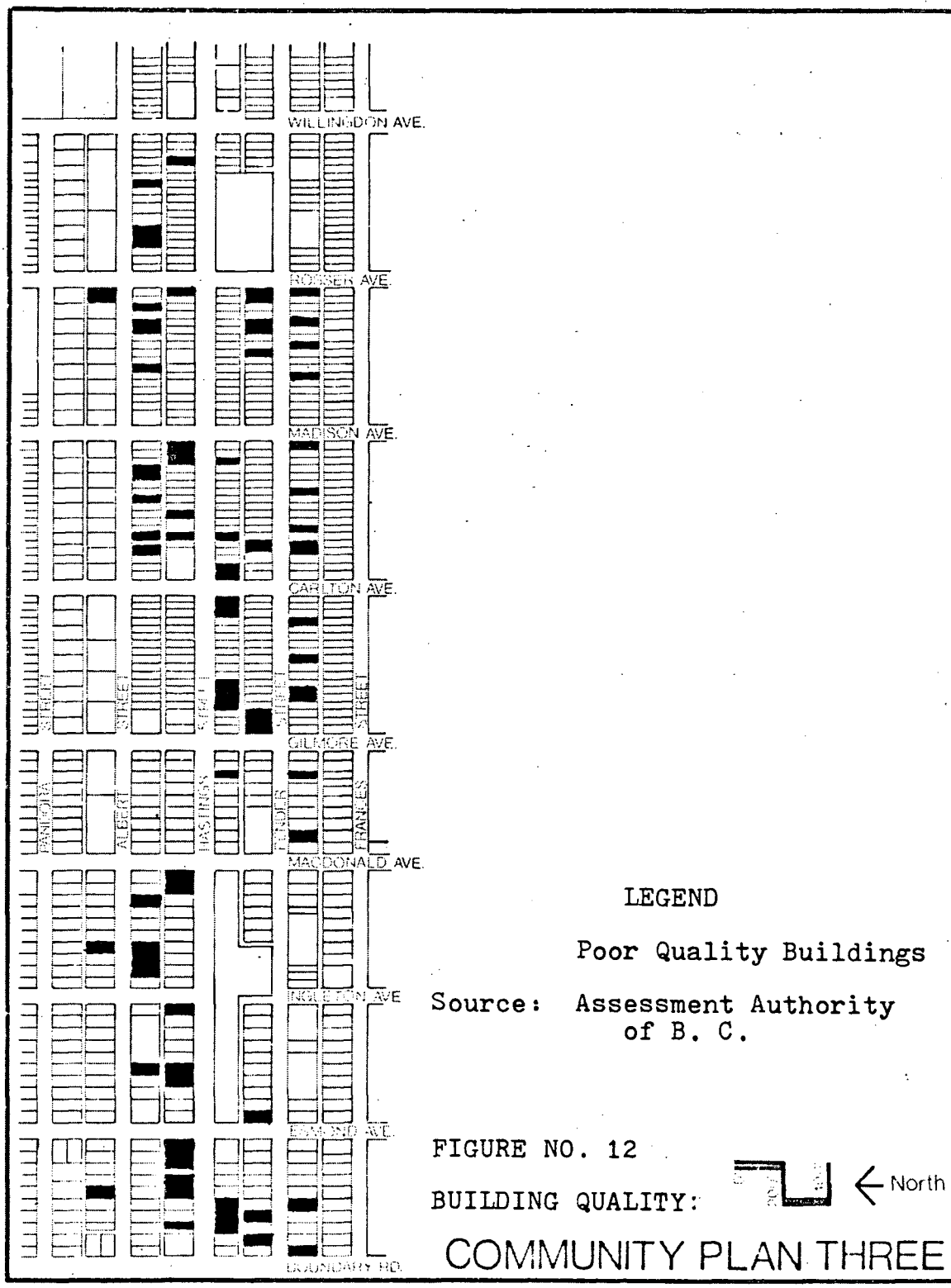
Revenue Analysis:

Total selling price $55,000 per unit	$ 6,710,000
Less capital cost	$ 4,590,098
Less profit to developer @ 15% of total cost including land	$ 903,223
Residual Land Value	$ 1,216,679

Value of land per square foot $24.72

the Assessment Authority of B.C. are shown in Figure No. 12. Their widely scattered locations make it highly unlikely that a large enough site to permit highrise residential development could be assembled at a feasible price. Any major improvements or holdouts by existing landowners would push the land costs well above the feasible limit. Clearly, the risks involved in assembling a suitable site are not justified by the revenues generated from residential development.

A possible case for redevelopment could be made if some other uses could be included in the proposal. Commercial and office development usually generate a higher rate of return per unit of space. Several factors tend to mitigate against that possibility, however. The first is the low estimated sales volume for existing businesses located in the area shown by the market analysis. Despite an anticipated population growth of 7000 persons, only moderate increases in the size of the market are projected. Yet the size of the proposed development sites requires that any commercial development be fairly extensive. All parcels have at least 200 feet of frontage. If developed to a depth of 100 feet, this would result in 20,000 square feet of commercial space. That large a component of commercial space would be necessary to have a significant impact on the economics of the project. Most of the potential tenants would be small since major tenants are already present in the study areas or in the Brentwood Mall. Without


WILLINGDON AVE.
ROSSER AVE.
MADISON AVE.
CARLTON AVE.
GILMORE AVE.
MACDONALD AVE.
INGLETON AVE
BOUNDARY RD.
PANDORA STREET
ALBERT STREET
HASTINGS STREET
FENDER STREET
FRANCES STREET
LEGEND
Poor Quality Buildings
Source: Assessment Authority of B. C.
FIGURE NO. 12
BUILDING QUALITY:
North
COMMUNITY PLAN THREE

a long term commitment from a major tenant, a developer would have difficulty securing long term financing for a project of that size.

From this brief analysis, the conclusion is that the Community Plan has little chance of being implemented under current market conditions. Land prices are too high to attract residential development at the specified density, and the market for commercial development is too limited. As it now stands, the plan appears counter productive to the viability of the area as a district commercial centre. Probable consequences include the hindrance of normal redevelopment, the escalation of land prices above their realistic market value, and a decline in the quality of existing structures due to uncertainty by owners regarding the value of routine maintenance. A plan more suited to current market conditions would offer more benefit to the area.

The Revitalization of Retail Districts: An Alternative to Redevelopment

In recent years, there has been a growing trend in planning thought towards conservation of declining urban areas rather than redevelopment. In part, this has been due to the drying up of funds for urban renewal programs. Perhaps more significant, however, has been the growing interest of the public in planning issues and the commonly

expressed desire to preserve the basic character of older urban areas. As Kevin Lynch writes, "We prefer a world that can be modified progressively against a backdrop of valued remains..."[9] Successful examples of revitalization of declining areas through conservation techniques has cemented the conviction that in many instances redevelopment is not the best approach.

Revitalization is not a new approach. It is applied universally throughout the world to adapt the physical heritage of the past to the rapidly changing requirements of the present society. Revitalization techniques take many forms--routine maintenance and repair of aging structures, beautification and redecoration of structures and accompanying fixtures, renovation, restoration, adaptive re-use, even redevelopment when it is done in harmony with surrounding structures. Property owners undertake these actions to preserve the value of their property.

When revitalization techniques are part of a co-ordinated program, they can become a powerful tool for urban planning. They can be applied to both residential and commercial situations, but perhaps are most successful when the co-operation of the entire community is obtained. Local examples of the revitalization approach include the restoration of Gastown and many of the projects

undertaken by the Vancouver Local Area Planning Program.

While every situation is unique, the development of a revitalization program generally has seven steps:[10]

i. Initial organization phase
ii. Development of public support
iii. Goal identification
iv. Definition of program objectives
v. Final plan preparation
vi. Program implementation
vii. Continuing management

The steps do not always follow in this sequence but will be discussed in that manner. There must be an initial group to co-ordinate the various aspects of the program and to stimulate further community support. There are a variety of groups that could undertake the task, but it is important that the group have a fairly broad initial basis for support from the community. It could be a non-partisan community organization or a particular interest group affected by the program. Frequently, the Local Business Association will take the initiative in a commercial revitalization program since they stand to gain the most from the results.

The first task of this initial group is to stimulate public support for the program. Public meetings and presentations are a common method of generating this

support. Examples of successful programs can be used to illustrate the impact of revitalization. It is important to generate feedback. The use of a brochure and questionaire, distributed at meetings or through the mail to local residents, is a valuable means of generating further support.

Assisted by the comments of interested groups and individuals, the initial organizing group can then draw up a list of goals for the program to address. These goals will provide the basis for more specific program objectives. Objectives will be defined by examining various possible alternative programs and policies to implement goals. Gradually, the range of options will be narrowed to a group of feasible actions which will constitute the final plan. Further preparation will be necessary to bring this list of actions to the implementation stage. Implementation will involve obtaining the necessary funding to carry out the various programs decided upon in the final plan. Some of these programs will deal with the establishment of policies to enable the area to remain viable in the future.

Feasibility analysis provides a means for defining the nature of the final programs. Because the scope of revitalization policies is so wide, a single analytical technique such as land residual analysis will not provide sufficient information. A variety of techniques must be used to relate costs to areas of specific benefit.

