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THE UNIVERSITY OF ALBERTA

The Intra-Metropolitan Location of Offices in Edmonton, Alberta

by

Margaret Hunt

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

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Abstract

Office activities, that is activities concerned with the production, distribution and exchange of information, concentrate in the Central Business District (CBD) of most cities. It is hypothesized that the major reason for the central agglomeration of offices is the need for rapid access to, and communication with other office activities, with services and institutions located in the CBD. In addition, the spatial clustering of offices within the CBD partly reflects these business contacts.

This thesis examines the intra-metropolitan location of offices in the city of Edmonton, Alberta. The spatial clustering of offices within Edmonton's CBD was determined with the aid of standard distance and mean centre statistical measurements. There was little evidence of office clustering. Only two major clusters were visible, these included offices belonging to the financial and legal groups of activities. It can however, be argued that the small size of Edmonton's CBD renders spatial clustering unnecessary.

Data concerning the office location decision and intra-metropolitan movement of offices were collected by means of a self-administered questionnaire. The questionnaire was completed by 238 office firms located within the CBD and in non-CBD areas. It was found that the major factor causing offices to remain in the CBD was the importance attached to contact with other office firms, government institutions, and customer and clients. A fear of losing these contacts if the office moved away from the CBD acted as a major locational constraint.

Office decentralization appears to be taking place on a very limited scale. There is some movement of small, local market oriented offices away from the CBD, but these have tended to move relatively short distances. The majority of non-CBD office growth is mainly attributable to the *in-situ* growth of indigeneous office enterprises rather than by the movement of offices from the CBD. There is some evidence to suggest that the disutilities of the CBD, such as inadequate parking facilities, traffic congestion and high office rents, may encourage offices to decentralize in the future. However, at present the advantages of a CBD location are too strong for the migration of offices from the CBD to be anything more than minor. It is concluded that despite the improvements in telecommunication systems, the importance of business contacts appears to be a major factor causing offices to remain within the CBD.

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1. Introduction

The nineteenth century city was heavily dependent upon factory employment as the cornerstone of its economy, but during the twentieth century this role has been replaced by services in the form of office employment. Office activities, often referred to as those engaged in quaternary or transactional employment, are defined as those jobs involved in dealing with information, ideas or knowledge, such as information search, storage, retrieval and the exchange and generation of ideas (Goddard, 1975 p.7). During the nineteenth and early twentieth centuries the total number of personnel involved in transactional work was small. Information available to these specialized workers was limited and processed at only a few major nodes of traffic which were well served in terms of information flows. Since 1950 the characteristics of transactional work have changed, especially in their volume. Advances in transport and telecommunications technology and the geographical expansion of the economically developed world have led to increases in the number of decisions to be made, the variety of factors at play in decision-making and the intensity of information flows in all fields. In order to carry out this work, the personnel required to manipulate the data, make decisions and perform the transactions expanded at a similar pace.

In unison with the growth of the transactional economy, there has been a revolutionary change in the structure of the labour force in the developed nations. Current census data reveal that over one-third of the labour force in North America and Western Europe is now employed in office based occupations, compared with only 15 per cent in 1951.[1] Automation (and the improved methods of production, increased efficiency and higher productivity that result from it), has rapidly reduced the proportion of labour engaged in primary and manufacturing activities. At the same time it has placed new claims upon man's managerial, organizational and transactional abilities. Gottmann (1961, 1968) described this growing importance of office employment as the white collar revolution.

Offices are not only localized within the metropolitan centre, but within one part of that centre: the central business district (CBD). The CBD office function has developed with the growth of the transactional society. Prior to the turn of the century there was

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[1]Year Book of Labour Statistics, 1981, International Labour Office, Geneva.

little need and less possibility, of detaching an office from its location within a factory. With the development of the telephone, however, came the possibility of moving management from the site of production. The size of industrial firms, their need for national and international connections, and need to communicate with other businesses made it desirable to locate head offices away from factories and close to other offices. The CBD office function was further expanded by such innovations as the typewriter, telegraph and teleprinter which increased the rate at which letters could be produced and at a lower unit cost, thus greatly increasing the volume of paper flows. This resulted in a greater demand for bookkeepers, filing clerks and secretaries. By the turn of the century the office function became well established as a detached entity of production. The preferred location for a head office was the CBD, where it could be close to other offices and services. It was also easier to recruit workers for office jobs in the CBD since it offered a variety of facilities and was the focus of mass transportation. The CBD still remains a prime location for office activities, in fact offices are considered to be the single most important centripetal force in urban development today, when centrifugal movement of industry, retailing and population is characteristic of most metropolitan areas (Daniels, 1975). Offices now dominate the CBD in both a physical and an economic sense. Although the growth of offices in the CBD is in some instances seen as a means of revitalizing the core (Manners, 1974), it may also exacerbate the problems of congestion, pollution, and overcrowding in this area. Together with the suburbanization of population, central office development can be a major contributor to the increasing number of commuters converging on the CBD from the suburbs.

Despite the office sector's prime importance to the structure of the city, it has received relatively little analytical investigation. Cowan (1969) and Armstrong (1972) were the pioneers of detailed office location studies in Britain and the USA respectively. Prior to the publication of Cowan's work on office location in London and Armstrong's later monograph on the office industry of New York, there were few studies solely devoted to the office sector, despite the fact that as early as 1927, Robert Haig pointed out the importance of offices and their employment to the urban economy. Systematic research based on empirical analysis began in the late 1960's and early 1970's. The majority of this research was undertaken in Britain and Sweden. To date there has been little academic

interest in office location in Canadian cities. The few studies undertaken have been at the doctorate and master s level, see for example Gad (1976), Takahashi (1972) and Zieber (1971).

The paucity of research in part reflects the dearth of quantitative information on office employment and floorspace in the voluminous statistics available from the government agencies. Employment reporting by business establishments follows an industrial system of classification along major product lines, whereas office work is performed by a cross section of white collar occupations in every industry group and is organized into firms, divisions or departments, but rarely detached establishments. For the researcher who requires an accurate assessment of office employment locally, or for the nation as a whole, the data deficiencies are numerous, and when available as estimates are rarely consistent in measurement or definition between geographical areas.

1.1 Purpose of study and research objectives

The main purpose of this thesis was to determine the importance of the contact factor on the intra-metropolitan location of offices in Edmonton. The initial proposal was to determine actual importance of contacts through a diary kept by office executives providing details on the characteristics and frequency of personal contacts. However, due to problems encountered with this form of data collection (outlined in Chapter 4) the emphasis of the thesis changed. The intra-metropolitan office location decision became the focus of the study, which indirectly provides an indication of the importance of the contact factor. It has been hypothesized by many geographers[2] that CBD office agglomeration occurs primarily as a result of the need for rapid access to, and communication with other office activities, to central services and institutions, that is, the external economies of the CBD. While spatial clustering of offices in the CBD has been shown to partly reflect these contact patterns[3], it is by no means clear that spatial proximity is a necessary condition for the maintenance of these contacts. Is the contact fac a sufficient reason for the maintenance of a CBD location, or are there other important factors at work encouraging centralization? Alexander (1979, p.25) believes that the contact factor as a locational constraint has been exaggerated by both observers

[2]See for example Thorngren, 1970; Tornqvist, 1970; Goddard, 1973.
[3]Davies, 1965; Rannels, 1956; Goddard, 1973.

and managers. Goddard's work in London (1973) and Gad's in Toronto (1976) have shown that the majority of contacts between offices are not transacted on a face-to-face basis, and those that are involve only a minority of office personnel. Why then do the majority of offices still choose a CBD location?

This thesis examines the particular case of intra-metropolitan office location within the city of Edmonton, a medium sized city that has experienced rapid CBD office growth within the last decade. The first part of the study examines the spatial pattern of office location within the CBD, in order to determine the degree of office clustering. The second part examines the intra-metropolitan office location decision. The major objectives of this study are summarized in the following research questions:-

1. Is there any spatial clustering of specific types of office activities within the CBD which suggests contact patterns of office activities?
2. What are the locational factors that confine 75 percent of all Edmonton's office space to CBD location?
   a. How essential is it for these offices to be located in the CBD?
   b. Does the importance of contact with other office activities and services located in the CBD suggest locational constraints?
3. Are there any significant trends towards the dispersal of office activities to non-CBD locations in Edmonton?
   a. What types of offices are leaving or have left the CBD? What kind of office activities elect a non-CBD location over the CBD? To what kinds of areas are they moving to or establishing in?
   b. What are the major factors causing firms to relocate from the CBD, or to choose a non-CBD location?
   c. What are the disadvantages of a non-CBD location?
   d. Are non-CBD locations satisfactory for office activities?
4. Is contact with other office activities and business services more or less important to offices located in non-CBD locations?

There is a need for more research into office location, particularly in Canadian cities and smaller, intermediate sized centres, to lend support to the concepts and ideas derived mainly from research in the large metropolises of Western Europe and the USA.

It is hoped that the results of this study will confirm or modify these findings; in addition the results of the study will add to a small but growing body of information on office location and thus provide further evidence on which to build a theory of office location. Applied on a local scale the results will provide important information for planners and developers concerning the locational needs of office activities.

1.2 The Study Area

The city of Edmonton, provincial capital of Alberta, Canada is the area of study (Figure. 1.1). Edmonton is a medium sized city with a population of approximately 600,000 in 1981. Located in the Prairies it is an important service centre for the northern agricultural regions and due to its proximity to oil fields it has developed as an important oil centre. Edmonton's origins date from 1808 when the Hudson Bay Company and the North West company of Montreal built forts within the limits of the present city. In 1821 the two forts were merged and the Hudson's Bay Company's name, Fort Edmonton, was retained. In 1905 Alberta became a province and Edmonton was chosen as capital. With the rapid settlement of central Alberta during the period 1905 to 1930 and the consequent development of a mixed farming economy, Edmonton gained importance as a service centre. It's hinterland was further expanded by the settlement of the Peace River district 200 miles north-west of the city. Due to its geographical situation, Edmonton became increasingly important as a hub for the movement of supplies to the north. Its proximity to the large oil and gas fields in the region and to oil activity in its hinterland since 1947 has resulted in the city becoming a major oil centre. The growth of Edmonton during the years that followed the discovery of oil at Leduc in 1947 was dramatic. The energy crisis of the early 1970's provided a further propellent to the growth of Edmonton's economy.

1.2.1 The growth of office employment

Office activity is providing a major contribution to the growth of employment throughout Canada and towards the continuing concentration of population and economic activity in its major cities. Edmonton, is no exception; it has experienced significant increases in the growth of office employment over the last three decades.

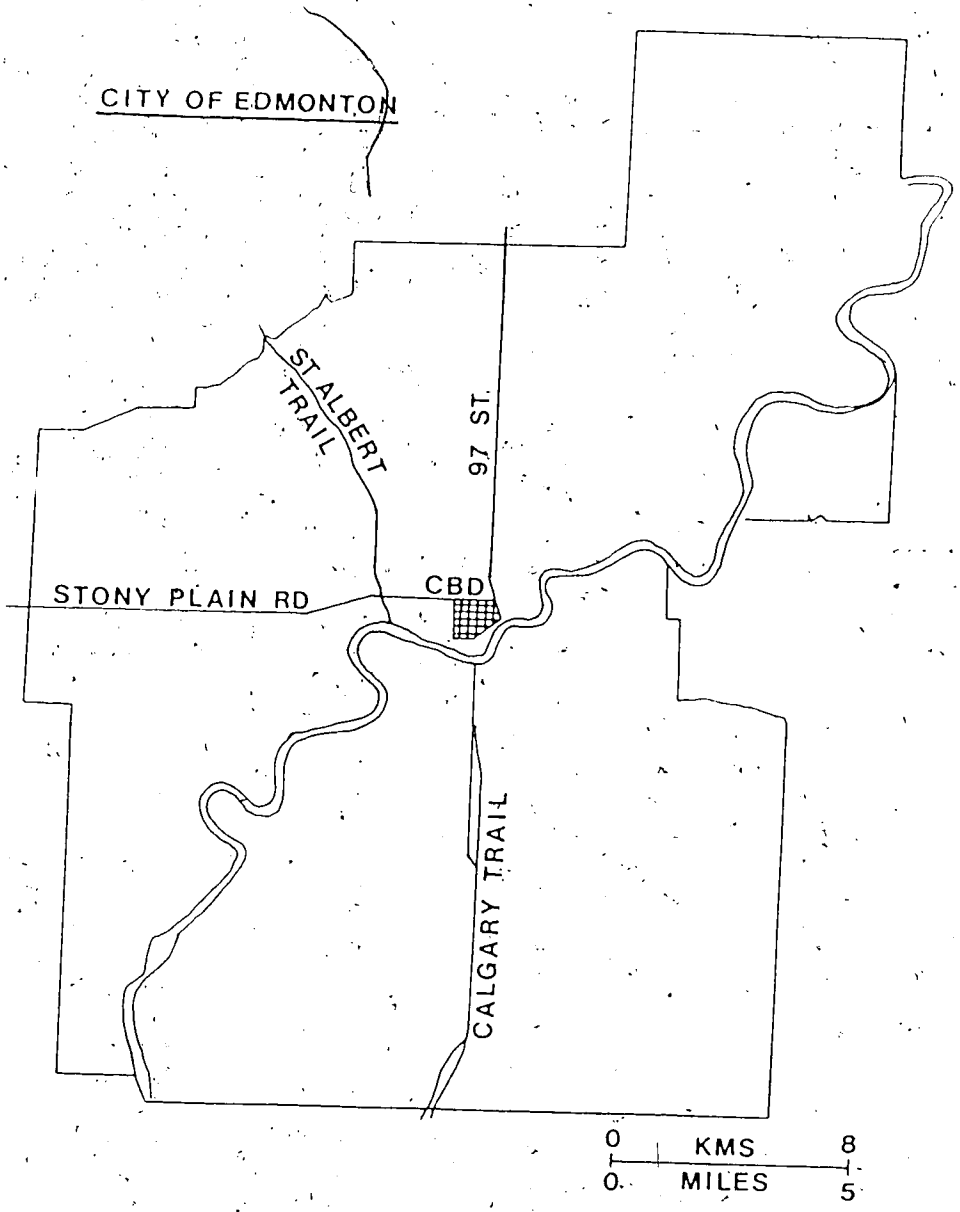

Figure 1.1 The Study Area

Labour Force Trends

Since specific labour statistics are unavailable for Edmonton, provincial statistics are used as an indication of the occupational and business trends in the city. Table 1.1 shows the percentage of the total labour force employed in 'office type' occupations (managerial, professional and technical, and clerical) for Canada as a whole and for Alberta from 1931 to 1982. There was a dramatic increase in office-type occupations during this period, increasing from 15 to 42 per cent in Alberta and from 19 to 40 per cent in the nation as a whole. The largest increase in office employment for Alberta has occurred within the last decade when the percentage of office employment increased by almost 10 per cent. This increase coincides with the world energy crisis in 1973 which led to rapid economic development in Alberta, paricularly in the two major cities, Edmonton and Calgary.