To illustrate the use of feasibility analysis in the public sector, four separate programs that together could constitute a revitalization program for the Hastings Street study area will be outlined. A proposed land use map and a schematic concept are shown in Figures No. 13 and 14. The four programs are street beautification, rehabilitation of existing commercial structures, selective redevelopment, and continuing management programs.

Improving the appearance of the area should be one of the basic program objectives. Unpleasant surroundings are a strong deterrent to people using a commercial area on a consistent basis. To promote such an area is a self defeating act.

Most retailers realize this and attempt to present as good an image to their customers as they think is possible. However, the image that people have of a commercial area is determined more by the relationship between the various components of the whole area than it is by a single store.

Most people would agree that the image of Hastings Street is a chaotic one with a multitude of signs, traffic, parking lots, and buildings of all sizes, scales, and designs competing for attention. Consequently, most landowners do not appear to place much attention on the appearance of their premises beyond maintaining the

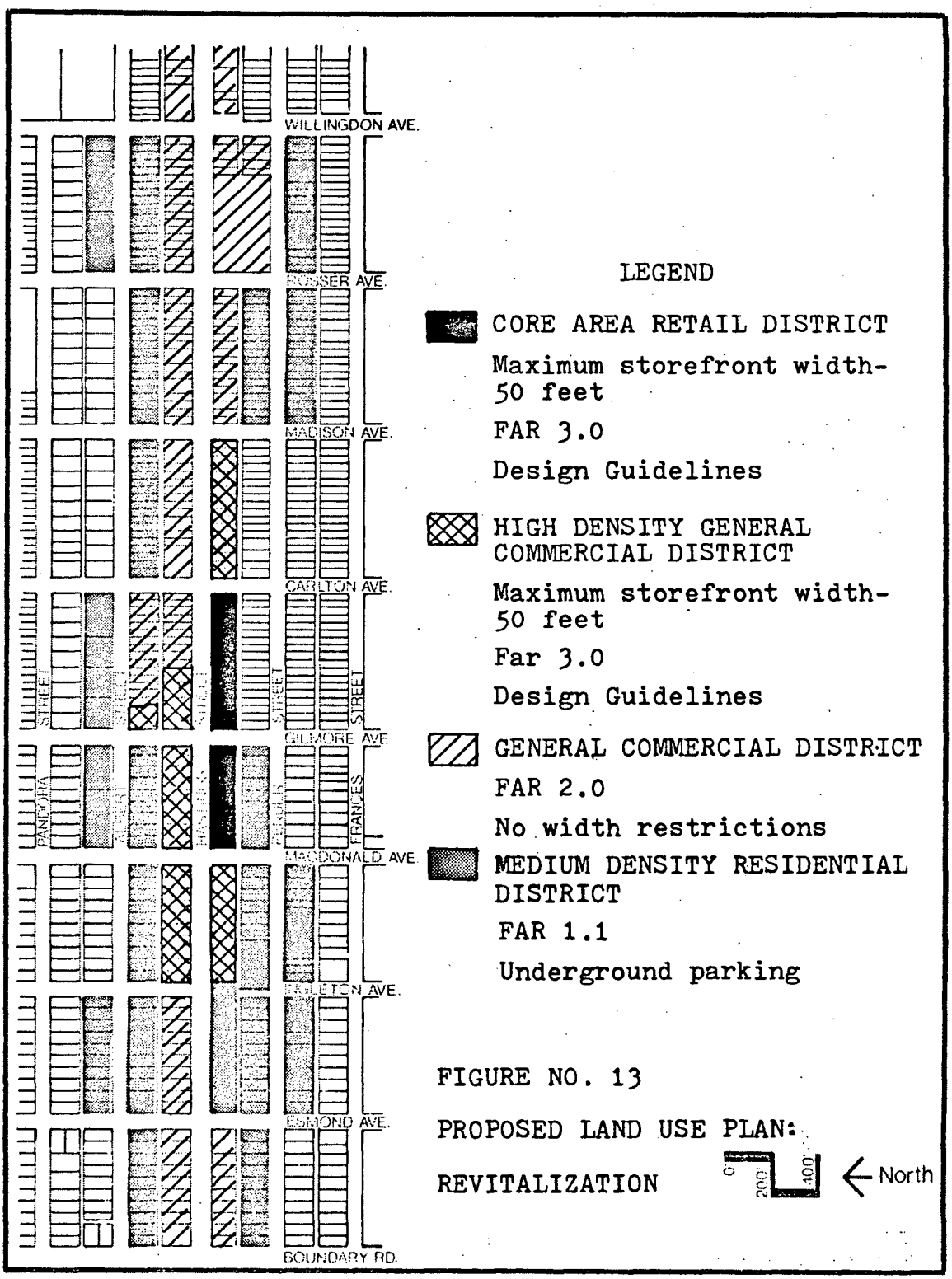

WILLINGDON AVE.
ROSSER AVE.
MADISON AVE.
CARLTON AVE.
GILMORE AVE.
MACDONALD AVE.
ARLETON AVE.
EDMOND AVE.
BOUNDARY RD.
STREET
FRANCES
LEGEND
CORE AREA RETAIL DISTRICT
Maximum storefront width-
50 feet
FAR 3.0
Design Guidelines
HIGH DENSITY GENERAL
COMMERCIAL DISTRICT
Maximum storefront width-
50 feet
Far 3.0
Design Guidelines
GENERAL COMMERCIAL DISTRICT
FAR 2.0
No width restrictions
MEDIUM DENSITY RESIDENTIAL
DISTRICT
FAR 1.1
Underground parking
FIGURE NO. 13
PROPOSED LAND USE PLAN:
REVITALIZATION
0
200'
400'
North

FIGURE NO. 14

SCHEMATIC CONCEPT:

REVITALIZATION

current standard of the area.

The key to improving the appearance of Hastings Street is to increase the legibility of the image which Kevin Lynch defines as, "... the ease with which its parts can be organized into a coherent pattern."[11] The principle sources of order in the area at the present time are the street and its associated common utility systems. By upgrading these facilities, it is possible to significantly improve the image of the entire area.

The major emphasis of the beautification program should be on creating an attractive environment for pedestrians since they generate the largest amount of trade. It is important to develop a number of unifying design themes to strengthen the common identity of the area. Of prime importance is the treatment given to the sidewalks. Most programs incorporate special paving materials and matching crosswalks where feasible to emphasize the pedestrian nature of the area. Other unifying themes might include benches throughout the area for people to rest and landscaping of boulevards to provide some separation between the sidewalk and the street. Decorative lighting fixtures at a lower level than the overhead light standards serving traffic would also help to distinguish the commercial area to pedestrians and passing motorists.

To be most effective, the improvements should emphasize the underlying order of the uses in the area caused by the clustering of complementary businesses. The major focus of improvements should be in the core-frame area which contains most of the shopping facilities and generates the largest amount of pedestrian traffic. Spreading the improvements throughout the ribbon commercial area would be a wasted effort since these facilities depend primarily on passing auto traffic for their business, or are large enough to generate their own trade.

It is not possible to judge precisely what the impact of the street beautification program would be on retail sales since many other factors have to be considered. However, the impact of its costs can be evaluated more realistically by comparing it with current levels of retail sales. A rough measure of cost effectiveness can be obtained by comparing the cost of a street beautification project to the cost of other methods for improving the appearance of the area, such as rehabilitation or redevelopment.

A cost estimate can be determined by analyzing another comparable project. The West Broadway Street Beautification program, incorporating many of the elements mentioned above, was constructed by the City of Vancouver in 1976 at a cost of $80.00 per frontage foot.

Amortization over fifteen years at an interest rate of 9% compounded semi-annually, with the property owners paying two-thirds of the total cost as a local improvement charge, resulted in an annual outlay of $7.00 per frontage foot.[12] For an average one storey building eighty feet in length, the cost would be under ten cents per square foot. This is less than 0.5% of the lowest per square foot sales estimate from the trade area analysis of the previous chapter. No other form of improvement to the area could generate as much positive impact for such a minimal outlay. Clearly, the street beautification program is a cost effective means to upgrade the appearance of the area.

Further improvement in the image of the area could be obtained by an area wide rehabilitation program. A more ambitious rehabilitation effort would focus on the function of retail outlets so that they could compete more effectively with more modern retail centres. Though the basic operation of a retail store is relatively simple, there have been many design improvements introduced which have a significant impact on the success of a retail venture.

The primary factor in the appearance of a retail outlet is the store front. This is a small store's best advertisement. Whatever form it takes, it has a definite job to do. First, it must catch the eye by being well

organized and interesting. Second, it must identify the store and give a general impression of the store proprietor and the type of merchandise he offers. Third, it must act as a stage for the display of merchandise. Fourth, it should pull people into the store.[13]

It is not the purpose of this thesis to discuss store front design. However, the latter point requires further elaboration. In order for people to effectively view a store front display, they must be drawn out of the main pedestrian traffic stream. The recessed store front or arcade is one of the most effective means of doing this. Besides giving people an opportunity to stop and browse, it also increases total effective window space. The loss of selling floor space is more than made up by the increased drawing power generated by the recessed shop window.

Too much variation among store fronts can destroy the impact of tasteful individual designs. Co-ordination of rehabilitation efforts is possible by means of uniform standards for store dimensions, store fronts, signs, exterior materials, and colours. The arbitrary nature of standards can be softened through the establishment of a design review panel made up of representatives of the area to critically judge the suitability of exterior renovations. While harmony among store front designs

is desireable, it should not be achieved at the expense of individuality. The best solution is often for merchants to pool their resources and hire an architect to co-ordinate the design of several stores.

Significant improvements in the operation of a store can be made through renovation of the interior. Once a customer is in the store, he still needs to be convinced to purchase the merchandise. It should be displayed attractively in a manner which promotes maximum sales. Just as there are classes of retail outlets selling different kinds of merchandise, there are also sub-classes of merchandise which have different selling requirements.[14] Impulse goods are luxuries or suddenly desired merchandise, depending for sale on good display and accessibility. Convenience goods are staple items of standard quality, use, and popularity. Demand goods are necessities that bring in a steady flow of customer traffic.

The economic success of any store depends on how well it stimulates impulse buying. Thus, a store must be planned to give impulse goods maximum exposure. Typically, they should be located at the front of the store, followed by convenience items in the centre, and demand items at the rear. Displays should follow in a logically related sequence to provide cues to other impulse purchases.

Unfortunately, psychological factors make it difficult to precisely classify a particular type of merchandise. Depending on the nature of a customer's other purchases and the mood involved at the time of sale, a roast, a stereo recording, or a dress may be an impulse, convenience, or a demand item. Consequently, the layout of the store should be flexible enough to accomodate changes in buying habits which occur from time to time. Like the store front, the interior layout of a store should also act as a stage for the presentation of merchandise.

The extent of commercial rehabilitation should be related to the increase in the volume of sales anticipated from the improvements. Again the trade area analysis of the previous chapter can provide the basis for an estimate of the expected impact of rehabilitation. This is useful for judging the amount of emphasis that should be placed on the program and for convincing merchants of the value of rehabilitation expenditures.

The trade area analysis indicated that the three classes of retail outlets most adversely affected by quality deficiencies are general merchandise, soft lines, and hard lines. Removal of these quality deficiencies would have resulted in a 67% increase in the trade estimates for general merchandise and soft line outlets, and a 25% increase for hard line outlets. Some of those quality deficiencies are related to scale advantages

enjoyed by the competition, so it is unlikely that they could be completely eliminated by a program of rehabilitation. However, many of them could, and it is useful to examine the cumulative economic impact of those increases. Allowing for a 50% margin over the cost of goods for soft line outlets and a 40% margin in the case of general merchandise and hard line outlets, results in an estimated net annual increase in available per square foot revenue of $7.74, $5.15, and $7.88, respectively, at current sales levels. If this were amortized over 10 years at an estimated second mortgage rate of 14% compounded semiannually with level monthly payments, it would permit a total investment of $42.18, $28.06, and $42.94 per square foot for store improvements in the three retail lines. This is sufficient to cover the most ambitious renovation and would justify redevelopment if warranted by structural conditions. An investment of this magnitude is unlikely to be made because of other costs connected with running a retail business, but the example does illustrate the impact that renovations can have on sub-standard businesses.

It is more difficult to justify renovations for other lines of retail outlets and services. Due to a lack of competition, these outlets appear to be able to capture an adequate share of the market. Renovations must therefore be justified as part of general maintenance costs, or as a means to prevent the erosion of the market

by new competition. Each individual merchant would have to justify the expense of renovations based on his own experience. One possible source of increased trade might be an increase in the non-resident trade flow ratio. More people might be drawn from outside the surrounding trade area if there were more specialty retail outlets. Implementation of revitalization programs might be a sufficient incentive to attract more of these outlets to the area.

Street beautification and rehabilitation programs can only provide a partial solution to the decline of the Hastings Street study area. Over the long term, there is also a need to replace obsolete structures that cannot be rehabilitated and introduce new uses which cannot be incorporated into existing structures. Fundamental to long term stability of the area is the adoption of a redevelopment policy which results in new development similar to that which already exists, yet provides investment opportunities for landowners. Experience in other areas indicates that it is possible to incorporate new development into an existing commercial area if the uses are compatible, and if they are designed in a manner which complements existing building forms. Both factors can be covered by changes to the present Zoning Bylaw.

The first step should be to reclassify land uses

permitted in the various zoning districts in accordance with the principles of retail compatibility.[15] These principles are as follows:

i. Classifications of land uses permitted within the various zoning districts should be arranged to include primarily those uses which draw on trade that is mutually interchangeable. The two zoning districts presently covering the study area allow too much variation in the range of permitted uses to foster the development of strong retail compatibility.

ii. Uses should not be allowed to create interruptions in the pedestrian traffic flow past adjacent retail establishments. Such interruptions are created by dead spots where a pedestrian loses interest in walking further--driveways, or physical breaks in the building frontage; excessive cross traffic; and environmentally deleterious qualities such as noise, hazards, smoke, or unsightliness.

iii. Businesses which create excessive congestion should be placed in separate classifications unless there is a clearly indicated mutual economic advantage.

v. Except where adequate off-street parking is provided, businesses which generate excessive long term parking should be separated from those generating primarily short term parking.

The presence of retail compatibility in the core-frame of the study area has already been demonstrated. The area should be designated as a separate zoning district in order to encourage further compatible development. Non-compatible development should be restricted to the ribbon commercial area. The proposed boundaries for the new zoning district are shown in Figure No. 13. Permitted uses in the district should include all convenience and shopping goods outlets, personal and financial services, and restaurants. Other office development should be restricted to second floor locations only, in order to avoid the development of further dead spots for pedestrian traffic. Ancillary residential use above the first floor would also be permitted.

Designation of the core-frame area as a separate zoning district would limit its size to the present 244,480 square feet of floor space. Further retail development should be incorporated by displacing existing non-retail uses which are more appropriately located in the adjoining ribbon commercial area.

Regulations for the new zoning district should incorporate guidelines controlling the character of new

development. New buildings should complement existing building forms in the area. They should be of a similar height and width with common design features and finishing materials. Maximum store width should not be more than fifty feet, and maximum height should not be more than three stories. The suitability of the design should be considered by a design review panel in the same manner as store front rehabilitation is considered.

Critical to the success of the new redevelopment policy is whether developers can conform to the proposed development standards and still realize an adequate return on their investment. The density of development under the proposed standards would be somewhat less than that permitted by the Hastings Street Community Plan. However, this is compensated by the higher return per unit of area generated by commercial development.

Figure No. 15 shows a pro forma analysis for a two storey commercial-office development meeting the standards of the proposed core zoning district. The development proposal generates a land residual value of $21.13 per square foot which is only slightly lower than that available from the highrise condominium proposal shown in Figure No. 11 for the Hastings Street Community Plan ($24.72). However, there are fewer barriers than for the condominium proposal. Only a single lot is required so the developer is free to

FIGURE NO. 15

PRO FORMA ANALYSIS:

TWO STOREY COMMERCIAL-OFFICE DEVELOPMENT

Assumptions

1. Location: 4000 block North side, Hastings Street
2. Lot dimensions: 34' x 122'
3. Building dimensions: 34' x 72' Brick construction
4. Building area: 4896 square feet (FAR 1.2)
5. Parking requirements: 1 stall per 500 sq. ft. of building area

Cost Analysis

Building hard cost	
retail shell @ $34 per sq.ft.	$ 83,232
office space @ $30 per sq.ft.	$ 73,440
Plus basement level for five parking stalls @ $8 per sq. ft.	$ 19,584
Total hard cost	$176,256
Soft cost @ 30% of hard cost	$ 52,877
Plus tenants' allowances @ $4 per sq.ft.	$ 19,584
Total capital cost excluding land	$248,717

Revenue Analysis

Rental revenue-commercial @ $10 per sq.ft. (net) @ 95% building efficiency	$ 23,256
-office @ $8.50 per sq.ft. (net) @ 95% building efficiency	$ 19,768
Less vacancy allowance @ 5%	2,151
Effective gross income	$ 40,873
Less expenses @ 7% of effective gross income	$ 2,861
Plus parking @ $90 per space per year	$ 900
Net Revenue	38,912
Net income capitalization rate 10%	
Building value	$389,120
Capital Cost	$248,717
Developer's profit @ 15% of total cost including land	$ 52,773
Residual Land Value	$ 87,631
Value of land per square foot $21.13	

choose a site with low improvement value. Since there is no need to assemble a number of lots into a large parcel, the holding period prior to development can be much shorter. Other advantages include reduced lead time prior to construction, few local improvement charges by the municipality, and significantly less risk during the construction phase. Given these advantages and the price of land in the area, low density commercial redevelopment appears to be a feasible policy.

The fourth program in the proposed revitalization scheme would be the adoption of continuing management activities to ensure the continued success of the rejuvenated commercial area. Without them, the impact of other programs will be short lived. A number of these measures are not unlike those undertaken by developers to ensure the continued success of planned shopping centres.