1.2.2 Edmonton's Office Space Market

The CBD Market

The growth of Edmonton since the discovery of oil in 1947 has been reflected in the expansion of its CBD area. Floorspace within the CBD expanded by 45 per cent from 1946 to 1966. The major force behind this expansion was the increased demand for space from the office and service industries. During this period, for example, the amount of floorspace devoted to offices increased by more than 110 per cent (Bannon, 1967). At the same time the amount of space devoted to residential and retail uses declined. By 1966 offices had replaced retail outlets as the major user of space within the CBD; 55 per cent of the CBD floorspace was devoted to offices compared with only 36 per cent in 1946 (Bannon, 1967).

These trends of CBD and office space expansion have continued at an accelerated pace throughout the 1970's. During the last decade, in parallel with the growth of office employment, there has been a boom in CBD office construction. Between 1970 and 1982 a total of 810,000 m² (8,700,000 ft²) of office space has been added to the CBD area. This additional office space exceeds the total of all central office space built prior to 1970.[4] In 1982 alone, the total supply of office space increased by almost 93,000 m²

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[4]City of Edmonton, Business Development Department, 1981. Office Space Report.

Table 1.1 Office Employment as a Percentage of Total Labour Force Canada and Alberta

1931-1982

YEAR	% Employed in office activity CANADA	ALBERTA
1931	18.83	14.86
1941	20.05	16.27
1951	26.21	23.36
1961	30.00	29.34
1971	35.18	33.03
1982	40.42	42.08

Source: 1931-1971 - Statistics Canada: Historical trends Cat. 94-716

1982 - Statistics Canada: Occupations. Cat. 71-001

(1,000,000 ft²). Currently 17,000 m² of office space is under construction and is expected to be completed towards the end of 1983 or in early 1984. In addition 11 major developments are in varying stages of planning or approval or are awaiting increased demand[5]. The location of office space in the CBD existing, under construction and proposed is shown in Figure 1.2. The downtown area currently contains 75 per cent of the total office space in Edmonton.[6]

Supply and demand data for office space are available only from 1974 onwards. However, effects of the new economic boom in Alberta in the 1970's did not become evident in the office space supply market until 1976/77.[7] Before this time, supply and demand had always been evenly matched. Annual absorption of office space in the downtown area was high (84 per cent) and vacancies were low (<5 per cent). Developers did not anticipate the "energy crisis" leading to the dramatic increase in demand for office space to accommodate the influx of office activities into Edmonton, thus an acute shortage of space developed. The continued growth in demand for office space led to an increase in office building construction, but much of it was not available for leasing until 1977. By this time, although demand had increased, it was not sufficient to absorb all the new space. As a result vacancy rates increased and construction in 1978 was reduced allowing much of the excess space to be absorbed. Although the supply and demand of office space in the downtown area has tended to follow a cyclical pattern, often out-of-phase, there has been a general increase in the annual supply and demand for office space over the last decade.

During 1982 there was a dramatic change from a landlord's to a tenant's market in Edmonton's office market. The vacancy rate in Edmonton's CBD increased from 4.8 per cent in 1981 to 8 per cent at the end of 1982. There are two major factors that have contributed to this market deterioration. First, the severity of the 1982 recession and the failure of the provincial and federal governments to reach an oil pricing agreement which led to the cancellation of the development of the Cold Lake tar sands project, and ultimately to a slow-down in the economic growth of Edmonton. A second, more

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[5]City of Edmonton, Business. Development Department, 1983. Office Space Report.
[6]City of Edmonton, Planning Department 1980. Downtown Area Redevelopment Plan Draft: Background Information Report.
[7]Ken McDonald Associated Appraisers, 1981. "The Office Space Market in Downtown Edmonton".

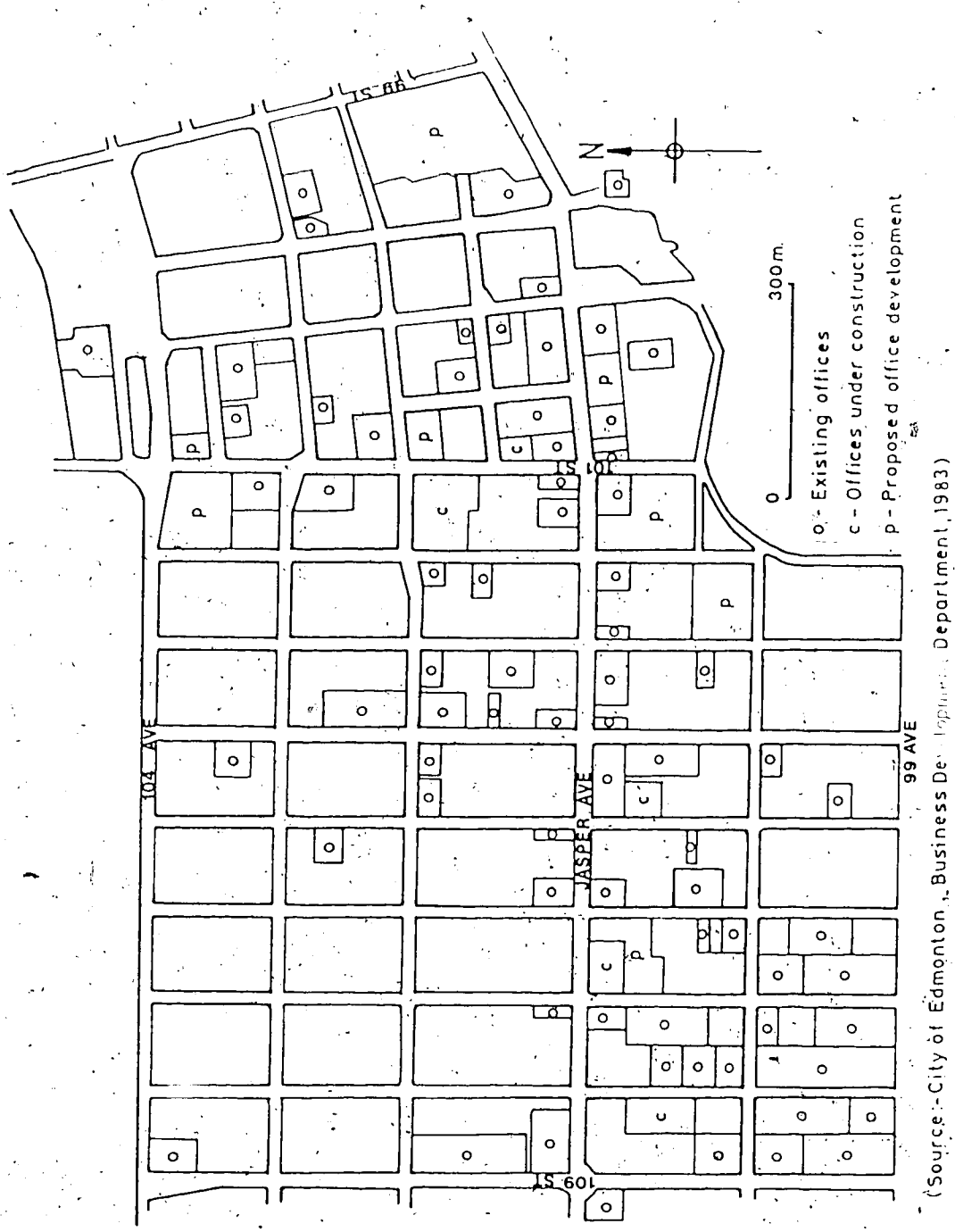

Figure 1.2 Location of Office Buildings in Edmonton's CBD, 1983

significant factor was the completion of an unprecedented amount of new office space in 1982-83. However, optimistic market experts[8] believe that Edmonton will continue to attract companies to establish offices in the city, thereby assuring its status as a strong commercial real estate investment. A particularly positive feature of Edmonton, compared with other Canadian cities, is the low land costs and office leasing rates. Currently the differential in respect to rental rates is as high as 25 per cent.[9]

Non-CBD Market

The existing office space beyond the CBD comprises only 25 per cent of the total office space. Non-CBD office space is dispersed throughout the city although major office developments have occurred to the south along the Calgary Trail and to the north within the vicinity of the municipal airport (Figure 1.3). There has been an increasing amount of office construction occurring in non-CBD areas in recent years. During the period 1971 to 1976, approximately 42,700 m^2 (460,000 ft^2) that is, 13 per cent of total office space development, was built in non-CBD areas. This percentage increased to 33 per cent in the late 1970's[10] and reached 43 per cent in 1982. However the proportion of office space under construction in outlying areas in the first part of 1983 fell to 36 per cent in favour of increased construction in the CBD (81,000 m^2 (900,000 ft^2) is proposed for non-central areas compared with 144,000 m^2 (1.6 million ft^2) in the CBD).[11] Despite the continued increase in non-CBD office space, vacancy rates in these outlying buildings remains high. Vacancy rates of 40 per cent are common and some buildings are currently suffering from vacancy rates of up to 65 per cent.

A.E. LePage market experts have predicted that migration to non-CBD office space will continue, as those offices not dependent on a central location migrate to the less expensive space with higher parking allotments. However, the rent differential between the CBD and non CBD rates is small ($2-$8 per ft^2) and may prove insufficient to make this migration anything more than minor.

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[8]A.E. LePage Market Survey, 1983.
[9]ibid
[10]Edmonton General Municipal Plan, 1981. Policy Report No. 6. Issue 2.1
[11]A.E. Le Page Market Survey, 1983

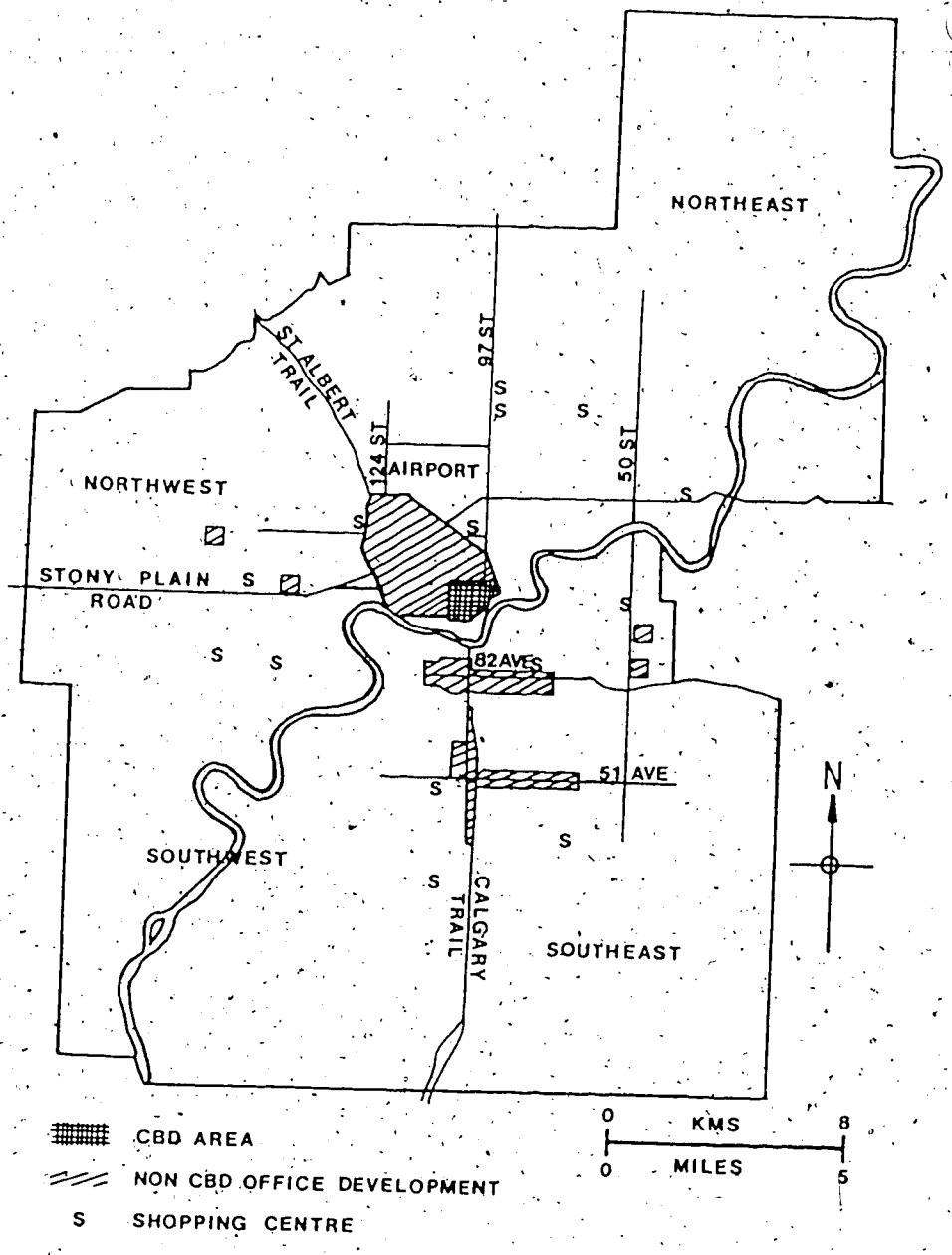
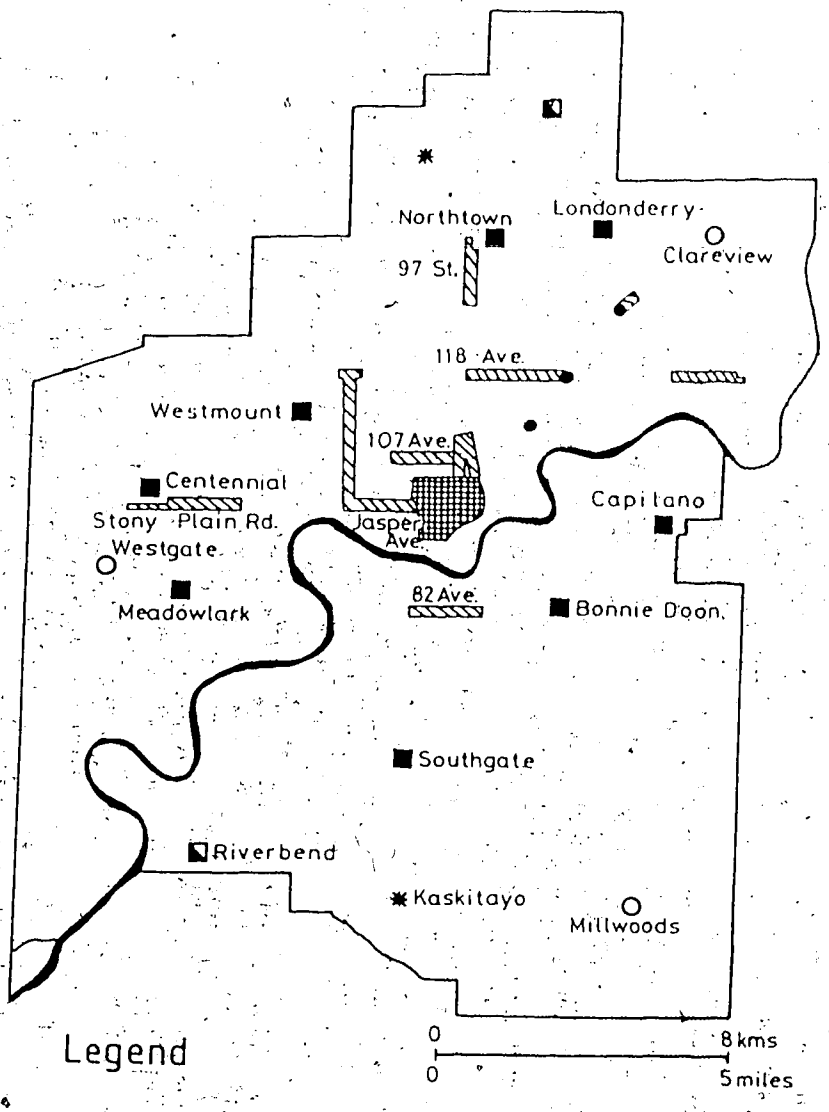


Figure 1.3 Location of Major Office Space Outside the CBD

1.2.3 Office Planning Policy in Edmonton.

A key component of the 1981 General Municipal Plan for Edmonton is a policy strategy to control the development of office space in the CBD and to encourage greater decentralization of future office development. The major policy instrument controlling office development in the CBD area is the Area Redevelopment Plan which addresses the policy of office decentralization through its transportation policy. It's major concern is to maintain a balance between office development and other land uses such as residential and retailing facilities.

The planning department hopes to encourage between 10 and 15 per cent of all future office development to designated town centres (Figure 1.5). The town centre concept comprises regional order commercial facilities in close proximity to high density housing and a major transit facility. In addition to promoting town centres, the city aims to encourage the development of intensive mixed use employment nodes at Light Rail Transit (LRT) stations and other desirable loacations outside the CBD (Figure 1.5). Although there is no means of evaluating the success of these policies yet, there has been a slight increase in non-CBD office development. This trend however, does not necessarily mean that office dispersal has increased, since (as mentioned earlier) high vacancy rates are prevalent in non-CBD office buildings.



- Central Business District
- Site for major office component (10,000 m² or more)
- Potential site for major office component (10,000 m² or more)
- Site for minor office component (Less than 10,000 m²)
- L.R.T. Station Areas
- Commercial Strips — Low rise infill office development permitted
- Existing Regional Shopping Centres

(Source: Edmonton General Municipal Plan, 1981)

Figure 1.4 Desired Locations of Future Office Space

2. Evolution of the Office Function and Planning Policy

2.1 Introduction

The growth of the office function as we know it today is closely intertwined with changing patterns of urban life, with major economic and social developments, especially the industrial revolution, and, with a series of inventions and innovations in the field of communications. These changes have altered the role of the city in society and are continuing to affect urban development.

2.2 The evolution of the office function

2.2.1 Pre-industrial revolution

In the pre-industrial world the origins of a city belonged to the classic trilogy, the castle (i.e. the administrative function), the market (i.e. the commercial function), and the temple (i.e. the religious function) (Gottmann, 1966). In such a context the role of the office was very small. The affairs of the state and military required little administration and elaborate machinery was unnecessary. The affairs of the church could be administered from the chapter house, while the market place itself and the surrounding coffee houses, counting houses and residences of merchants contained all the office functions i.e., transactions necessary for trade. In some larger cities, certain professional office districts, especially in connection with the law, evolved focusing on a specific place, such as the courts of justice. But the commercial office function as such, was generally found within other structural elements of the city (Cowan *et al*, 1969).

2.2.2 Industrial Revolution

During the late eighteenth and early nineteenth centuries, the role of the city in Europe and North America changed out of all recognition. The city became the centre of the manufacturing industry. The growth of industry in the cities acted as a magnet for the population migrating from rural areas in search of richer rewards and to escape the growing unemployment in the agricultural sector.

Simultaneous changes were also taking place in the organizational scale of industry which stemmed from the various technological developments of the period. Small manufacturing establishments employing a few persons began to be replaced by units employing hundreds of labourers. Such a concentration of labour inevitably led to an increasing demand for the management of, and communication between growing and complex organizatins (Daniels, 1975).

Organizations became so large and complex through the process of vertical integration, that it became necessary for the managers to attempt to control markets as well as production. The complexity of business problems intensified as ntinuing technological advances were made, creating numerous specialized office occupations, for example, organization and management experts, financial analysts, advertising specialists, cost accountants and engineers. Corporate managements were established which divorced ownership from control and preempted influence in business decision making (Armstrong, 1972). This array of specialists had to be supported by a team of junior personnel such as typists, stenographers, clerks and draughtsmen.

2.2:3 Office machinery and technology

The growth of the office industry was made possible both directly and indirectly by a series of separate inventions. There were three specific inventions that shaped the office function and each was related to communication. They are the telegraph, the telephone and the typewriter. With the typewriter facilitating greater speed in the recording and production of information and the telegraph permitting e hange of information over greater distances at lower costs the last two decades of the nineteenth century saw a rapid increase in the separation of office activites from production plants, using typewritten letters and telegraph to link headquarter offices with scattered branches and factories.

Communications had emerged as one of the key factors in the emerging office function and the communication role was made complete by the telephone. The telephone expanded the typist's function because it permitted oral contact to be made without face-to-face meetings. This was especially useful for routine matters. The speed with which these processes could be undertaken led to an increase in the volume of office

work in parallel with the industrial and economic expansion of the late nineteenth century.

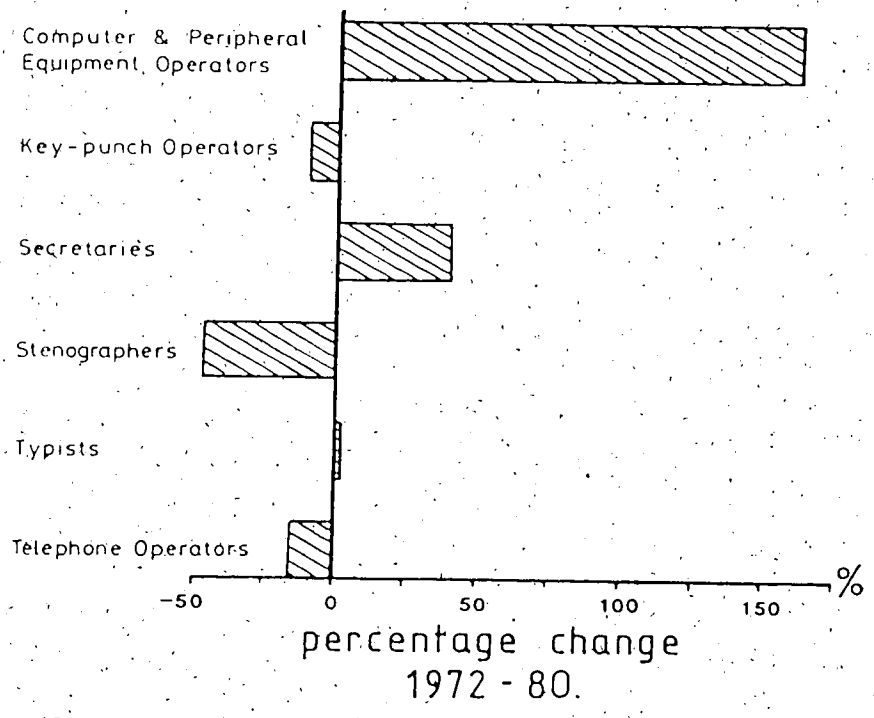
Another development introduced in 1861 with implications for office work was stencil duplicating. Its main asset was that it allowed the wide distribution of letters, memoranda and other documents within and between organizations. Duplicating also encouraged the reproduction of publicity and advertising leaflets for promotional sales purposes and this extended the range of the office function.

The improvements in communications and methods of exchanging information encouraged the development of machines for processing the increased volume of data more rapidly and accurately. The introduction of data processing equipment operated with punched cards during the early years of the twentieth century also gave rise to new office occupations. Most of the new jobs created were routine, such as key punch operators or sorters, but the result was an increased demand for office workers.

The most recent automated or electronic data processing systems are computers which have been increasingly used in commercial and government offices during the last fifteen years. The significance of the computer is that it has encouraged further systemization of office work flows and data processing. Much of the straight forward processing work dealing with large numbers of company customers, for example, could be completed in a fraction of the time taken by earlier electronic devices and back-up clerical staff. As systems have developed, computer software has also become a very efficient space saving method of storing data and information. All this is achieved with a high level of accuracy and a reduction in the clerical inputs (Giuliano, 1982). The changing nature of office work is reflected in the shift of jobs within the clerical category, for example there has been a reduction in number of telephone operators while the number of secretaries and computer operators have increased over the last decade (Figure 2.1).

2.2.4 The office building

Before offices emerged with a separate functional identity the need for specialist space and buildings did not arise. But once organizations became more complex and the volume of transactional activity began to increase, the demand for purpose built office space increased dramatically. Mumford (1938) in his work The Culture of Cities decribed the office building as



(Source: Giuliano, 1981)

Figure 2.1 The Changing Nature of Office Work in the U.S.A.

> ".....a sort of human filing case, whose occupants spend their days in the circumspect care of paper (1938, p.228).

As the number of separate office buildings increased and the telephone, typewriter and telegraph permitted functional separation of offices from factories, clustering began to occur and this resulted in distinct 'office quarters'. Such agglomeration tendencies were already established in the 1850's in Central London and in the years following 1880 in Lower Manhattan, New York (Cowan *et al*, 1969).

Clustering of office buildings implies close spatial association within a limited area. But most of the early office buildings did not exceed four storeys in height because of the tedium of moving between floors. In consequence, the number of office workers in the expanding clusters were limited by the amount of office space available. The advent of the steel framed office building, the skyscraper, with its vertical mass transportation system, the elevator, reduced the problem by making maximum use of the scarce resource, land, within the most acessible areas of the city, the CBD. Skyscraper office buildings have given rise to, and intensified agglomeration economies inside the CBD. They have also given the centres of major cities a new and distinctive 'city-scape', particularly in North America. The change in the city skyline is a reflection of the new kind of urban life arising from what Gottmann (1966) calls the 'transactional society'.

The functional evolution of offices and the development of a distinct physical form to accomodate their activities has left a well established mark on the internal structure and character of the modern city. The office and the skyscraper have now replaced the industrial plant and factory chimmney as the symbol of urban centrality.

2.3 Growth of office employment and its impact on the CBD.

The growth of the office industry since the industrial revolution has reflected the impact of wars and business cycles. However, the most significant phase of office growth did not occur until the mid 1950's when industry began to assimilate new technology. Manpower was then released for tertiary activities. The fifties period was also marked by an injection of capital investment into the office industry in the form of versatile business machines. The impact of increased capitalization on the office industry (contrary to the manufacturing sector, where manpower requirements decreased due to

the substitution of capital for labour) has expanded its manpower requirements dramatically. Office type activities increased from 20 to almost 40 per cent of all jobs in the USA between 1950 and 1970 (Manners, 1974). Table 2.1 shows the growth of office occupations in seven industrialized countries from 1960 to 1980. Office occupations accounted for 20 to 32 per cent of the labour force in 1960, and the proportion increased to over 40 per cent in 1980 for most of the countries listed. Clerical jobs are by far the most numerous, accountting for almost half of the office jobs in the majority of industrialized countries. The growth of the clerical sector has, however, declined in the last decade, due to the increasing effects of automation and the introduction of computers and telecommunication innovations into the office industry.

The effect of increased capitalization, an increasing number of white collar workers and the increased concentration of office activities in office buildings is reflected in the accelerated pace of new office building construction. Most of the office construction has taken place in the CBD's of major cities. Between 1960 and 1972 for example, gross office floor space in Manhattan alone increased by 9,360,000 m^2 (104 million ft^2) to a total of 21,960,000 m^2 (244 million ft^2)– a 74 per cent increase. In central Chicago net office expansion during the same period was over 50 per cent. Office space in the CBD's of Atlanta, Boston, Cleveland and Dallas also increased by between 60 and 90 per cent, while Houston, San Francisco and Minneapolis experienced gains of over 100 per cent during the same period (Manners, 1974). Similar dramatic changes in the CBD's of Canadian cities are also clearly visible. According to the A.E. LePage office space surveys, net office space in central Toronto increased from 756,000 m^2 (8.4 million $feet^2$) in 1953 to 2.5 million m^2 (28.6 million ft^2) in 1971. In the CBD's of Vancouver and Calgary office space doubled between 1957 and 1971. By far the largest part of the new floorspace has been added since the mid 1960's. Edmonton's CBD office boom occurred in the early to mid 1970's, when office space increased from 754,500m^2 in 1974 to 1.64 million m^2 in 1980[12]. Other urban centres in Canada, particularly Montreal, Halifax, Ottawa, London and Winnipeg have also witnessed office booms at various times between 1950 and 1970.

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[12] Graeme Young & Associates, 1980. Office Space Survey of the City of Edmonton's CBD.

able 2 1. Growth of office Employment in Seven Industrialized Nations, 1961-1981

	Office-type jobs as a percentage of total labour force.		
	1961	1971	1981
Canada	31.1	32.2	40.4
USA	31.7	38.4	43.3
France	20.2	25.6	32
Sweden	23.5	38.6	40.0
U.K.	24.0	31.7	35
Australia	32.2	43.0	-
New Zealand	27.9	31.1	33.5*

* 1976

Source: International Labour Force, Statistical Yearbook. Geneva 1981.