Many of the activities would require the establishment of a strong local business association. The role of the association would be somewhat analogous to that of a shopping centre manager. It would provide a mechanism for organizing area wide activities and dealing with common problems. Examples of the type of activity which might be carried out by a local business association include the organization of promotional events, the development of common advertising programs for the area, the procurement

and management of off-street parking areas, and the co-ordination of maintenance and renovations to existing structures in the area.

Another important area which might be undertaken by a local business association is the organization of co-operative service programs to aid businesses too small to undertake them on their own. Such programs might include operating a centralized delivery service along the strip; hiring consultants on management, merchandising, and buying techniques; sponsoring a group insurance program; setting up a central fund for store improvement loans; making common credit arrangements, and so forth.[16] Adoption of these programs might assist small businesses to meet the competition from planned shopping centres. Further study by the business association would be required to determine whether they were feasible and actually served a useful function.

Other management programs would be carried out by the Municipal Corporation of Burnaby. They would relate to control of retail competition in the area and to the relationship between retail trade and population growth.

There is a need to protect the area from excessive retail competition. No further retail development outside of the area should be permitted unless warranted by

population growth. Particularly important is the need to restrict the incremental expansion of the Brentwood Mall. The scale economies already present there would make it difficult for study area retail outlets to compete effectively against additional mall development. With the levelling off, of consumer incomes, the control of competition will become increasingly important to the success of existing retail areas.

There is also a need to increase the size of the market to maintain the size of the existing retail sector. As was pointed out in Chapter II, decreasing margins require that existing retail space be utilized more efficiently. Since highrise residential structures do not generate sufficient revenue to meet existing land costs in the study area, other means for increasing residential development must be found.

Two solutions are the designation of additional areas adjacent to the study area for medium density apartment development, and the adoption of measures to encourage the replacement of obsolete single family housing with higher density infill units compatible with other single family development. Land prices in the surrounding residential areas are less than half those encountered in the study area, so lower density residential development is a feasible alternative. It is also more

compatible with the physical and socio-economic environment of the area. A pro forma land residual analysis of medium density apartment development is shown in Figure No. 16. It produces a land residual of $8.86. At current land prices, this provides sufficient incentive for developers to undertake redevelopment.

Summary and Conclusion

The purpose of this chapter has been to examine the fiscal aspects of alternate approaches to strip commercial redevelopment. The first section outlined the nature of real estate investments and the techniques used by the development industry to judge the feasibility of new development projects. The present Hastings Street Community Plan was then evaluated using the land residual technique and was judged not to be feasible under current market conditions. Despite having the highest land residual value of any of the development alternatives considered, the difficulties of assembling a suitable site for a highrise condominium were not adequately compensated for.

In subsequent sections, an alternative plan of commercial revitalization was presented. The plan consisted of four separate programs--street beautification, rehabilitation of existing structures in the area, a new redevelopment policy compatible with existing forms of development in the area, and continuing management

FIGURE NO. 16

PRO FORMA ANALYSIS:

MEDIUM DENSITY RESIDENTIAL CONDOMINIUM DEVELOPMENT

Assumptions

1. Location: 3800 block Pender Street
2. Lot dimensions: 150'x122'
3. Building dimensions: 116'x58' Frame construction
4. Building area: 20184 square feet (FAR 1.1)
5. Parking requirements: 1 per dwelling unit (underground)
6. Total units: 22

Cost Analysis

Building hard cost (average size of unit 825 sq.ft.) @ $27 per gross sq.ft.	$544,500
Plus parking @ 1 stall per unit @ $4,000 per stall	$ 88,000
Total hard cost	$632,500
Soft cost @ 25% of hard cost	$158,725
Total capital cost excluding land	$790,625

Revenue Analysis

Total selling price @ $50,000 per unit	$1,100,000
Less capital cost	$ 790,625
Less profit to developer @ 15% of total cost including land	$ 147,211
Residual land value	$ 162,164

Value of land per square foot $8.86

programs to maintain the viability of the area as a retail centre in the future. Methods for evaluating the feasibility of selected aspects of these programs were also presented.

The conclusion from this chapter is that revitalization is a more realistic policy for Hastings Street than is comprehensive redevelopment. Under current market conditions, there are significant barriers to highrise residential development. Opportunities for generating an adequate return on investment appear more plentiful under a policy of commercial revitalization. In addition, there are significant monetary and non-monetary benefits to the rest of the community. The next chapter provides a more comprehensive discussion of the nature of the costs and benefits for the proposed schemes.

Footnotes

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[7]M. Cole, interview, Assessment Authority of British Columbia, Burnaby and New Westminster office, Burnaby, B.C., February, 1979.

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[9]K. Lynch, What Time is this Place? (Cambridge, Mass.: M.I.T. Press, 1972), p. 39.

[10]Private Revitalization of Downtown Inc., Revitalization of Downtown: Self-help Guidelines for the Smaller City (Santa Cruz: P.R.O.D., 1975), pp.39-46.

[11]K. Lynch, The Image of the City (Cambridge, Mass.: M.I.T. Press, 1960), pp.2-3.

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[13]Morris Ketchum Jr., Shops and Stores (New York: Reinhold Publishing Co., 1957 Revised Edition), p. 124

[14]Ibid., p. 16.

[15]R.L. Nelson and F.T. Aschman, Conservation and Rehabilitation of Major Shopping Districts (Washington: Urban Land Institute, Technical Bulletin No. 22, 1954), p. 36.

[16]City of Toronto Planning Board, Toronto's Retail Strips (Toronto: The Board, 1976), p. 43.

CHAPTER VI

EVALUATION OF ALTERNATIVES: REDEVELOPMENT OR REVITALIZATION

Introduction

The previous chapter attempted to compare the economic consequences of redevelopment to those of revitalization. The conclusion was that although redevelopment offered the potential of higher returns to property owners, there was greater security of return to investors from revitalization.

Public decision makers faced with this conclusion would require further information before making a decision in favour of one plan. There are significant monetary and non-monetary costs and benefits to other interest groups within the municipality which also need to be considered.

The most common method for obtaining this information is to call for public reaction. Unfortunately, this approach is not always effective. There is often a great deal of misunderstanding about the nature of the proposals. Conflicts between opposing interest groups are a frequent occurence. The decision maker is often left with an incomplete, fragmented view of the respective impacts of the proposals upon which to base a decision.

Evaluation research provides a means for decision makers to more thoroughly assess the impacts of alternate planning proposals. The most widely accepted evaluation technique is cost benefit analysis. This technique is commonly used in the private sector, and real estate feasibility analysis techniques presented in the previous chapter are a variation on the basic methodology.

Cost benefit analysis is not always well suited to the evaluation of public sector alternatives. Multiple objectives must frequently be accounted for; the scope of costs and benefits is generally much wider; non-monetary considerations must be taken into account. Another group of techniques has been developed to handle these problems. Two of the most advanced techniques are the Goals Achievement Matrix, developed by Morris Hill, and the Planning Balance Sheet, developed by Nathaniel Litchfield.[1,2] Both methods attempt to extend the cost benefit methodology to adequately address public sector decisions.

The most comprehensive approach is the Goals Achievement Matrix. It attempts to measure the achievement of common societal goals with respect to more or less homogeneous interest groups. Both the importance of the goals and the importance of the interest groups are recognized in the final result by a weighting system. The decision maker need only accept or reject the final

recommendation.

The Planning Balance Sheet approach rejects the notion of common societal goals. Society is assumed to consist of a large number of distinct interest groups, each with their own set of objectives. The technique uses these objectives to measure the costs and benefits which accrue from alternate courses of action. The various costs and benefits are then aggregated to determine the recommended alternative. Prior to acceptance, the decision maker must consider the relative importance of each interest group. Litchfield argues that determining weights is a matter of ethical judgement and that the role of the analyst is to point out the distributional effects.[3] The results can be used as a tool to optimize the final decision through modifications in the nature of the proposal or by shifting costs to equalize the distribution of benefits.

Both methods are similar in that the success of their application depends on the nature of the goal statements against which the costs and benefits of alternate actions are measured and on the nature of the data upon which the analysis is based. Ideally, goal statements should be obtained directly from interest groups through market research. Unfortunately this is not always possible. A less satisfactory approach is for goals to be imputed to society or the affected interest groups by the analyst, as was done in this study. It is

important that goals be stated in a manner that allows their achievement to be measured. Market value is usually the most accurate measure of costs and benefits and should be used whenever possible. Other units of value must be derived to estimate non-monetary costs and benefits.

Evaluation Methodology

As one of the purposes of this thesis is to show the differing implications for various interest groups of alternate development plans, the Planning Balance Sheet was chosen as the method of analysis. The Hastings Street Community Plan and the revitalization plan developed in the previous chapter were the subject of the analysis.

The limitations of the analysis are as follows:

i) First, the analysis assumes full completion of each project prior to estimation of costs and benefits. The degree of risk inherent in the plan for a given interest group to achieve gains is accounted for, but not the very considerable risk that redevelopment will not proceed as planned.

ii) Second, no attempt is made to discount for time despite the fact that benefits are achieved over different periods of time. This factor must be considered following

the analysis.

iii) Third, the evaluation is based on expert opinions formed by the analysis contained in previous chapters.

iv) Fourth, the evaluation does not consider the impact of other municipal programs such as transportation improvements on the fulfillment of plan objectives. It is assumed that both schemes would be equally affected.