The concentration of offices in the CBD underlines the traditional economic strength of the CBD. Office activities located here can take advantage of the surrounding metropolitan labour force, exploiting its size and range of specialized skills. They can also minimize the range and maximize the convenience of their linkages both with their markets and with related activities also located in the CBD. They can readily exploit the generation of ideas, information and array of commercial and institutional services in the CBD, taking advantage of business consultants and trade associations, financial institutions, advertising agencies, specialist lawyers and amenities such as restaurants and hotels. Gottman (1970) referred to this network of linkages as the 'interweaving of quaternary activities', which he argues is the main force behind urban centrality today. However, there are several problems associated with large and/or growing office agglomerations of an economic, social, asethtic and physical nature. Continued office concentration in the CBD can cause problems at three levels:-

1 The CBD itself:
   a. Causes congestion of traffic and other facilities at peak times.
   b. Reduces the diversity of land uses within the the CBD, with a subsequent uneven use of public transport.
   c. Reduces the diversity of the building stock in terms of age with subsequent difficulties for small businesses to maintain or find premises at suitable cost.
   d. Destroys old buildings or whole quarters of general historical or architectural value.
   e. Creates wind tunnel effects and reduces sunlight.
   f. Increases pollution, due to the increased volume of traffic.
2. Adjacent residential areas:
   a. Removal of housing both directly through demolition and indirectly through the encroachment of parking areas.
   b. Increased traffic and air pollution.
3. Metropolitan and regional level:
   a. Increases commuting distances and decreases chances for other parts of the city, metropolitan area or region to attract investment to work places.
   b. Exacerbates the inequality of economic development on a regional scale.

2.4 Policy responses to office concentration.

Due to the problems previously discussed, office location has become an increasingly important concern of public policy in recent years especially in western Europe. The following section discusses the main planning policies adopted to control office development in several European countries, the United States and Canada.

2.4.1 United Kingdom and Europe.

Triggered by a deep public concern with the problems that unrestrained office development created in Central London, the British government created the Location of Offices Bureau (LOB) in 1963, whose main job was to encourage the movement of office activities out of central London. A year later the government placed a ban on further office devlopment in Central London. Office buildings over 240 m^2 (2,500 ft^2) could be built only if an office development permit (ODP) was granted. There was a definite acceleration of office job dispersal from London after the ODP system was introduced. Between 1966 and 1971 office employment in the central area increased marginally by 0.1 per cent, while in the outer areas of Greater London office employment increased by 10.7 per cent. One major drawback associated with the ODP system was that it increased the rate of rent inflation in the centre due to an artificial shortage of office accommodation. On a regional level, in 1973 the government introduced special incentives to encourage office firms to move to the assisted areas.[13] The new incentives, which increased substantially in 1976, included cash grants to companies for each employee moved with the firm and a selective grant to cover rental costs from 3–5 years. Other incentives included loans for capital acquisitions, interest relief grants and removal grants. Since the introduction of these grants there has been a slight increase in the number of office firms moving to the assited areas.

Although the office location policies adopted in the UK are the most rigorous to be adopted in any country with a free market economy, other Euopean countries have also been attempting to control office agglomerations.

In France, regional policy has been aimed at controlling the growth of Paris. In 1967 subsidies were introduced for the relocation of research, administrative, and

[13] An assited area is an area designated by the government for special government assitance due to its depressed economic situation.

banking activities from Paris to provincial centres (Beaujeau-Garnier, 1974). A system of office development permits, similar to the ODP system in Britain, was introduced in 1969 in Paris for all buildings over 1000 m². In addition a construction tax which increased towards the centre of Paris was introduced. The growth of Paris began to slow down in the late 1960's although there is some controversy as to whether this slow down can be attributed to planning policy or not.

The main policy adopted in Sweden to encourage the redistribution of office activity was a programme based on the recommendations of a 1969 Royal Commission, which suggested the relocation of a significant number of civil service jobs from Stockholm to northern parts of the country. A programme of relocation of government office employees has also been adopted in the Netherlands. The objective is to direct growth away from the western Randstad conurbation area to the less developed eastern parts of the country (Hall, 1966; Gritt and Korteweg, 1976).

2.4.2 USA.

While European cities have tried to push offices out of the CBD, many cities in the USA have fought hard to retain offices, in order to revitalize the declining CBD areas and provide a source of revenue in the tax structure. The reason for this trend, is that office decentralization has been much more rapid in American cities than in Europe. In addition the government authorities have indirectly encouraged the trend towards increasing office decentralization, by developing extensive freeway systems rendering many suburban locations accessible to the CBD. The dramatic rise in car ownership and the consequent increased mobility of the work force has also encouraged office decentralization.

2.4.3 Canada

Planning reports of the 1950's and 1960's from a variety of Canadian cities also gave the impression that central area office growth was desirable. Most of the major cities adopted policies to encourage centralization believing that centralization was the most efficient form of economic growth (Gad, 1976). However, by the late 1960's the climate had changed dramatically; citizen groups began to oppose new office construction in the CBD's of Halifax, Montreal, Ottawa, Toronto and Vancouver. In some cities steps

were taken to modify office projects, to stall them or to offer alternative locations for expansion. For example, the 'view by-law' passed in Ottawa involved extensive height restrictions in the CBD mainly to protect views from and to Parliament Hill, and the temporary 'height by-law' applicable to parts of central Toronto passed in 1973 decreed a virtual halt to office development in those areas (Gad, 1976). During the late 1970's office policy adopted in Central Toronto was aimed at restraining office development and redirecting it to other parts of the metropolitan region. Although Toronto planners are primarily interested in restricting office employment in the CBD, the existing planning legislation makes no provision for regulating employment and the planners have thus to resort to the conventional land use and building intensity controls as tools of implementation (Gad, 1979).

The major policy operating in Vancouver to promote office decentralization is the Regional Town Centres programme. This programme aims to concentrate future office and other types of employment along with shopping, cultural and educational facilities in a few designated centres outside the CBD (Greater Vancouver Regional District, 1976).

The Albertan cities of Calgary and Edmonton until recently, have followed a centralization policy, encouraging offices to locate within the CBD. The 1981 general municipal plan for Edmonton however, reflects the change in planning policy from a policy of centralization to one of limited decentralization. The planners are now trying to encourage offices to locate in centres outside the CBD, at shopping malls and LRT nodes. The major tools of implementation are, as in Toronto, conventional land use controls. Calgary while acknowledging the problems of centralization, is less committed to office decentralization. The major policy for improving the CBD, is diversification of land use (City of Calgary, Planning Department, 1976).

3. Office Location Theory and Research Methods

3.1 Introduction

Development of office unlike industrial location theory has only been taking place during the last ten to fifteen years. Industrial location has advanced some way to maturity but office location theory is still in its infancy. However, attempts have been made to draw analogies between industrial location and office location theory. The data collected on office location in New York during the 1950's led Hoover and Vernon (1959) to suggest that:-

> "Common locational forces have been operating to create the distribution of (office) jobs and that most of these forces are already encountered in our analysis of manufacturing" (1959 p 78).

In the case of office location the principles of inputs and outputs often consist of information flows which are an important cost item in the location equation particularly when these flows demand personal contact. This can be seen as equivalent to costs of transporting goods in the industrial location model. Generalized industrial models provide a useful framework for identifying some aspects of office location in urban areas. But they can provide only partial answers because outside the CBD offices tend to seek locations which resemble, on a smaller scale, the characteristics of the CBD; industrial location does not follow this pattern of location. It is also apparent that, although offices occupy a much larger proportion of the total floor space or the land area of a metroplitan CBD, the opposite occurs in the suburbs which satisfies the space requirements of industry, retailing and residential uses rather than offices (Daniels, 1975 p. 117).

The following section outlines the development of office location theory and discusses the major empirical work that has led to the formulation of several theories and hypotheses explaining office location behaviour.

3.2 The Agglomeration of Office Activities

Robert Haig's pioneering work Major Economic Factors in Metropolitan Growth and Arrangement in 1927 was the earliest attempt to postulate a location theory for urban activities. Haig hypothesized that the arrangement of activity in cities was basically determined by their ability to pay for the accessibilty advantages of a central site. He uses

the term accessibility in the sense of the ease or difficulty of contact which it permits between activities; this contact is provided by transport which overcomes the 'friction of distance' necessary for contact to be made. The centre of the city is where the transport costs for an activity serving the city and/or region can be reduced to a minimum. Thus there is more competitive bidding for central sites which results in higher land values, and subsequently higher rents. The increasing cost of transport away from the centre is reflected in diminishing land values and subsequent lower rent levels. This concept of a trade-off between accessibility and transport costs later became known as the bid-rent fucntion in the models of urban land use developed by Alonso (1964) and Wingo (1961). Haig cites offices as an example of an activity that will pay a high price for a location in order to minimize the costs of friction, which are, according to Haig, 'the transport of intelligence' via face-to-face contact. The office district should be arranged so as to give the greatest possible ease of contact among men whose presence is desired in arriving at decisions (Haig, 1927 p.427).

The financial centre of Manhattan was used by Haig to exemplify functional and locational interdependencies. Financial offices deal almost exclusively with information which is exchanged via paper transactions, telecommunication channels and face-to-face meetings. The need for close linkages between financial offices means that they are prepared to out-bid all other activities for the site they require. This theory assumes that the scale of transactions undertaken and the speed necessary for making decisions outweighs the disadvantage of less accessible locations at lower cost. Haig introduced the concept of what later became known to be activity clusters. He suggested that:-

> "Certain advantages also flow from a cohesion of functions in a given district, and the result is a number of specialized centres with definite unities of interest rather than a single diversified centre. The efficiency of the financial district would be materially lessened if it were mixed up with a shopping centre" (p.418).

Haig's references to office activities were brief and succinct and laid the foundations for the later New York study carried out in the 1950's and summarized by Hoover and Vernon in "Anatomy of a Metropolis" (1959) and by Robbins and Terleckyj in "Money Metropolis" (1960). Haig's emphasis on the location of financial offices was continued by Robbins and Terleckyj who developed the concept of the money market in more detail. They saw four major centralizing forces:-

1. The need for knowledge in a hurry, via face-to-face contact.
2. External economies due to specialization of activity, services and joint facilities.
3. The dual role of management in maintaining central area links on the one hand and supervising clerical staff on the other.
4. Movement of paper between offices.

It was conceded however that the latter force was declining due to the increased efficiency of communications.

A wider approach to office location was adopted by Lichtenberg (1960) who studied not only financial offices, but non-financial office activities which included central administrative offices of large corporations; supporting services such as advertising, employment agencies, engineering and public relation firms; government offices; and business associations. The reasons put forward by Robbins and Terleckyj and by Lichtenberg for the location of office activities in Manhattan are similar to those proposed by Haig thirty years earlier. The main point emerging from Lichtenberg's and Robbins and Terleckyj's work is the role of the money market as a factor in intra-urban office location. This was alluded to by Haig but not stressed in his argument. Lichtenberg (1960) concluded that financial and non-financial offices, specifically headquarter offices, contain the decision making 'elite' producing the solutions to problems which need large volumes of up-to-date information and advice of the experts surrounding them. The need for speed in the decision making process makes face-to-face contact a main location determinant.

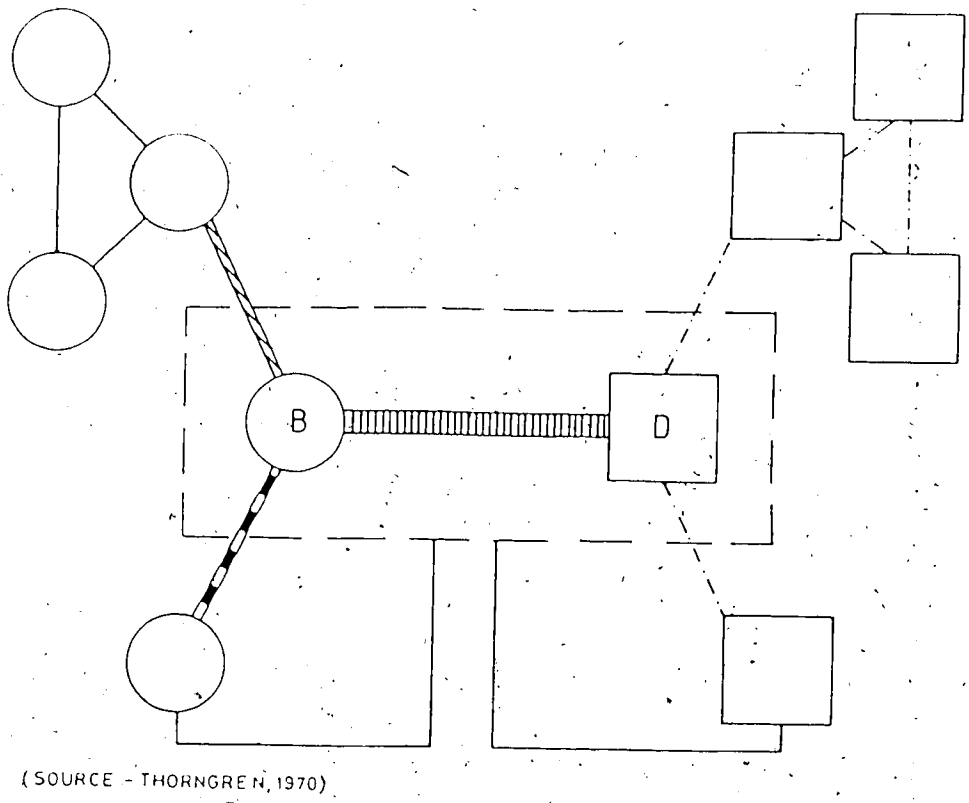
Hoover and Vernon's study in 1959 covered much of the same ground as Lichtenbergs' (1960). They refer to the common centralizing force of the money market on financial offices:

> "The strongest centralizing force, the thing that attracts most of the pieces of the New York financial community toward one another is a common preoccupation with operations of the nation's money market" (p.89).

Hoover and Vernon maintain that external economies are not restricted to financial activities. Central offices of corporations frequently require specialized advice. The aggregate volume of business by the whole office agglomeration justifies the existence of outside specialists, who draw in turn on other service firms. Face-to-face contacts are viewed as the only adequate means of communication for executive workers and as an

indispensable prerequisite for communication among specialized services. They also emphasized that head office elites have the ultimate authority in a corporation. They can freely decide where to locate and are often insensitive to the cost considerations involved in location. As long as the general conviction exists that the CBD is the only place to locate, any economic fact to the contrary is likely to be slow in making itself felt (p.102). Hoover and Vernon put forward a hyperbole of factors that could account for the central agglomeration of offices; prestige and exposure, work assembly and amenities for female workers are a few of the factors discussed.

Some of the forces considered important by Haig and Hoover and Vernon have received further attention from geographers. The concept of external economies was further developed by Thorngren (1970) in his model of regional external economies. Thorngren uses the term external economies to refer to the advantages that accrue to a firm of a given industry from the number and functions of firms of the industry that are present in a particular area. The concept of external econmies as used by Thorngren also encompasses the economies accruing to a firm from a certain level of overall economic activity within a specific region. In the model Thorngren discussed in some detail the significance of different types of information for the development of organizations and regions (Figure 3.1). He related this to the procedure by which organizations achieve external economies by locating offices and productive units in different regions. He argues that as well as monetary gains achieved by contracting out business services (e.g. accounting) rather than providing them within the organization, the most important external economies gained from a central location are those associated with chance information, which in the long run can be essential to the survival of the organization. The likelihood of information being obtained in this way is much greater in an agglomeration where complexes of inter-linked activities can be found. Such complexes of office activities (cluster of circles in Figure 3.1) are analogous to industrial complexes where productive activities are linked by material flows (cluster of squares in Figure 3.1). In the office complex, information produced by one office establishment may therefore be the input of another. The concept of external economies affords valuable insights into the behaviour of offices in a spatial context, and confirms the many advantages to be derived from the geographical clustering of office activities. It is however, much more useful in



(SOURCE - THORNGREN, 1970)

B Unit of administration

D Unit of production

Internal flows

External uncontrollable flows

External controllable flows

Boundary of organization

Resource transaction with units of production outside organization

Payments between organization and units of other organizations

Figure 3.1 Flows of Information and External Economies

understanding and interpreting the inter-metropolitan location of offices than in clarifying intra-metropolitan office location (Manners, 1974)

The concept of functional and spatial clusters, introduced by Haig, was elaborated upon by Rannells (1957) and then applied to office activities by Goddard. Using Philadelphia as a case study, Rannells (1956) attempts to explain urban land use change through the underlying systems of activities, their effects, as they develop, on the urban resources that are embodied in the land, buildings and services. He postulates that every establishment is engaged in several systems of activity and is connected with other establishments in each of these systems. The entire complex of urban activities may thus be described by tracing these manifold connections or linkages among establishments, both schematically as relationships among different kinds of activities and empirically as transactions between pairs of establishments. Rannels defined a linkage as:-

> "a relationship between establishments characterized by recurrent interactions which require movement of persons or of goods or the exchange of information."(p. 19)

He argues that the net balance of pulls exerted on each establishment by its linkages with others is a major factor in the spatial arrangement of land uses, so that each new establishment tends to locate where the forces of its expected linkages are in equilibirum. However, Rannels recognizes that this conception of the urban land use pattern, while giving a reasonably accurate picture of the changing functional relationships, can not fully explain the locational arrangement of establishments. The physical pattern of land uses in an urban area are strongly shaped by its prior development, change will take place around the fixed locations of the dominant activities. Rannels also notes that the free adjustment of land use patterns are further restricted by factors other than linkages, such as; availability and cost or rent, of office space, zoning, and imperfect knowledge or the locational stability of key institutions.

In a similar way Goddard argued that the relationship or linkages between different offices demand that the linked firms be located in close proximity to the city centre. He hypothesized that the linkages between offices constitute a city centre activity system which contains a number of inter-related sub-systems (Goddard, 1968). But like Rannels he acknowledges that the location of offices in the city may only partly reflect linkages.

3.2.1 Empirical Evidence: A Spatial Approach

A number of studies using spatial analysis have been undertaken on office location patterns within large metropolitan centres. Morgan in London (1961), Rannels in Philadelphia (1956), Davies in Capetown (1965), Shachar in Tel Aviv (1967) and Alexander in Melbourne (1972) have all demonstrated how certain kinds of office establishments tended to be grouped in particular parts of the city. The nature of these groupings has been demonstrated by direct mapping, concentration indices, delimitation of clusters on the ground and geo-statistical techniques. With the exception of Alexander's survey, each of the approaches was essentially univariate, describing the characteristics of each activity in turn. Comparisons among univariate measures were made by inspection or, as attempted by Davies, by overlapping clusters defined for different activities.

More detailed work on the functional grouping of office activities was undertaken by Goddard in the city of London (1968). In common with Davies and Morgan, the importance of communication links between and within functional groups is inferred from their locational association, but the conclusions are arrived at by applying more rigorous multivariate techniques to a classification of eighty types of office activity.

Goddard with the use of factor analysis and logarithmically transformed data, revealed five main factors underlying the spatial variation of employment, four of which show a spatial clustering of the representative factor scores (trading, financial ring, financial core and publishing and professional services). Goddard differentiates a finacial core area, which includes such offices as banks and insurance companies, clustered around the Bank of England within a financial ring (stockbrokers, accountants, investment trusts etc.) forming a crescent to the north west of the stock exchange, and the Fleet Street area where publishing and professional offices are located. Goddard's conclusions concerning activity clusters suggest that clearly recognizable complexes of offices are restricted to the City of London and that outside the city the spatial arrangement of office activities is far less structured (Goddard, 1973 p.152).

A more recent study using similar techniques was undertaken by Gad in Central Toronto (1976). The outstanding spatial cluster in Toronto was the financial district, located to the the south of Queen street. Although employment in most financial activities is concentrated here, Gad found that other types of office employment unrelated to the

financial sector were also concentrated in this district. Other offices belonging to the business service industry, which are distributed throughout the central corridor were also represented to varying degrees in the so-called financial district. The absence of specialized office clusters in central Toronto led Gad to suggest that it does not matter where in the central area a certain office locates as long as the office is somewhere within the central area.

Takahashi's (1972) analysis of floorspace data differentiated by industries for the CBD of Vancouver did not reveal signs of strong clustering of activities. With the use of factor analysis, however Takahashi did identify groups of offices which appeared to have some functional basis, but their spatial distribution indicated that office areas were not well defined within Vancouver's CBD (p.89). Investigations of office employment in the smaller city of Nuremberg (500,000) also revealed little spatial clustering (Gad, 1968).

3.3 Communications and Office Location

Office activity involves the collection, storage, recording and transmission of information. These are essentially secondary office tasks which support the primary activities of the generation, development and implementation of ideas. Office location is thus more a product of information flows than of the movement of goods. Thus studies concerned with the understanding of the way in which flows of information between offices are generated and accommodated by communications systems have been important in developing office location theory. Communication between offices is achieved along either physical or non-physical channels i.e., telecommunications. At higher levels of office activity person to person communication is very important because many of the contacts involve problem solving, reconnaissance or negotiation. Personal involvement and effort is important and at present can only be achieved by utilizing physical communication channels. Non-physical communication may eventually permit such contacts to be made without the participants leaving their offices, but developments in this area are still in their infancy.

The split between physical and non-physical communication used by offices varies for different activities. As a general rule the higher the proportion of personal contact required the more central will the location of an office need to be if costs are to be

minimized (Daniels, 1975 p134). The most important cost factor is the value of executive time. The more time spent travelling to meetings the higher the cost of maintaining personal contacts. Executive efficiency is achieved by maximizing the time spent in meetings and minimizing time devoted to travel. This contributes to the central location tendency of offices (particularly head offices), a feature which might only change when the substitution of telecommunications for transportation becomes an effective alternative.

It has been proven that executives spend most of thier time engaged in contacts. Burns (1957) found that on average managers spend between 42 per cent and 80 per cent of their total working time in internal and external contacts. Stewart in 1967 found that middle management on average spent 57 per cent of their time on internal personal contacts, 11 per cent on external and 6 per cent on telephone contacts.

These findings, while pointing out the importance of contacts, say nothing about the kind of communication that leads to the selection of elther the telephone or face-to-face channels. Hesseling (1968) suggested a four point communications classification, namely orders, advice, information and assessment or judgement. Graves (1970) added a 'bargaining' category in which individuals seek to advise each other. Such classifications are subjective and both studies revealed considerable asymmetries on how individuals rate the same contact.

In view of these problems Reid suggested a classification based on the characteristics of the individuals and the relationship between them (Reid, 1970). He hypothesized that the need for high fidelity communication channels would decrease with the differentials of authority, differentials of knowledge and degree of familiarity and would increase with mean level of authority (related to the 'importance' of the subject matter), knowledge (related to the 'complexity' of the subject matter discussed) and degree of conflict.

This argument was strengthened by Thorngren (1970) who found that, in the case of intra-organisation contacts, the individuals are in established positions of authority, knowledge and familiarity; whereas external contacts are frequently between unfamiliar participants of similar status.

Simon (1960) made an important distinction between 'programmed and non-programmed' decision processes which give rise to regular contacts between familiar participants about specific subject matter, which often takes the form of orders given or received. At the other extreme, non-programmed decisions are novel, complex and unstructured. They give rise to contacts between unfamiliar participants, often in large meetings which take the form of wide ranging discussions about a number of subjects. Programmed contacts are most suited to telecommunications, unprogrammed contacts generally require a large amount of feedback and therefore are associated with face-to-face meetings.

Thorngren (1970) identified an intermediate group between these two extremes, which he has called 'planning processes'. He referred to non-programmed contacts as 'orientation processes'. According to Thorngren orientation processes often suggest new alternatives which are developed and realized through planning processes. Programmed processes on the other hand are concerned only with the utilization of existing resources. These three levels of decision processes give rise to different levels of contact between a firm and its environment, whereas orientation processes involve wide ranging and diversified patterns of contact, programmed processes are narrower and more restricted in scope.

This classification has proved very useful for the analysis of contact patterns (see below) and it is usually assumed that programmed patterns are least affected by increased distance from the CBD. The implication of the work on office communications is that those firms with weak linkages such as the head offices of manufacturing companies could leave the centre of London, New York or Toronto with minimum difficulty, while those with strong and frequent linkages should stay and expand (Gad, 1976). Invariably this is an oversimplification since Rhodes and Kan (1971 p.60) noted that some companies were reluctant to move in a situation where their operating costs, even if not as low as they could be, are small relative to those of the company as a whole.

3.3.1 Contact Studies

By collecting information on characteristics of personal communications within and between offices it becomes possible to assess the importance of communication links as a locational restraint and the implications of telecommunications for present and future information flows, ie., whether or not a proportion of personal contacts could be transferred to future telecommunications systems without any detrimental consequences for office operations. The earliest examples of this type of approach to communication and office location have come from Sweden where interest has largely centred on the significance of business contacts for regional development, using information collected from businessmen about destination, purpose, duration, and the types of contact used to arrange and participate in meetings. Tornqvist (1970) studied the contact modes and patterns of fourteen separate Stockholm based organizations over a week long period using diaries of contact completed by each individual employee. Thorngren also collected records of over 1,500 contacts made by 3,000 businessmen. This work stimulated research in this area, especially in Britain.

Although the importance of face-to-face contact as a locational determinant has been repeatedly emphasized in studies of office location decisions, only a few surveys have been made of the actual pattern of contacts. Two methods of surveying communications have been used. The first involves respondents estimating the amount and type of communication and recording this information on a questionnaire. In the second method respondents record details of each contact as and when it occurs in a diary.

3.3.1.1 Questionnaire Method

Fernie (1977) summarized the results of three studies undertaken in the UK using the questionnaire method of evaluating contact systems. Based on his own work in Edinburgh, that of Bannon in Dublin (1973) and Crofts in Leeds (1968), Fernie shows that the average relative frequency with which office firms contact various types of activities on a face-to-face basis is similar in all three cities. It is also similar to the pattern found by Davey (1973) in Wellington. Although the survey data are not directly comparable, contact with customer/clients, banking, finance and legal firms rank highly, government contacts rank middle order and

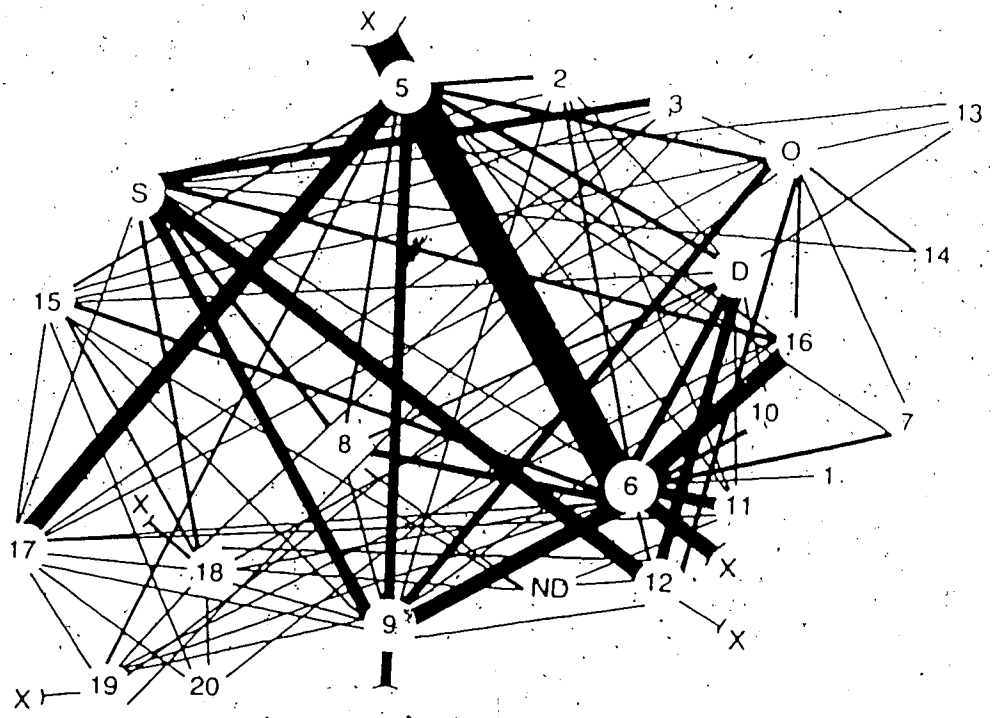
services as low order.

Figure 3.2 shows the daily pattern of face-to-face contacts among offices in central Dublin (Bannon, 1973 p.119). The strongest links occur between the legal and financial sectors, which are also closely linked internally. This pattern is similar to that in Leeds and Wellington (Crofts, 1969; Davey, 1973). The financial and legal sectors generally display a greater frequency of personal contact than other office activities. A particularly high level of face-to-face contact is evident between the same sectors in the city of London. Dunning and Morgan (1971, p.143, 161-9) found that large central area institutions such as the stock exchange, government banks and commodity markets are also important in contact patterns. This result shows that many of the inferences drawn upon the basis of earlier described spatial clusters do have validity.