The usefulness of the Planning Balance Sheet would be extended considerably by more extensive data collection, but that is beyond the scope of this thesis.

The first step in the evaluation is to identify all interest groups. They are divided into two categories as shown in Table XI. Producer/Operators, shown on the first page of the Table, are people or groups who play a part in providing services to be realized from the project. Consumers, shown on the second page of the Table, are people or groups who use the services provided and are paired with the corresponding producer/operators. Each associated pair of producer/operator and consumer is engaged in a transaction whereby the former produces goods for sale to the latter. These transactions are not confined to market goods and services. Indirect transactions are included as well. All producer/operators

and consumers encur costs and benefits which can be of three types:

i) Direct or Indirect--Direct relates to costs which the producer/operators or consumers must bear and to benefits which they can hold under current laws and customs. Indirect costs or benefits are externalities which cannot be exchanged with other parties for financial gain.

ii) Real (Technological) or Pecuniary--These relate to changes in established as opposed to new goods and services brought about by external events. Real costs and benefits occur when there are actual changes in quality. Pecuniary changes in value arise from relative changes in supply and demand.

iii) Real or Transfer--Real relates to the use of real resources such as men and materials to create value, while transfer relates to the growth in value of financial resources such as land which does not consume resources.

Table XI also contains the specifications for costs and benefits of producer/operators and consumers. The first and second columns to the right of the interest groups contain an estimate of the number of individuals affected in the group by each project. The third column

contains the instrumental objectives against which costs and benefits are measured. The fourth and fifth columns specify the units in which costs and benefits are transacted. Capital transactions are specified with a capital letter, while periodic transactions are specified with a small letter. Measurable quantities are specified with an Mm, Tt, Pp. (money, time, physical units) Unmeasurable quantities are specified as Ii. (intangibles) Costs and benefits of operators can usually be measured, even if indirect in the sense used here, but consumer costs and benefits are often intangible. Because of the generality of the plans, no quantities are specified in this analysis. Subjective judgement is applied to forecast the extent to which the plans will achieve the objectives of each interest group. Only net benefits and losses for each project are given. Objectives are weighted on a scale of one to three and achievement of goals is ranked on a scale of minus three to plus three. These are multiplied together to achieve a project score for each objective. Scores are then aggregated to achieve a final project score for each interest group.

This example differs from Litchfield's original Planning Balance Sheet as dissimilar measurement units are aggregated to produce a final reduction. In the original example only known money transactions were aggregated.[4] Other transactions were grouped together

in a reduction column. Equal costs and benefits for each project were omitted to simplify the analysis. An estimate of the magnitude of the outstanding balance was then made to determine which project was superior. While this approach is methodologically more correct, it results in a cluttered balance sheet which is difficult to interpret. The use of numbers to weight and rank objectives permits a much clearer presentation.

Application of the Planning Balance Sheet

The major interest groups considered in the analysis are shown in the following list:

Producer/Operators		Consumers	
1.0	Developers	2.0	New Users
1.1	Private Developers	2.2	Occupiers of New Buildings
1.3	Urban Renewal Corporation	2.4	Shopping Public
		2.6	Motor Vehicle Users
		2.8	Public at Large
3.0	Current Landowners	4.0	Current Occupiers
3.1	Displaced	4.2	Displaced
3.3	Not Displaced	4.4	Not Displaced
5.0	Municipality	6.0	Ratepayers
5.1	Municipal Costs		
5.3	Municipal Revenues		

The rationale for determining the allocation of costs and benefits from the two alternate schemes is discussed in the following section. The redevelopment and revitalization plans are referred to as Projects A and B, respectively.

Developers

Two classes of developers would be involved in either scheme. Private developers would construct the bulk of the new projects in exchange for a return on their investment. That return is a function of the instrumental objectives specified in Table XI. More developers would be involved in Project A than Project B. Development in Project A would be predominantly large scale highrise structures, as opposed to small scale redevelopment and rehabilitation in Project B. Large scale projects offer a greater potential for profit as there is less competition from other developers. However, the risk of loss of the initial investment during the construction period is greater than for small scale development due to the increased complexity of the project and the longer lead time necessary for completion. Higher overhead expenses are an additional problem. These disadvantages are compensated by a higher return on investment for the completed project due to economies of scale in the construction process and the more efficient use of fixed cost resources such as land. The completed project is a more secure investment for creditors and generally receives a lower mortgage rate. The projected income stream is also longer than for small scale redevelopment or rehabilitation. Overall, Project A has the potential for generating more benefits for developers than Project B,

although they would be distributed among a smaller group.

The urban renewal corporation is the second developer involved in the site. Its objectives are to recover a sufficient portion of the cost to assemble and clear the urban renewal site and to maximize the total benefits which accrue to the area from the project. Overall, the cost constraint outweights other considerations and the corporation would favour Project A.

New Users

Paired with the development interest group in Table A are the new users. Most significant of these are the occupiers of new buildings. Their benefits derive from four main instrumental objectives--location, suitability of the premises for the intended purpose, services available in the area, and the general environment. These are intangibles. A rough measure of the difference in benefits for a particular premises can be determined by examining market rents. It is assumed that the benefits derived by any occupier will exceed his costs. A comparison of the two schemes can be made by contrasting the quality of occupiers' benefits.

Mass Retailers

As was shown in Chapter II, the primary locational concern of retailers is the presence of an adequate trade

area. While the analysis of Chapter III shows that neither scheme will produce enough population growth to attract the largest mass retailers, Project A is somewhat more attractive since it places the largest group of people near the retail core. Modern facilities would be a further incentive, as would improved services such as more off-street parking and improved loading facilities. The extensive redevelopment would permit mass retailers to establish their own identity in the area rather than having to overcome the area identity established by the revitalization program of Project B. Clearly, mass retailers would favour Project A.

Independent Retailers

Independent retailers are smaller and do not require as large a market as do mass retailers. They benefit from the presence of other complementary businesses in an established retail area. Rehabilitation generally provides suitable space at lower cost than does redevelopment. New businesses also benefit from the presence of useful services established to serve the exiting business sector. The environment of an existing retail district is generally more suited to the independent retailer than is a redevelopment project. Consequently, Project B is the preferred alternative for independent retailers.

New Residents

New residential development is an important part of both plans. Highrise residential development would displace much of the existing ribbon commercial development in Project A, while lower density residential development would be dispersed throughout both the existing residential and commercial districts in Project B. The highrise development in Project A would offer a more central location and better transport and recreational services to new residents. However, the variety of different types of lowrise accomodation shown in Project B is more suitable for the bulk of the expected new population. The environment away from the noise and heavy traffic on Hastings Street is also more acceptable. Overall, the benefits of Project B outweigh those of Project A, although fewer people would be affected.

The Shopping Public

This is the second important group of users of the two projects. Its primary aim is to exchange money (cost) for goods and services (benefits). Both direct and indirect costs and benefits are involved in the transaction. A partial list of instrumental objectives includes selection, service, economy, environment, convenience, and safety. The extent of the benefits derived by customers depends on the type of retail

organization developed in the area. Independent retailers would generally provide better selection and better service because their efforts are directed at a more specialized market. Mass retailers, on the other hand, provide a narrower selection of a particular good but a wider total range of goods to cater to the largest market. They tend to have lower prices due to more efficient use of capital and labour, while convenience is superior due to larger, more efficient facilities. The difference in benefits to consumers is very small, but the final reduction shows Project B having a slight advantage for the shopping public due to better selection and better service from independent retailers.

Motor Vehicle Users

While not intended as transportation improvements, both projects would have a significant impact on traffic flow. Two basic types of traffic use Hastings Street--through traffic and stopping traffic. The amount of traffic would remain approximately the same in both projects.

Through Traffic

The objectives for through traffic are to maintain a reasonable speed, to be free of bottlenecks which cause congestion, and to be subject to minimal accident hazard.

The balance of costs on all three objectives favours Project A since it includes measures for channeling local traffic on to Albert and Pender Street, closing two cross streets, providing more off-street parking in new projects, and possibly constructing one or more pedestrian overpasses between major retail developments. Most of the improvements undertaken for Project B would tend to accentuate through traffic problems.

Stopping Traffic

The objectives for traffic wishing to stop in the area are low cost, ease of ingress and egress, and proximity. In general these goals are probably best met by Project B, which would differ very little from the present situation. New developments would be required to provide adequate parking, but most existing businesses would rely on, on-street parking. Due to the small size of the core area, there would likely continue to be sufficient free on-street parking in the commercial ribbon to satisfy most of the demand. In contrast, Project A would intensify parking pressure in the area from local residents and require the construction of underground parking facilities. There would likely be some cost to the consumer and the small scale of the parking structures would make ingress and egress difficult. In the reduction, the net advantage lies with Project B.

The Public at Large

This interest group would benefit from improved aesthetics of the area. The two instrumental objectives relate to overall architectural form and the nature of the general surroundings. Certainly, the redevelopment plan of Project A provides a better opportunity to create a clearer nodal identity for the area. However, it would involve a long process to achieve that identity, and there would be many unpleasant consequences for the surrounding environment. The purpose of Project B is to strengthen the identity of the area by improving the present surroundings. Benefits of the project are immediate, whereas the benefits of improved urban form take a long time to achieve and are less tangible. Overall, the net advantage to the general public lies with Project B.

Current Land Owners and Occupiers General

In order for redevelopment to proceed under either Project A or B, land would have to be bought from current land owners. Consequently, they and current occupiers would incur costs and benefits. In addition, certain land owners and occupiers not displaced would also be affected. Each category is considered in turn.

Land Owners Displaced

Land owners will bargain with the developer for the best possible price on their property. This is

assumed to at least equal the present value of the stream of future benefits expected from the property, otherwise the owner would not sell. It does not necessarily compensate for the distrurbance to the future income stream precipitated by the development itself. Whether the owner receives compensation for disturbance is dependent upon whether or not he is in a position to exert leverage on the developer attempting to acquire a viable site.

In general a land owner would have the greatest chance of obtaining a high return from his land with Project A. However, he also risks receiving an inadequate return from his business while waiting for the purchase of the property due to the changing business environment brought about by Project A. Land values under Project B would be more stable since they would be derived from real improvements in the productivity of businesses in the area rather than from redevelopment potential which might not be realized. In the reduction, the net advantage lies with Project B due to the greater security of return.

Occupiers Displaced

Occupiers will face the costs of disturbance--loss of profit, moving expenses, time lost--without the prospect of compensation unless they are land owners. More occupants will be displaced under Project A, so the advantage lies

with Project B.

Land Owners and Occupiers Not Displaced

When redevelopment takes place, the owners and occupiers of property which is not demolished may incur indirect costs and benefits. These consist of three main types. Real (technological) changes are changes in the quality of services enjoyed by existing occupants as a result of the development project. An example arises when the street environment of a local commercial area is disrupted by the construction of a large apartment complex. Such changes in real value eventually lead to changes in rental value, since the market relationship with other rental stock is altered. On adjustment, the occupier will find that changes in benefit match changes in cost while the property owner's asset value will rise or fall accordingly without his incurring or being relieved of any real cost.

The impact of the two projects on commercial and residential land uses must be evaluated separately. The instrumental objectives in both cases are the effects of location, amenity, and services. For commericla uses, the net difference in locational benefits from the two projects would be nil. Under Project A, existing merchants would benefit from a larger market, but they would face increased competition from new development.

Under Project B, the increase in the market would be smaller, but there would be less threat of competition. The two streams of benefit and cost are assumed to cancel out. The major differences between the two projects relate to the amenity and service objectives. Existing occupants would virtually receive no benefits from Project A, whereas the benefits of Project B would be considerable. In the reduction, the net advantage in real benefits for both property owners and existing occupants lies with Project B.

Pecuniary changes result solely from a difference in the supply of space in the two projects. The effect would primarily be felt by existing commercial occupants and land owners due to the localized nature of the demand for such space. The price of residential space is determined by a larger market. While it is difficult to judge what the future actions of developers might be, the threat of loss to existing land owners and occupants is greater under Project A. The higher potential return from commercial uses may tempt developers to build a greater amount of retail space than the market can absorb. This would have a negative impact on the market values of existing retail space in the area. Under Project B, only obsolete retail space would be redeveloped, and there would likely be a net increase in the value of existing space due to increased demand following the street

beautification program.

Transfer changes (potential development value) stem from the potentially higher property income that would result if the land were developed for a more intensive use. Though only a limited amount of land will ever be developed, the prospect of development has an effect on all property values in the area. Project A features a much greater amount of redevelopment so will generate the largest amount of potential development value for existing land owners.

The Municipal Corporation of Burnaby

As a result of the adoption of either of the projects, the municipal corporation will be faced with additional expenses and a changed revenue situation. These items are dealt with separately.

Municipal Costs

The three most critical expenses arising from redevelopment of the area are local improvement costs, street maintenance, and general administration. Project A would create the fewest expenses for the municipal corporation. Most local improvements would have to be prepaid by the developer as part of the site preparation process. The renewal of area facilities would reduce annual maintenance costs. Once the project was complete it is assumed that there would be few

problems requiring the attention of municipal administrators.

The situation would be quite different with Project B. The municipal corporation would be more involved in the redevelopment project. Implementation of the street beautification would require municipal financial assistance. Maintenance costs for landscaping and the new street furniture would be higher, and the on going nature of revitalization programs would require more active support by the municipality through its administrative departments. Costs to the municipality would be greater under Project B.

Municipal Revenues

Differences in revenue for the two schemes would originate from three sources--development levies, local improvement charges, and property taxes. Again, Project A would have the advantage. Local improvement charges would be prepaid by developers together with development levies to cover the cost of park and recreation facilities. To implement Project B, the municipality would likely have to pay a share of local improvement costs to induce property owners to pay for the street beautification program. Tax revenues would also be greater with Project A due to more intensive use of land and reduced depreciation of assets.

Ratepayers

Since ratepayers must bear the cost of increased municipal expense, Project A provides them with the greatest advantage. Other non-monetary benefits derived by ratepayers have already been accounted for in previous sections.

Final Summation of Benefits

Table X provides a summary of the Planning Balance Sheet shown in Table XI. It indicates that two out of five producer/operators and eight out of twelve consumer interest groups would benefit more from the Project B than from Project A. Of current occupiers and owners of land in the area, only residential owners and occupiers displaced by development would benefit more from Project A. Other interest groups benefitting from the Project A originate from outside the area.

Any benefit for residential owners and occupiers displaced by Project A would come from transfer changes of potential development value. These gains would have to be heavily discounted since they would not be fully realized until the area was completely developed. In contrast, the benefits of Project B would be apparent shortly after implementation. They would in the main be real benefits, a product of the more efficient use of existing facilities in the area. Unlike Project A, no

TABLE X

SUMMARY OF COSTS AND BENEFITS:

HASTINGS STREET

Producer/Operators	Preferred Project	Consumers	Preferred Project
1.0 Developers		2.0 New Users	
1.1. Private Developers	A	2.2 Occupiers of New Buildings	
1.3 Urban Renewal Corporation	A	2.21 Mass Retailers	A
		2.22 Independent Retailers	B
		2.23 Residents	B
		2.4 Shopping Public	B
		2.6 Motor Vehicle Users	
		2.6.1 Through Traffic	A
		2.6.2 Stopping Traffic	B
		2.8 Public at Large	B
3.0 Current Land Owners		4.0 Current Occupiers	
3.1 Land Owners Displaced	B	4.2 Occupiers Displaced	
		4.2.1 Business	B
		4.2.2 Residential	A
3.3 Land Owners Not Displaced	B	4.4 Occupiers Not Displaced	
		4.4.1 Commercial	B
		4.4.2 Residential	B
5.0 Municipality	A	6.0 Ratepayers	A
5.1 Municipal Costs			
5.2 Municipal Revenues			

interest group would experience negative benefits. Benefits would be spread more equitably throughout the various interest groups in the area.

A decision maker considering the results of this analysis would have to weight the importance of the various interest groups. It is likely that he would give greater importance to producer/operators than to consumers. This is reasonable given the importance of producers to our economic system. At this point, it is useful to look at the magnitude of the gains available from Project A. The analysis contained in the previous chapter shows that under present economic circumstances, the potential for redevelopment is marginal due to the low return available. In contrast, the gains from revitalization appear relatively certain. The analysis provides a strong case for revitalization.

Summary and Conclusion

The purpose of this chapter has been to present a method for the evaluation of alternate development plans. A modified version of Nathaniel Litchfield's planning Balance Sheet was used to trace the incidence of costs and benefits to various interest groups from alternate development projects. The tentative conclusions based on the analysis contained in previous chapters favour revitalization of the Hastings Street commercial area.

Principal advantages include more equitable distribution of benefits, particularly to local interest groups, and greater certainty of implementation of the project. These conclusions are limited in their application because they are based on a hypothetical set of alternatives. However, the exercise shows that the methodology is a valid and potentially useful tool to forecase the impact of alternate development plans in a real planning situation.