3.3.1.2 Contact Diaries

Only two major studies using this method have been underta side Sweden, namely the large scale study undertaken by Goddard in central London, and a second by Gad in central Toronto. Goddard collected information on telephone and meeting characteristics of 705 businessmen working in Central London, who recorded details of 5,266 telephone calls and 1,954 meetings over a three day period. The distribution of contact diaries to individuals in 72 firms was concentrated on non-clerical staff, due to their high contact propensity. The main findings of Goddard's study are:-

1. The patterns of telephone and face-to-face meetings suggest that the spatial groups of office activity are based on functional connections. The most important groupings of activity to emerge are banking and finance, official agencies, commodity trading, publishing and business services, fuel and oil manufacture and civil engineering. There are strong links within and between each of these groups.
2. A high proportion of all contacts transacted from central London offices is directed to other central establishments. Most of the recorded face-to-face meetings took place within the centre and the majority involved travelling times of less than half-an-hour; 33 per cent of the meetings were reached on



1 Estate agents
2 Accountants
3 Architects
4 Engineers
5 Legal
6 Banks
7 Stockbrokers
8 Building societies
9 Insurance
10 Travel agents
11 Manufacturing agents
12 Advertising agents
13 Medical practitioners
14 Other medical
15 Trade unions
16 General offices
17 Central government
18 State sponsored
19 Local authority
20 Embassies
O Other professional
S Services
D Other Dublin firms
ND Non-Dublin firms

(Source: Bannon, 1973 p.119)

Figure 3.2 The Pattern of Daily Face-to-Face Contacts Among Offices in Central Dublin

foot.

3. Despite geographical intensity only a small proportion of all contacts involved face-to-face meetings. This correlates closely with earlier findings in Stockholm by Thorngren (1970). The majority of contacts in both surveys have been classified as 'programmed' contacts. These are short, routine in nature and are generally unarranged. A smaller proportion is classified as 'orientation' contacts. Here face-to-face contacts are always used. The balance of the contacts are 'planning' contacts, directed mainly towards research and development activity.
4. Only a small percentage of orientation contacts occur on a daily basis, with 43 per cent being regarded by respondents as occasional only. Thus the network of daily face-to-face meetings is not necessarily a vital part of the contact network.

These results run counter to the suggestions of the authors cited earlier who claimed, on the basis of location observations alone, that office activities needed to be in proximity for purpose of frequent face-to-face contact. Goddard concluded that over 80 per cent of all contacts in central London are of a type that could readily be carried on outside the centre (1973 p.212). These are the routine programmed contacts that are predominantly carried out by telephone and hence need not be affected by location. He further notes that up to 20 per cent of the orientation contacts could be replaced by telephone contacts without difficulty.

Further research by Goddard and Morris (1976) indicates that observed decentralization of offices is quite rational in terms of communication characteristics. Comparisons of Central London offices with decentralized offices and between offices which considered moving out of Central London and either moved or stayed, show interesting differences in communication behaviour. central London offices in general and 'stayers' show higher frequencies of face-to-face contacts than decentralized offices or 'movers'. Also Central London offices and stayers have larger proportions of orientation meetings than decentralized offices or movers.

The differences between communication behaviour seem to be mainly due to the functions or departments decentralized rather than the replacement of face-to-face meetings with telecommunication contacts. There is a fair amount of agreement by many geographers that orientation contacts mostly involving several persons and the exchange of documents will not likely be replaced by telecommunications.

3.4 The Impact of Telecommunications

There has been considerable speculation about the ability of telecommunications to substitute for travel ever since Meier (1962) queried the necessity for office buildings to be clustered in city centres if individuals could communicate adequately without leaving their desks. Advances in telecommunications technology have been many and varied and the communications study group in London has devoted much energy and time to assessing the advantages and disadvantages of the teleconference, the video telephone, and various information and data transmission devices such as telex and viewdata, as well as the psychological side-effects of using devices of this kind instead of the telephone or face-to-face meeting (Pred, 1973; Christie and Elton, 1975).

Cook (1975) has shown that 34 per cent of existing meetings consist of activities whose outcomes would not be significantly affected if audio teleconference devices and graphic displays were used. The major constraint in using these and other innovations is the cost of maintaining contact in this way. Pye (1977) devised a model in which he attempted to compare the 1974-75 value of financial benefits from changing location with the costs of maintaining contact. One of the most interesting points to emerge is that the average frequency of contact for which travel costs are equal to the financial savings of locating in a number of towns decreases as rapidly as distance from London increases, so that the increased economic benefits which are in general obtainable from longer distance moves (lower rents, lower taxes and land costs, lower staff costs) do not offset the greater costs of communication (Pye, 1977 p. 154). If the trade-off between communication costs and accommodation staff costs is critical in office location decisions then this would appear to conflict with the observations by Goddard and Morris (1976) that offices should move further from London in the interests of escaping the shadow

effect. The reasons for these contradictory findings are mainly related to the fact that Pye's model is exclusively cost dependent while Goddard and Morris exclude this factor from their analysis (Daniels, 1979 p.14). Pye (p.165) also concludes that the impact of telecommunications alone on the existing balance between communication costs and other benefits is small. He further adds that

> "Not only are the Assisted Areas unattractive to relocating offices but also the development of new office employment.....will be discouraged because of the lack of external economies" (p.167).

3.5 Office Location Factors and Decision Making

Hoover and Vernon stressed that office managers are peculiarly insensitive to cost considerations inolved in office location. Manners (1974) makes a similar point and explains the wide range of possible location decisions with the argument that there appears to be no significant and consistent geographical variations in the entrepreneurial cost of most office activities within American metropolises.

Several studies have concent on the decision making aspects that have led to the patterns of office location and agglomerations in the CBD. Surveys of firm management in several cities have been undertaken to investigate the locational behaviour of office activities. surveys are no infalliable guide, since there is a tendency to rationalize location after the event both by leaning towards expected answers and by discounting factors that might be regarded as irrational. However, it is possible at least to indicate those factors that weigh most heavily in the location decision and a comparison of selected survey results is given in Table 3.1.

The access or communication factor emerged as an important location influence for central area offices in all the surveys. It emerged in several forms: contact with external organizations (London), proximity to services (Dublin), proximity to customers and clients (Sydney, Dublin), access to contacts (London and Wellington) Thus at least in the minds of decision makers the CBD affords an important advantage in the terms of facilitating contact and access to information.

Staffing, tradition and prestige factors also emerge as important influences in most of the surveys. The staffing factor is understandable since the CBD is able to draw from the entire region. Tradition and prestige factors suggest that many firms are only located

Table 3.1 Factors Affecting Office Location

LONDON (1964)	SYDNEY (1972)	DUBLIN (1973)
1. Contact with external organisations	1. Availability of premises	1. Suitable environment
2. Tradition	2. Customer/client accessibility	2. Proximity to services
3. Communications with rest of U.K.	3. Proximity to public transport	3. Proximity to customers
4. Prestige	4. Rent	4. Adequate floor area
5. Internal communications	5. Prestige	5. Low rental
6. Contact with government and institutions	6. Option to renew lease	6. Adequate car parking
7. Contact with parents and associates	7. Possibility for expansion	
8. Central location Supply of staff	8. Staff availability Ease of executive parking	
9. Central to operating area	9. Access to associated businesses	

TORONTO (1975)	WELLINGTON (1972)
1. Concentration of decision-makers	1. Access to contacts
2. Prestige, visibility	2. Availability of parking
3. Amenities	3. Staffing
4. Access to public transport	4. Access to customers/clients
5. Staff availability	5. Convenience
6. Availability of services	6. Prestige, visibility, tradition
7. Proximity to special institutions and government	7. Contact with government
	8. Access to special services
	9. Economic factors

London: Economist Intelligence Unit, 1964, Table CI 4.
Sydney: Plant Location (International) Pty Ltd and W.D. Scott and Co. (1972), Table 20.
Dublin: Bannon, 1973, Table 5.1.
Toronto: Peat, Marwick and Partners and IBI Group, 1975, pp. 14-20.
Wellington: Davey, 1972, Tables 22 and 24.

Source: Alexander, 1979. Pg. 19.

in the CBD because they have always been there. They see it as important to their business image to remain in the centre or they are unwilling to break away from an established or accepted location. The original access advantages may now be available in other locations, but locational inertia will keep them in a central location.

Cowan's study of central London in 1969 led him to conclude that many firms pay far less attention to locational requirements than might have been expected. In many instances, among the firms surveyed, there was a tendency simply to move into office space where it was most readily available without any rigorous examination of alternatives. Some firms particularly those in the insurance and banking sectors have invested heavily in central office buildings which gives the firms a financial stake in maintaining a central location which must affect their locational behaviour. The prominent part played by developers in shaping office location patterns led Cowan *et al.* (1969) to base a predictive model of office activity locations on the building pattern (ie. office supply) rather than on demand factors.

The influence of development companies on the location of office space is also linked with the source of finance upon which a great deal of speculative office development depends. Merchant banks, insurance companies, pension funds and other financial institutions, many of which themselves require substantial quantities of office space, contribute to as well as benefit from office development. Many construct their own building and provide space beyond their requirements and then sublet to other clients. Thus office location is not simply a product of easily accessible opportunities for information gathering and exchange, but it is also determined by complex financial and other vested interests which are on both the demand and supply side of the office market.

Taylor (1963) describes the CBD as a seedbed for small business activities which operate from office premises. He argues that an entrepreneur requiring office space is not just attracted to the CBD by the advantages of access to clients and professional expertise but also by the ready availability of low-cost office space around the fringes as well as within the central area. Once established such offices will move on, often over short distances and at frequent intervals, usually into more spacious and more expensive premises.

Zieber (1972) found the availability of office space to be the most important factor in the concentration of oil administrative offices in the CBD of Edmonton, but this was not the case in Calgary's CBD where similar offices were located due to the need for contact with other oil offices. These findings show the difficulty and dangers of generalizing about office location behaviour.

3.6 Office Decentralization

Decentralization of office activity has emerged as a trend in many cities. This trend has largely been induced by policies designed to overcome problems of congestion and commuting that office concentration exacerbate (London, Sydney, Amsterdam). In other cities, particularly in the U.S.A., decentralization of office activities has occurred through the operation of market forces.

Office activities in American cities have a greater tendency to decentralize than elsewhere. The growth of American cities has often been accompanied by accelerating suburbanization, making them the most suburbanized cities in the world. Suburbanization has been facilitated by the rapid growth of public transit and extensive freeway systems coupled with the American 'suburban dream'. Manufacturing, retailing and local services have already mushroomed in the suburbs. According to Webber (1963 p.44) in the early 1960's offices were joining the long list of economic activites that were able to survive in a non-central location. Many company head offices had followed their production plants to suburban locations. This was seen to reflect a 'new degree of locational freedom' for offices (Alexander, 1979 p.31).

Relocation of manufacturing head office activities accelerated during the 1960's and early 1970's. This relatively high degree of mobility among manufacturing head offices in American cities has not however been matched in other office activity sectors. Head offices in the financial financial sector still remain highly centralized, which reflects a greater need for central external economies than is evident in the manufacturing sector. However there has been some decentralization of financial activity within urban areas. The sectors of banking and insurance firms that are heavily involved with data processing and clerical activities tend to decentralize (Robbins and Terleckji, 1960; Foley, 1956). This trend was also found to be true in London, Vancouver and Sydney. This reflects the lower

contact intensity of such activites in contrast with the high-level managerial functions. Armstrong (1972 p.85) also reported that regional offices of insurance companies have shown tendencies towards decentralization in New York.

Despite the degree of office dispersal in American cities, office employment has in general continued to increase in central areas. Thus while decentralization has proceeded rapidly it has not prevented office activity from expanding in central city areas. Manners (1974) found that detatched office space was predominantly centralized in most of the large metropolitan cities. In recent years there has been a small counter-current to the mainstream of office decentralization in American cities (Corey, 1982). Some companies have returned to the CBD after several years in a suburban location. The Helena Rubenstein Company, for example, returned to Manhattan after four years in the suburbs (Hertzberg, 1979). The reasons include the man-hours wasted by executives travelling between the CBD and the suburbs, and the lack of a stimulating business environment. Similar trends have also been observed in Chicago (Pollina, 1979) and Washington D.C. (Gamarkian, 1979).

The rate of decentralization in the U.S.A has not been matched elsewhere. There has however been some office decentralization in London and Sydney, but much of this has occurred as a result of specific policies directed at moving the focus of office development away from the central area. Office jobs in the United Kingdom and Australia are still more centralized than other types of employment. Office decentralization has occurred mainly through the relocation of attached office activity and the growth of local services rather than through the relocation of head office activity. Facey and Smith (1968) reported a limited amount of relocation of office activities from the central to the inner and outer suburban areas in Leeds. However according to Fernie (1977, p.86) the majority of firms prefer a central location, and are reluctant to relocate outside the central area.

In Canadian cities the most notable cases of decentralization for large offices have been achieved in some cities by government agencies. Ottawa is a good example of a city in which government institutions only indirectly tied to the day-to-day affairs of state have moved out of the CBD (Hardwick, 1974).

Hardwick (1974) noted three decentralization trends that are evident in Vancouver. Firstly, for many head offices there has been a decentralization of those services which

are not central in the mangement process. Research and development, for example, can be located outside the core. Second, a number of office activities, once located in the CBD are moving out to suburban locations along with their plants. This is especially noticeable in cases where the plants are large, and for purposes of production efficiency, desire to have the managerial function close to the production location. The Crown Zellerbach Canada Ltd. paperboard plant of Vancouver is an example. Third, Hardwick recognizes the separation between what he refers to as the major western head/branch office function and the more local office function within such enterprises as insurance companies and other financial and business service companies. The more extensive service in this case, will be maintained in the CBD, while the locally oriented sales force or service division will be located outside the core, along West Broadway in Vancouver, or in one of the suburban nodes. When transportation facilities are good such as the Yonge Street subway in Toronto, several places along the system can become major growth centres. In Toronto, Bloor Street and Eglinton Avenue share many functions with the CBD (Gad, 1976).

The rate of office decentralization varies between cities, but it appears that certain office activities are more likely to decentralize than others. Apart from the growth of local market office activities (in association with increased suburbanization of population) there has been a trend towards decentralization for office activity attached to suburbanizing manufacturing and wholesaling activities. While the decentralization of detatched head office activity has been less prevalent manufacturing and distribution firms have been more mobile than other forms of office activity, especially financial offices. This reflects the high degree of attachment to the central area contact network evident among these activities as previously discussed.

3.7 Summary

From this review it is clear that offices have a tendency to concentrate in city centres. Many of the studies reviewed have suggested that office concentration is primarily due to their need for quick access to, and communication with other activities, to central services and institutions, that is, the external economies of the the CBD. The results of spatial and non-spatial approaches to office concentration both suggest that the

importance of contacts as a locational constraint has been exaggerated. The majority of contacts between offices are not transacted on a face-to-face basis, and those that are involve a minority of office personnel. While these contacts may be regarded by managements as a sufficient reason for maintaining a central location, there are many other factors encouraging centralization, such as the recruitment of staff and the availability of office space. On a more subjective and personal level prestige and tradition are also important. In addition, the central office contact network does not involve all office activities to the same extent. The following chapter discusses the research methods used to determine the importance of the contact factor on intra-metropolitan office location in Edmonton.