TABLE XI

PLANNING BALANCE SHEET: HASTINGS STREET

CONSUMERS Item No.	Sector	Number Affected A	B	Instrumental Objectives	Measurement Units Cost	Benefit	Wt.	Project Score Plan A Rank	Score	Plan B Rank	Score	Net Advantage
2.0	New Users											
2.2.1.	Mass Retailers	n+	n	Location	m	i	3	2	6	1	3	
				Suitability	m	i	3	2	6	0	0	
				External facilities	m	i	2	2	4	1	2	
				General environment	m	i	1	2	2	1	1	
2.2.1.	Reduction								18		6	A
2.2.2.	Independent Retailers	n	n+	Location	m	i	3	1	3	2	6	
				Suitability	M	i	2	1	2	3	6	
				External facilities	M	i	2	1	2	2	4	
				General environment	M	i	3	1	3	3	9	
2.2.2.	Reduction								10		25	B
2.2.3.	Residents	n+	n	Location	M,m	i	1	2	2	3	3	
				Suitability	M,m	i	2	3	6	3	6	
				External facilities	M,m	i	2	2	4	3	6	
				General environment	M,m	i	3	1	3	2	6	
2.2.3.	Reduction								15		21	B
2.4.	Shopping Public	n+	n	Selection	m	i	3	2	6	3	9	
				Service	m	i	3	2	6	3	9	
				Economy	t	m	3	3	9	2	6	
				Environment	i	-	2	1	2	2	4	
				Convenience	m	t	2	2	4	1	2	
				Safety	i	-	2	2	4	1	2	
2.4.	Reduction								31		32	B
2.6.	Motor Vehicle Users											
2.6.1.	Through Traffic	n	n	Speed	t		3	2	6	1	3	
				Congestion	i		1	2	2	1	1	
				Accident hazard	i		2	2	4	1	2	
2.6.1.	Reduction								12		6	A
2.6.2.	Stopping Traffic	n+	n	Low cost	m		2	2	4	3	6	
		n+	n	Ingress and egress	t		1	1	1	2	2	
		n+	n	Proximity	t		2	2	4	3	6	
2.6.2.	Reduction								9		14	B
2.8.	Public at Large	n	n	Form		i	2	3	6	2	4	
				General surroundings		i	3	1	3	3	9	
2.8.	Reduction								9		13	B
4.0.	Current Occupiers											
4.2.	Displaced											
4.2.1.	Business											
	a) Proprietor	n+	-	Profit	m		3	-2	-6	0	0	
				Security	i		1	-1	-1	0	0	
	b) Employees	n+	-	Time	t		1	-1	-1	0	0	
				Earnings	m		3	-2	-6	0	0	
4.2.1	Reduction								-14		0	B
4.2.2.	Residential											
	a) Owner Occupiers	n	n+	Profit		M	3	3	9	2	6	
				Security	i		2	-1	2	1	2	
	b) Tenants	n	n+	Environment	i		2	-1	2	1	2	
				Security	i		2	-1	2	1	2	
4.2.2.	Reducation								15		12	A
4.4.	Not Displaced Real Changes											
4.4.1.	Commercial	n	n+	Location		i	3	1	3	2	6	
				Amenities		i	2	-1	-2	3	6	
				Services		i	2	1	2	2	4	
4.4.1.	Reduction								3		16	B
4.4.2.	Residential	n	n+	Location		i	2	3	9	2	6	
				Amenities		i	3	-1	-3	3	9	
				Services		i	3	-1	-3	2	6	
4.4.2.	Reduction								3		21	B
6.0	Ratepayers	n	n+	Minimize costs		m	3	2	6	1	3	
				Maximize revenue		m	3	2	6	1	3	
6.0	Reduction								12		6	A

TABLE XI

PLANNING BALANCE SHEET: HASTINGS STREET

PRODUCER/OPERATORS		Number Affected		Instrumental Objectives	Measurement Units			Project Score Plan A		Plan B		
Item No.	Sector	A	B		Cost	Benefit	Wt.	Rank	Score	Rank	Score	Net Advantage
1.0.	Developers											
1.1	Private Developers	n	n+	Minimize competition	M	m	1	1	1	2	2	
				Protect initial investment	M	M	2½	2	5	1½	3	
				Minimize overhead	M	M	2	1	2	2	4	
				Return on investment	M	m	3	3	9	2	6	
				Security	M	m	2	3	5	1½	3	
				Life of investment	M	M	2	2	4	1	2	
									28		20	A
1.1.	Reduction											
1.3.	Urban Renewal Corporation	n	n	Return costs	M	m	3	3	9	2	6	
				Security of investment	M	m	2	3	6	2	4	
				Life of investment	M	M	1	3	3	1	1	
				Maximize total benefits	M	M,i	3	2	6	-	3	
1.3.	Reduction								24		14	A
3.0.	Current Land Owners											
3.1.	Displaced	N+	n	Maximize return	M		3	3	9	2	6	
				Minimize disturbance	i		2	1	2	3	6	
3.1.	Reduction								11		12	B
3.3.	Not Displaced											
3.3.1.	Real Changes											
	a) commercial	n	n+	Location	M	i	3	2	6	2	6	
				Amenity	M	i	2	1	2	3	6	
				Services	M	i	2	1	2	3	6	
									10		18	
	b) residential	n+	n	Location	M	i	2	1	2	1	2	
				Amenity	M	i	3	1	3	2	6	
				Services	M	i	2	1	2	2	4	
									7		12	
3.3.2.	Pecuniary											
	a) commercial	n	n+	Demand induced price changes		M	2	-1	-2	2	4	
	b) residential						-	0	-	0	-	
3.3.2.	Reduction								-2		4	
3.3.3.	Transfer Changes	n+	n	Potential development value	M		3	3	9	1½	4½	
3.3.	Reduction								24		38½	B
5.0.	Municipality											
5.1.	Municipal Costs											
	a) Local Improvements	n	n+	Minimize	M		2	2	4	3	6	
	b) Street Maintenance	n	n+	Minimize	m		3	2	6	3	9	
	c) Administration	n	n+	Minimize	m		1	2	2	3	3	
5.1.	Reduction								12		18	A
5.2.	Municipal Revenues											
	a) Levies and Local Improvement Charges	n	n+	Maximize	M,m		1	2	2	1	1	
	b) Property Taxes	n	n+	Maximize	m		3	2	6	1	3	
5.2.	Reduction								8		4	A

Footnotes

[1]Morris Hill, "A Goals-Achievement Matrix for Evaluating Alternative Plans," J.A.I.P., XXXIV, No.1 (1968), 19-29.

[2]N. Litchfield, P. Kettle, and M. Whitbread, Evaluation in the Planning Process (Oxford: Pergamon Press, 1975), pp. 65-77.

[3]Ibid., p. 94

[4]Nathaniel Litchfield, "Cost Benefit Analysis in Town Planning. A Case Study: Swanley," Urban Studies, III (1966), 215-249.

CHAPTER VII

CONCLUSIONS

Introduction

The purpose of this thesis has been to explore conceptual frameworks and analytical techniques which municipal planners can use to develop solutions for problem strip commercial areas. The principal components of the research have been an extensive literature review and a case study of the Hastings Street area in Burnaby, British Columbia, a strip commercial area in the early stages of decline. A summary of the pertinent findings follows along with a brief discussion of the implications of the study for planning practice, a short comment on its limitations, and some directions for future research.

Summary

The literature review examined the nature and evolution of strip commercial development relative to its main competitor, the planned shopping centre. The purpose of this review was to determine whether planned shopping centres have made strip commercial areas obsolete. Several concepts within the framework of central place theory were outlined to provide a basis for analyzing the distribution and internal structures of strip commercial areas. The

continued evolution and development of these areas in response to changing social and economic conditions was also examined. This provided a basis for a comparison of its present function to that of the planned shopping centre. The conclusion was that the planned shopping centre does enjoy a definite competitive advantage due to its design and environmental qualities. However, there are several reasons for the retention of strip commercial areas. The high cost of planned shopping centres and the desire by developers to maximize profits restrict tenancy to a narrow range of high volume retail and service outlets. Businesses not meeting these requirements must seek free standing locations in the central business district or strip commercial areas. Many of these areas provide locational benefits which planned shopping centres cannot duplicate. The lower rents in strip commercial areas enable businesses with low sales volume to stay in operation. Some strip commercial areas have a distinctive character which is more condusive to the operation of certain types of businesses. These factors have enabled some strip commercial shopping districts to adapt to a new, albeit more limited role, in the current retail market. West Broadway, West Fourth Avenue, South Granville, and Main Street were mentioned as examples in the Vancouver area that have adapted to a new role while retaining their basic district commercial function.

The concepts developed in Chapter II were further explored in the case study. The purpose of the first section was to show how the function of retail districts can be analyzed for public sector land use planning, using readily available public information. The conclusions provided a basis for the second portion of the study which consisted of an evaluation of alternate development plans for the area.

Chapter III examined the supply of retail facilities using a detailed land use survey as the basic medium of analysis. The first part of the chapter looked at the whole of North Burnaby and the hierarchal relationship between retail centres was clarified, as were differences by type of trade, size of establishment, and form of organization. The Hastings Street area was characterized as a district commercial centre with a large number of services and small independent forms of business. The nearby Lougheed Highway commercial area was characterized as a regional centre with a smaller number of large chain store retail outlets. As a result of these differences, it was concluded that there was little direct competition between the two centres.

Analysis of the spatial conformations of business in the study area clarified the structure of the commercial strip. Services were widely distributed throughout the

area, but retail outlets showed a strong tendency to cluster. This was attributed to competition between businesses in response to the desire of consumers to minimize the number of shopping trips for retail goods. Further analysis of the location of retail businesses enabled the identification of three distinct areas. Retail outlets with the highest level of demand were located in the core. These included specialty food, drug, soft goods, and general merchandise outlets. The frame was characterized by retail outlets with a lower level of demand such as hard lines and specialty lines which benefited from proximity to the high pedestrian levels of the core. The ribbon was characterized by large businesses able to attract sufficient trade on their own and small businesses dependent on passing traffic. Confirmation of areal distinctions was provided by an analysis of land values. The core and the frame were designated as an unplanned shopping centre in accordance with Berry's Structure of Business and Commerce outlined in Chapter II.

A comparison of facilities in the unplanned shopping centre with those of Brentwood Mall, a nearby shopping centre, showed significant variation in the range of businesses present. The study area was dominant in the range of convenience and service outlets while Brentwood Mall was dominant in most shopping goods outlets. This comparison provided a basis for the market share

analysis in Chapter IV.

The purpose of the market analysis was to determine the viability of existing businesses and the prospects for future expansion. The methodology used was adapted from the classical approach to market research. Projected income was allocated by class of retail outlet in accordance with regional averages, the amount of floor space present in the study area, and subjective estimates of the convenience and quality of facilities relative to other competing centres. Convenience goods, services, and hard line facilities--all classes of retail space not well represented in Brentwood Mall--had the highest estimated level of sales. Lines in direct competition with similar facilities in Brentwood Mall had the lowest level due in part to deficiencies in the quality of retail facilities. These estimates appeared to correspond reasonably well to the appearance of the area. Projected population increases were shown to generate only modest increases in the estimated volume of trade for existing facilities. The necessary expansion of floor space could easily be accomodated within the existing retail facilities of the area. No potential for major expansion of retail facilities was projected due to inadequate market potential. The best strategy for increasing retail sales was judged to be the upgrading of the quality of facilities which appeared inferior to those of Brentwood and modest expansion of the

number of specialty goods outlets to stimulate greater interest in the area by pedestrians. Two alternate means for accomplishing these improvements were evaluated in the following chapters.

Chapter V consisted of a description of the two development plans and an analysis of their economic feasibility. The first scheme was the Hastings Street Community Plan. A proposal for highrise residential development was evaluated using the land residual technique and was found to generate inadequate returns at current market rates to cover land assembly costs. Major commercial development which might have made the project viable was shown to be unrealistic in view of the demand for retail space projected in the previous chapter. It was concluded that the plan had little chance of implementation under current market conditions.

In the next section of Chapter V, the process of implementation of a revitalization plan was outlined together with a proposed four part scheme for the study area. Implementation of a street beautification program and rehabilitation of existing business premises were identified as a means to improve the quality of existing retail facilities and attract additional specialty outlets. The value of these improvements was shown by comparing their cost to the anticipated increase in sales.

Other programs included the development of policies to encourage selective redevelopment of obsolete facilities and measures to maintain the continued viability of the area. The land residual technique was used to show the feasibility of lower density commercial and residential redevelopment projects more in harmony with the area. The overall conclusion of the analysis was that revitalization represented a more feasible plan for the area than did redevelopment.

In Chapter VI, a complete evaluation of the costs and benefits of the two development plans was undertaken using Litchfield's Planning Balance Sheet. Costs and benefits of all types were considered for both the producer/operators of the project and the consumers of the resulting services. The purpose of this analysis was to assess the differing implications of the two development policies for affected interest groups. Due to a lack of data, numerous assumptions had to be made regarding the nature of the costs and their magnitude. Despite this limitation, it was quite evident that the distribution of benefits from the revitalization plan was more equitable. There was less disruption of the existing community and the benefits were attained more rapidly than with the redevelopment plan. It was concluded that the revitalization plan represented the best development alternative for the study area.

Implications for Planning Practice

Planners cannot discount the importance of strip commercial areas. Even though their role has been altered and curtailed by planned shopping centre development, they still perform an important range of functions.

The most basic function of strip commercial areas is as a location for convenience and service outlets serving the local market. These uses continue to remain viable despite the consolidation of the supermarket trade. Another function is as a location for retail outlets with space or access requirements which preclude them from planned shopping centres. Regulation is necessary to ensure that their operation is compatible with other operations. Only the larger strip commercial areas retain any selection of shopping goods outlets. Planned shopping centres have drained off much of the business. Some strip commercial districts have maintained a large number of shopping goods outlets by developing as specialty centres serving the whole of the urban area. They succeed by providing a range of retail facilities which would be impossible to find in planned shopping centres. Strip commercial centres often contain a number of public facilities utilized by the community. Thus, decline of these centres has implications for the entire community. This justifies public intervention to ensure their continued viability as commercial

areas.

The techniques presented in this thesis provide a basis for effectively analyzing the problems of strip commercial areas. The core of the program is the analysis of land use data using a classification system sufficiently detailed to reflect differences in the spatial conformation of commercial outlets. This permits differences between centres to be clarified and the functional relationship between businesses in a retail centre to be understood. This kind of analysis is necessary to develop means for improving the operation of retail districts. The land use survey also provides a basis for the market analysis which is used to assess the viability of existing retail facilities and project the potential for new facilities.

Real estate feasibility analysis provides a technique for assessing the feasibility of redevelopment proposals. Of particular interest to planners is the land residual technique due to its simplicity and broad range of application. Like all micro-economic techniques, it is useful only when the effect of the proposed development on the supply is small and does not influence the market price on which the calculations are based. This limits its use to residential developments which generally do not have a localized market and to small scale commercial developments which have a minimal effect on local supply.

For larger commercial developments, a market survey is necessary. Despite this limitation, the land residual technique has value in the assessment of different conceptual plans.

Evaluation research is also a useful tool for assessing the implications of alternate development schemes for the surrounding communities. Alternate development plans can have different implications for affected interest groups. Their incidence is crucial to the question of public intervention. While it is difficult to assess the various costs and benefits, the technique does allow all factors to be considered within a consistent framework. This can be useful for evaluating alternate plans or resolving disputes between various interest groups.

Criticisms of the Methodology and Areas for Future Research

There are numerous areas where this analysis could be improved. Due to the scope of the subject and time and resource constraints on the project, none of the analysis is state of the art. A brief critique of each section follows.

The land use survey is the most complete section, though there were some problems in obtaining adequate data. Published sources of data were too highly aggregated, and the need to collect floor space data limited the scope of the project. A better picture of the evolution of the

study area could have been attained from a time series land use survey. Adequate data is available from the City Directory. The present analysis shows that the study area fills a largely complementary role rather than a competitive one vis-a-vis the larger Lougheed regional centre. It would have been useful to determine how that role developed.

The major limitation of the trade area analysis is the lack of a consumer survey. This would have confirmed the size of the trade area and made estimation of the potential market more accurate. There are also more advanced methods of feasibility analysis using the Present Value and Internal Rate of Return calculations which could have been used to assess the feasibility of development alternatives. Sensitivity analysis could also have been applied to the various factors to develop a range of values. This data could have been used to make the Planning Balance Sheet more meaningful.

Any of these sections could have been expanded into a thesis. The purpose of this study has been to cover this broad topic in as great a depth as could be reasonably expected of a small planning team.

APPENDIX A

CLASSIFICATION OF BUSINESS TYPES

Business type headings adapted from classifications suggested by the Urban Land Institute for shopping centre development. The Community Builders' Handbook. (Washington: Urban Land Institute, 1968), p. 274.

Business activities under each heading adapted from Bureau of the Budget. Standard Industrial Classification Manual. (Washington: Government Printing Office, 1957).

1. Food
   - 5411
   - 5410
   - 5422
   - 5423
   - 5431
   - 5441
   - 5451
   - 5462
   - 5491
   - 5499

2. Drug
   - 5912

3. Automotive
   - 5511
   - 5521
   - 5531
   - 5541
   - 5599
   - 5936

4. Restaurant
   - 5812

5. General Merchandise
   - 5311
   - 5322
   - 5323
   - 5331
   - 5341
   - 5351
   - 5392
   - 5393

6. Clothing and Apparel
   - 5612
   - 5613
   - 5621
   - 5631
   - 5632
   - 5633
   - 5634
   - 5933
   - 5641
   - 5651
   - 5662
   - 5663
   - 5664
   - 5665
   - 5671
   - 5681
   - 5699

APPENDIX A

7. Dry Goods
5714
5699
5998

8. Furniture-Household
5712
5713
5715
5719
5722
5732
5932
5934

9. Building Supplies
5211
5212
5221
5231
5241
5251

10. Other Goods Retail
5733 (Music)
5942 (Book)
5943 (Stationery)
5952 (Sports)
5953 (Bicycle)
5962 (Feed)
5969 (Garden)
5971 (Jewellery)
5992 (Florist)
5993 (Cigar)
5994 (News)
5996 (Photo Supply)
5997 (Gift, Novelty)
5999 (Miscellaneous)

11. Finance and Real Estate
60--
to
66--

12. Personal Service
701- (Hotels and Motels)
7211
to
7299
7511 (Auto Rental)

13. Business Service
731-
to
739-
811- (Legal)
891- (Engineering, Architectural)
893- (Accounting)
899- (Miscellaneous)

14. Household Repair
7531
to
7699

15. Residential

16. Entertainment
783-
7911
to
7949
5813 (Liquor Outlet)

17. Other Office
801-
to
809- (Medical)
27--
62--
67-- (Printing, Publishing, and Allied Industries)

18. Liquor Store
5921

19. Non-Commercial
82-- (Education)
866- (Religious)
867- (Charitable Organization)
91--
to
93-- (Government)

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