4. Definition of Terms and Research Methods.

4.1 Definition of an office

The term office was introduced and briefly discussed in chapter one, but further clarification is felt necessary at this stage, in order to provide a clearer understanding of the office function. Offices can be defined with reference to the functions which they perform, or in terms of the space or type of building they occupy.

4.1.1 Functional concepts

The minimum function of an office according to Mills (1953, p.90), is to direct and co-ordinate the activities of an enterprise. Using this definition as a basis, Mills proceeded to divide office functions into categories:-

1. Receiving information
2. Recording information
3. Arranging information
4. Giving information
5. Safeguarding assets.

Mill's statutory definition of the office function can be transformed into an occupational framework. Using the above five point functional division office occupations are considered to include administration and clerical work, the handling of money, the operation of telephones and other communication facilities and the use of computers. Gottmann (1968) also includes professional and financial experts, who provide non-physical services to the public at large and specifically to the business community. Table 4.1 lists white collar occupations that are considered office occupations in this study.

All office jobs are regarded as white collar or non-manual jobs. However it can also be seen from Table 4.1 that there are several white collar jobs that are not considered office jobs by the census. The terms white collar and office worker cannot therefore be used interchangebly. A difficulty with the definition in Table 4.1 is that occupational statistics are not always readily available in this form, particularly over time and for small areas. For this reason the term office-type job is sometimes used. It refers to all

Table 4.1 Definition of Office Occupations

OCCUPATION GROUP	OCCUPATION TYPE REGARDED AS OFFICE JOBS
Professional and Technical	Architects, engineers, surveyors, legal professionals, draughtsmen and technicians
Administrative Executive and Managerial	Government administrative and executives*, private sector administrative and executive, directors and managers.
Clerical	Bookkeepers and cashiers, stenographers, typists, office machine operators etc.
Sales	Insurance, real estate, salesmen, auctioneers, valuers, manufacturer's agents.
Communications	Telephone, telegraph and related operators.
	WHITE COLLAR JOBS NOT REGARDED AS OFFICE JOBS
Professional	Scientists, medical practioners, dentists, nurses, other professional medical, teachers and clergy.
Sales	Proprietors and shopkeepers, retail and wholesale trade salesmen, shop assistants.

* Government jobs are omitted in this study

Source: Alexander, 1979.

professional, technical, clerical, administrative and managerial jobs.

Office activity refers to a formal grouping of different office occupations, e.g., a private firm, a government department.

Office occupations refer to groups of office activites handling similar types of information in a similar way.

4.1.2 Physical concept

Rausch (1964) believed it was a mistake to regard an office as a specific place. This view may have been applicable before the physical separation of production and administrative units of an organization became apparent. Today the large numbers of free standing, detached office buildings in the majority of industrialized cities testifies to the marked physical separation of offices from other urban land uses. Thus, the type of building that an office occupies can be used as an easy method of defining offices.

An office building, in this study, is defined as a workplace whose principal use is for office activities. Both functional and physical aspects of the office were used in defining an office in this study.

4.2 Classification of office activities

The 28 two digit SIC codes listed in table 4.2 were initially used as a basis for classifiying offices into functionally parate categories. With the aid of the Edmonton Yellow Pages directory and the Business Directory for Edmonton these groups were collapsed into four major categories: finance, insurance and real estate (FIRE); professional; business services; and general offices. Each of these groups were further subdivided, forming 32 types in all (Table 4.3). The focus of this study is the private office sector so government offices are excluded from the classification. The final classification of offices listed in Table 4.3 corresponds closely to that used by Goddard in London (1973), Alexander in Sydney (1976) and Gad in Toronto (1976).

Table 4.2 SIC Codes for Office Activities

S.I.C. CODES	TYPE OF COMPANY
10	Metal Mining
12	Coal Mining
13	Oil and Gas
14	Mining and Quarrying
15	Building Contractors
25	Furniture Fixtures
29	Petroleum
40	Railroad Transportation
41	Local Transit
45	Transportation by Air
46	Petroleum Pipeline
47	Transportation Services
48	Communication
49	Electric, Gas and Sanitary Services
50	Auto Dealers
60	Banks
61	Credit Agencies
63	Security Services
64	Insurance Companies
65	Real Estate and Developers
67	Holdings and Other Investment
73	Business Services
78	Motion Pictures
81	Legal Services

Source: Contact: Influential Directory 1982.

Table 4.3 Classification of Offices

1. Financial, Insurance and Real Estate (FIRE)

Banks
Credit Unions/Trust Companies
Finance Companies
Real Estate/Developers/Appraisers
Stockbrokers/Custom Brokers
Investment/Holdings/Securities
Morgage Companies
Insurance/Assurance Companies
Other

2. Professional

Barristers/Lawyers/Solicitors (legal)
Accountants
Architects/Designers/Surveyors
Engineering Consultants
Planning Consultants
Management and Business Consultants
Other

3. Business Services

Employment Agencies
Advertising/Public Relations Agencies
Leasing Agencies
Property Management Services
Data Processing/Computer Services
Office Suppliers
Other

4. General

Manufacturing Agencies
Wholesalers
Natural Resources
Chemical/Electronic
Clubs and Associations
Travel Agents
Transport/Communications
Other

4.3 Delimitation of the CBD

The geographical area of the CBD in this study is bounded by 97th Street to the east, 104th Avenue to the north, the CP rail tracks (109 Street) to the west and 99th Avenue to the south (Figure 4.1). This is essentially the area defined as the CBD by the Edmonton planning department. However, since this study focuses on the private office sector only, the [redacted] south of 99 Avenue, normally considered part of the CBD, is excluded because [redacted] provincial government owns and/or controls almost all of the office space in that area.

4.4 Data collection

4.4.1 Sources of information

One of the basic sources of information for this study was the Contact Influential directory for Edmonton, 1982. This directory provides a listing of firms both alphabetically and by SIC code. The following information about each firm was available from the directory:-

1. Name of firm
2. Address and telephone number
3. Administrative status (headquarter, branch, local)
4. Number of employees
5. Contact name, eg. president, vice president or general manager.

Henderson's Edmonton city directory 1981, provided a listing of the occupants of each office building arranged by streets, listed in numerical order.

Further sources of information included field survey of the office buildings located in the CBD, the Edmonton Business Directory 1982, the Yellow Pages directory for Edmonton, Statistics Canada, Alberta Statistics, and various publications by the City of Edmonton Planning and Business Development departments, and several market surveys by realtors and land appraisers.

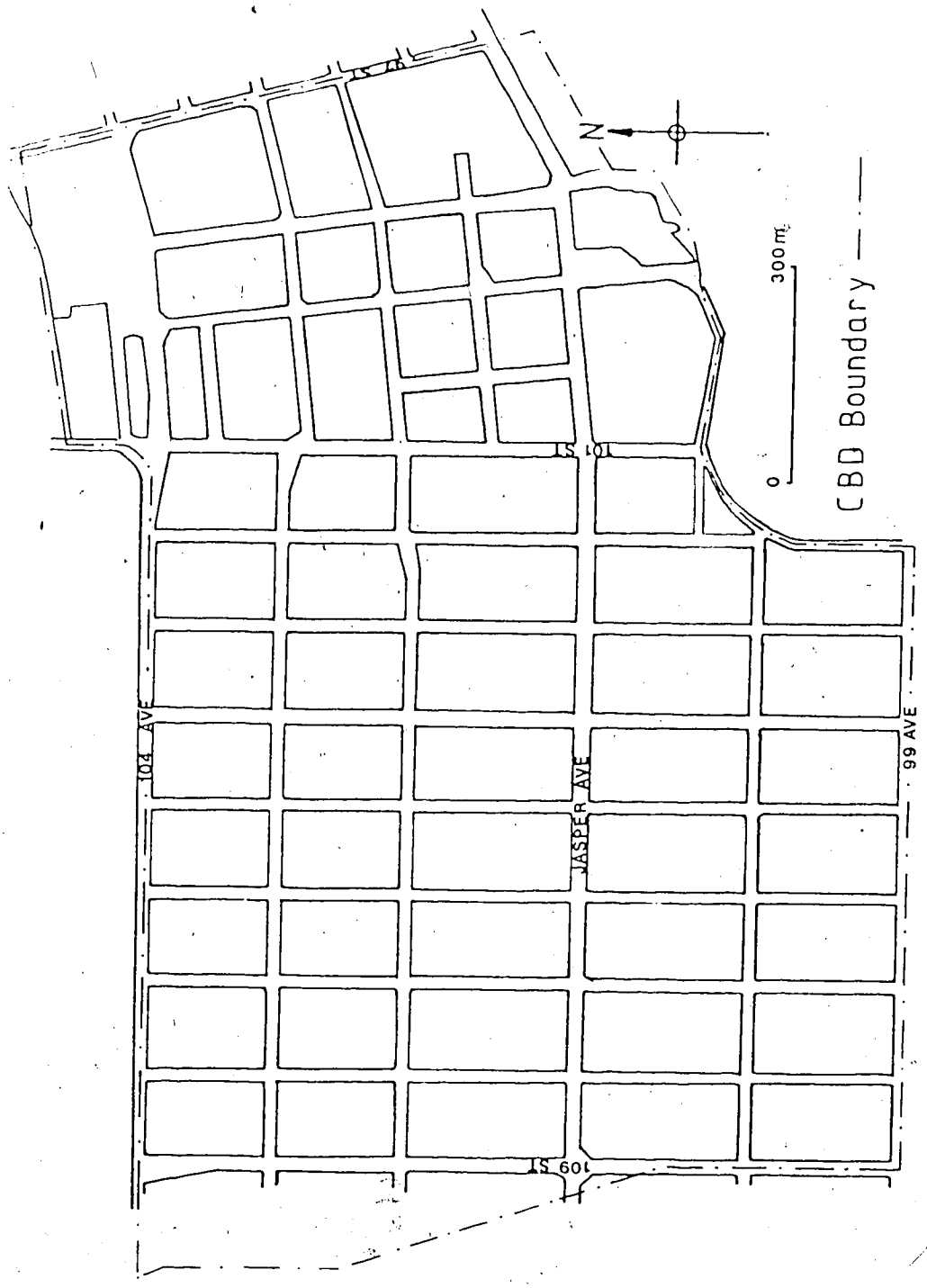


Figure 4.1 The CBD Area of Edmonton

4.4.2 Contact Diary

The initial aim of this study was to analyze in detail the contact patterns generated between office activities in Edmonton and to establish which types of business contacts most needed face-to-face meetings. This objective was to be achieved through the use of a contact diary, completed by employees of office firms who had a high incidence of face-to-face meetings. A copy of the diary is included in Appendix A. As a pre-test the diary was was sent to fifteen executives employed in six different firms. This involved a lengthy personal conversation to explain the purpose of the study and to persuade the executives to cooperate. However, several major problems became evident during the pre-test period. These problems proved to be insurmountable and after approximately 3 months this part of the study was abandoned, despite the useful information concerning contacts it would have provided

One of the major problems was the unwillingness of office employees to participate. Initially thirty firms were approached for the pre-test of the contact diary. Of this number only six agreed to participate. The second major problem, related to the lack of participation, was that the willingness to cooperate was biased towards types of firms that were interested in receiving the results i.e., real estate firms and planning consultants.

The third problem was the selection of individuals within firms to complete contact diaries. As little was known about what characteristics of individuals might be significant discriminators as to the amount and type of contact, a rigorous sampling procedure was impossible. The distribution of diaires was left entirely to the msnsger of the firm. It was hoped that several executives from any one firm would complete a diary to ensure that the firm was well represented. However during the pre-test period, the maximum number of employees from an individual firm that agreed to complete diaries was four. After the time period allowed for completion had elapsed only one completed contact diary was returned. Despite 'follow-up' phone calls no more were returned. A further problem, of less significance than those already discussed, but nevertheless important, was the high cost of producing the diary and postal cost of delivery and return.

4.5 Questionnaire Survey

The first stage of data collection involved a questionnaire survey designed to examine and compare the importance of the contact factor in the location decision of CBD and non-CBD office firms. In addition the questionnaires provided information on the importance of selected business contacts. The questionnaire survey was initially designed with the intention of a follow-up contact diary. Two separate questionnaires were designed. The first one was administered during July 1982 to office firms located within the CBD. A second questionnaire was administered to offices located in selected non-CBD locations in September 1982. Although the second questionnaire was similar to the first, additional questions regarding locational satisfaction were included in order to answer research questions 3(c)and 3(d) (see page 4). It was also designed to distinguish between those firms that had established offices in a non-CBD location and those that had relocated from the CBD. Copies of both questionnaires are presented in Appendix B.

The choice of business services listed in question 3 of each questionnaire requires some qualification. These services were chosen because of their general use by the majority of offices and their availabilty in Edmonton. Contact with clients, suppliers and government institutions were also included because previous research has found them to be of varying importance on the location of different types of offices.

The self administered mail survey method was chosen in preference to an interview survey due to the recognized benefits of time efficiency and lower cost (Babbie, 1973). The CBD questionnaire was delivered by hand with a request that the respondent mail the completed questionnaire. This method of delivery was adopted since it has been found by Babbie(1973) that contact with the recipient produces a higher completion rate than is normally true for mail surveys. However, the non-CBD questionnaires were mailed due to the dispersed location of non-CBD offices.

Each questionnaire was pre-tested on five firms. Fortunately no major problems were encountered during the pre-test period. However uncertainty did arise concerning the exact limits of the CBD. Thus it was decided to enclose a map showing the boundary of the CBD as defined for the purpose of the study.

To ensure the questionnaires were read by representatives who were well informed about locational decisions they were addressed to the president or senior

mangement representative of each firm, whose names were obtained from the Contact Influential directory of Edmonton 1982.

4.6 Sampling procedure

4.6.1 CBD sample

The total number of office firms located in the CBD was determined with the aid of the Henderson's street directory for Edmonton, and updated using information regarding occupants from the building directories of the new buildings not listed in the directory. This listing provided the sampling frame from which the CBD sample was taken. A stratified sampling method was used to ensure that each type of office activity was proportionately represented. Table 4.4 lists the number of firms in each category in the sample. A total of 250 office firms was selected for surveying. This figure represents approximately 30 per cent of all office firms located within the CBD. A total of 140 completed questionnaires was returned, which represents a 56 percent return rate, a more than adequate return for a mail survey (Babbie, 1973). Four of the questionnaires were incorrectly completed and had to be omitted, leaving 136 for analysis.

4.6.2 Non-CBD sample

No comprehensive listings for non-CBD office firms were available and, unlike the CBD area, not all office jobs are performed in office buildings. Many office activities are attached to other activites such as factories, shops, warehouses, and educational, scientific, or health establishments. Although the tendency for companies to separate their office activities may have increased in recent years, there still remains a substantial amount of 'attached' office activity in non-CBD areas. This factor made the compilation of a list of non-CBD office firms practically impossible. Thus a sample of 250 office activites was randomly selected from the Yellow Pages and Henderson street directories. It is therefore possible that some types of offices may not be represented in the sample. Table 4.5 lists the number of office firms in the sample by location and type. Of the 250 questionnaires delivered 40 were returned unopened, because the firm was no longer at that address. Of the remaining 210, 102 correctly completed questionnaires were

Table 4 4 CBD Office Sample by Type of Firm

OFFICE ACTIVITY	NUMBER SAMPLED	NUMBER RETURNED
F.I.R.E.		
Banks	9	2
Credit Unions	6	3
Finance Cos.	8	1
Brokers	12	5
Investment Cos.	20	19
Mortgage Cos.	4	3
Insurance	30	22
Real Estate	30	11
PROFESSIONAL		
Legal	40	20
Accountants	15	10
Architects	5	3
Engineers	5	4
Consultants	10	5
BUSINESS SERVICES		
Employment Agencies	7	3
Advertising	10	4
Data Processing	12	3
Property Mgmt.	4	2
GENERAL		
Manufacturing	5	2
Natural Resources	9	6
Travel Agencies	4	3
Transport/Communication	5	2
TOTAL	250	135

Missing = 1

Table 4.5 Non-CBD Office Sample by Type of Firm and Location

Location	Total	Fire	Prof.	Bus. Serv.	General
North-East	3	1	2		0
North-West	24	4	16	2	2
South-East	18	0	17	1	0
South-West	3	0	3	0	0
Commercial Strip	20	1	15	3	1
Calgary Trail	15	3	8	3	1
Municipal Airport	6	5	0	1	0
Frame of CBD	3	0	3	0	0
Shopping Centre	6	3	2	1	0

Missing = 4

returned. This represents a 48.6 per cent return rate, and although not as high as the CBD survey it is still considered an adequate return for a self-administered postal questionnaire (Babbie, 1973).

4.7 Data manipulation and anlysis

The first step in preparing the data for analysis was the construction of a coding manual so that the data could be put in a quantified format amenable to comuter processing. For the majority of questions coding was a simple matter as the pre-determined category numbers or raw scores served as response codes. The statistical procedures used in the analysis of the data included simple frequency distributions, cross tabulation analysis (contingency tables) and differences of means tests as set forth in the MIDAS statistical package (Fox and Guire, 1976). The 0.05 level of significance was utilized to determine the statistical significance of association between variables.

4.8 Geo-statistical analysis

The mean centre and standard distance measures were used to illustrate the spatial arrangement of offices in the CBD of Edmonton, as previously defined. It was decided to use these techniques on the analysis of office patterns in the CBD only, since these methods are best suited to nodal distributions, that is, those having one core with a periphery. Caculating the mean centres and standard distance for a dichotomic distribtion (or more than two) is misleading.

4.8.1 Mean centre

The mean centre of an areally distributed population is a balancing point or centre of gravity which corresponds to the arithmetic mean of conventional linear statistics. For its computation a 20 x 20 square grid of was superimposed on the central area of Edmonton. The location of each member of the population (in this case, offices) was plotted and expressed in terms of the X and Y co-ordinates of the grid. Where there was more than one member at one location, then the X and Y measurement was weighted by the total number of members at the location. Previous studies using this technique have

either used employment figures or square footage as a means of weighting (Goddard, 1973; Gad, 1976). In this study, attempts were made to obtain from the City Assessment Department the floor area of the offices located in the CBD, but unfortunately this information was not made available. Thus, the offices are dealt with in essentially an unweighted sense with each office being treated as a unit.

The sum of the terms for the entire map area divided by the map population gives weighted mean positions along each of the axes. The mean centre of the distribution may be found at the intersection of the mean X's and Y's using the following formulae –

$$\triangle = \bar{X} = \frac{\Sigma i(Xi.Pi)}{Pi} \quad \text{and} \quad \bar{Y} = \frac{\Sigma i(Yi.Pi)}{Pi}$$

Where:

$\triangle$ = mean centre
Σ = sum of
Xi = X co–ordinate of the ith point in a series i.....n
Yi = Y co–ordinate of the ith point in a series i.....n
Pi = the population weighting factor of the point i

4.8.2 Standard Distance.

Standard distance which is equivalent to the standard deviation in linear statistics is used to measure the dispersal of the population about the mean centre. It was refined by Bachi (1963) who used it as a method to analyze changes in population distributions within countries. The standard distance is expressed by the following formula –

$$d = \sqrt{\frac{\Sigma (Pi(Xi-\bar{X})^2)}{\Sigma Pi} + \frac{\Sigma (Pi(Yi-\bar{Y})^2)}{\Sigma Pi}}$$

Where:

d = Standard distance
Xi,Yi = the co–ordinates of the ith member of the population from i.....n
$\bar{X}$, $\bar{Y}$ = the mean centre values of X and Y co–ordinates.

The advantages of using mean centre and standard distance as aids in analyzing CBD office location are:

1. By means of a simple symbol it is possible to represent cartographically the location pattern of a large number of offices.
2. The symbol can be shown on a map in conjunction with the actual point distributi– of any type of office and so provide a quick, clear summary of the location

pattern.

3. The problem of comparing and contrasting distributions of different offices is simplified. Comparison can be made quickly and easily between different office types.

As these are only descriptive statistics caution should be taken when interpreting the results. The following chapter discusses the CBD office complex of Edmonton using these geostatistical methods.

5. The CBD Office Complex

5.1 Introduction

It is misleading to discuss offices as if they contained a homogeneous group of activities. While office buildings do provide a specific type of accommodation, they house a hyperbole of different activities. These activities tend to have different locational requirements and linkages to other activities and hence behave in spatially distinct patterns. The degree of resulting spatial differentiation appears to become stronger as a city grows and takes on more varied functions (Alexander, 1974). The ultimate situation appears in the 'world cities' such as London and New York, where office-type districts become a distinctly recognizable feature of the central area structure.

This chapter examines the location pattern of different office activities within Edmonton's CBD, and is based upon the idea that the functional interdependencies or contacts that exist among offices are reflected in the spatial pattern of location. What is expected to emerge is a tendency for certain office activities to cluster or form distinct groups. The standard distance and mean centre of gravity were found to be useful measures of spatial distribution in conjunction with a visual interpretation of maps. These statistics, while less sophisticated than the multivariate techniques applied by Goddard in London (1968; 1973), Gad in Toronto (1976) and Takahashi in Vancouver (1972), provide a quick and relatively simple method of summarizing the degree of office concentration within the CBD.

5.2 The CBD office Complex

The enumeration of offices using the 1982 Henderson directory and supplemented by field work revealed a total of 859 office establishments located within the CBD. Table 5.1 lists the types of offices found in the CBD. The major users of Edmonton's office space are given in Table 5.2. From these tables it is apparent that financial and professional, especially legal and accountants, are the predominant activities. Natural resource offices although few in number, occupy a large amount of office space (Table 5.2). The standard distance, centre of gravity and the relative index of concentration were calculated for 23 office types and are given in Table 5.3. The

Table 5 1 Types of Offices Found in Edmonton s CBD

Office Category	Number of firms	% of Total
FIRE	359	41.8
Professional	233	27.1
Business Services	113	13.2
General	154	17.9
	859	100

Table 5.2 Major Users of Edmonton s Office Space

Office Category	Name of firm	Office space (m^2)
FIRE	Mercantile Bank	1932
	Bank of Montreal	4048
	Canadian Commercial Bank	7728
	Continental Bank	1330
	Royal Bank	2173
	Toronto Dominion Bank	3036
	Fidelity Management	4876
	Principal Group	5612
	Great West Life (Ins.)	2576
	Sun Life (Ins.)	3404
	Reed Stenhouse (Ins.)	2024
	Oxford Development	3036
	A.E. LePage Real Estate	1932
		43757
PROFESSIONAL	Bishop McKenzie (law)	2570
	Milner and Steer (law)	1840
	Jamieson (law)	2392
	Field & Field (law)	2760
	Cooper & Lybrand (CA)	2760
	Thorne Riddell (CA)	2024
	Peat Marwick & Co. (CA)	1242
		15594
GENERAL	Nova (Natural Resource)	11960
	Imperial Oil (Natural Resource)	18400
	Interprovincial Pipeline (Nat. Resource)	7360
	CNR (Transport)	11132
		48852
	TOTAL	108,203
	TOTAL PRIVATE OFFICE SPACE	923,000

Source: Macaulay Nicolls Maitland & Co. Ltd. - Research Department

Table 5.3 The Standard Distance and Relative Index of Concentration of Offices in the CBD

Office Activity	Standard Distance (Metres)	Relative Index	Degree of Concentration*
1. FIRE	362.61	0.946	MD
Banks	274.14	0.716	HC
Credit Unions	302.85	0.790	HC
Finance Cos.	258.03	0.673	HC
Brokers	245.52	0.641	HC
Investment Cos.	275.85	0.720	HC
Mortgage Cos.	326.79	0.953	HC
Real Estate	360.27	0.940	MD
Insurance	424.35	1.108	HD
2. PROFESSIONAL	431.82	1.127	HD
Legal	310.50	0.810	MC
Accountants	416.07	1.086	HD
Architects	503.01	1.313	HD
Engineers	363.24	0.948	MD
Consultants	361.62	0.944	MD
3. BUSINESS SERVICES	398.97	1.041	HD
Employment Agencies	377.64	0.985	HD
Advertising	433.80	1.132	HD
Lease management	285.75	0.745	HC
Property management	327.24	0.859	MC
Data Processing	473.13	1.235	HD
Office Supplies	412.74	1.077	HD
4. GENERAL	403.65	1.054	HD
Natural Resources	345.78	0.903	MD
Manufacturing	459.09	1.198	HD
Clubs & Associations	447.39	1.168	HD
Transport & Communication	362.70	0.946	MD

* HC = Highly concentrated HD = Highly Dispersed MC = Moderately concentrated MD = Moderately Dispersed.

standard distance indicates the spread of a distribution along the north–south axis of the study area. The location of the mean centres is an indication for the orientation of a distribution within that study area. The relative index of concentration, which is the standard distance of the activity divided by the standard distance of the total office population is used as a comparative measure to identify four major distribution patterns:–

Highly Concentrated	Relative Index <0.80
Moderately Concentrated	Relative Index 0.81–0.90
Moderately Dispersed	Relative index 0.91–1.0
Highly Dispersed	Relative Index >1.0 (Goddard, 1973).

In order to simplify the spatial structure of office agglomeration, a total of 6 maps were then produced showing the location pattern of the different office activities.

5.2.1 Financial, Insurance and Real Estate (FIRE)

Offices connected with the city's financial function such as banks, stockbrokers, insurance companies, investment companies and real estate firms show only a moderate degree of dispersion. With a standard distance of 362m and a relative index of 0.946 (Table 5.3) this group is the most concentrated of the four. Within the group there is a wide range of location patterns. Five of the office activities within the group are described as highly concentrated. They include banks with a relative index of 0.716, credit unions and trust companies (0.790), finance companies (0.673), stockbrokers (0.641) and investment companies (0.720). These financial offices are mainly concentrated within the north–east area of the CBD to the west of the civic centre, and along Jasper Avenue between 100 and 102 Street (Figure 5.1, 5.2). In contrast to these highly concentrated office activities are insurance and assurance companies which are highly dispersed with a relative index of greater than 1.0 and a standard distance of 424m (Table 5.3). Between these two extremes are morgage companies which are moderately concentrated, with a relative index of 0.853 and real estate agents which are moderately dispersed with a relative index of 0.940. These results are in good agreement with other studies, for example, Gad (1976) found banks, trust companies and investment dealers to be highly concentrated, while insurance and real estate firms were dispersed throughout the central corridor of Toronto.

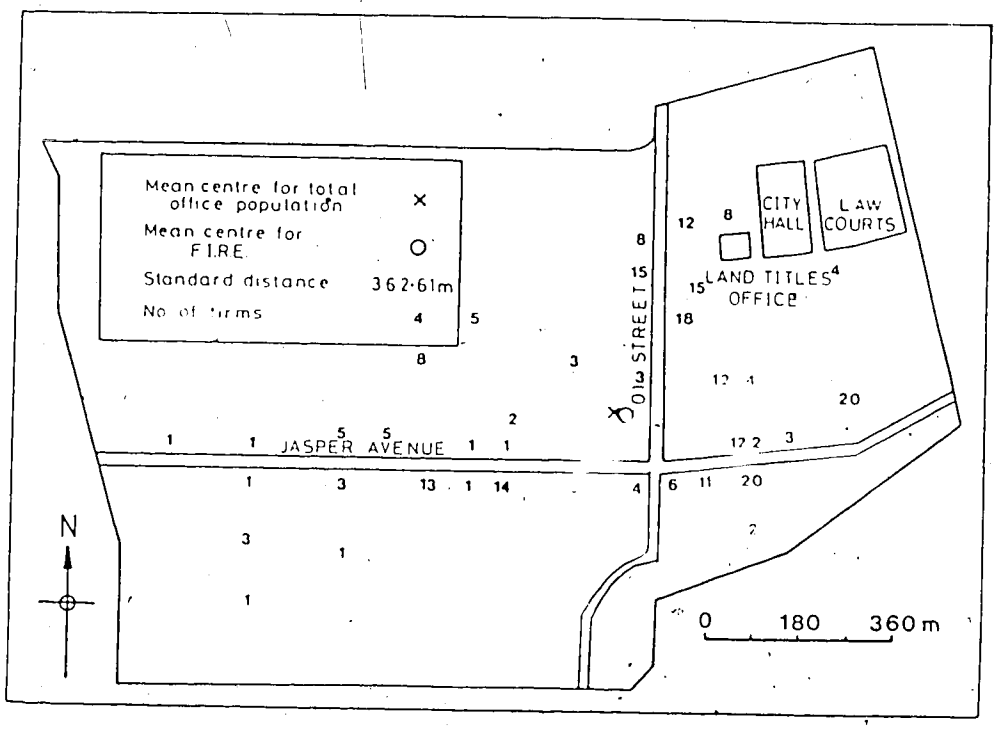


Figure 5.1 Location of FIRE Offices

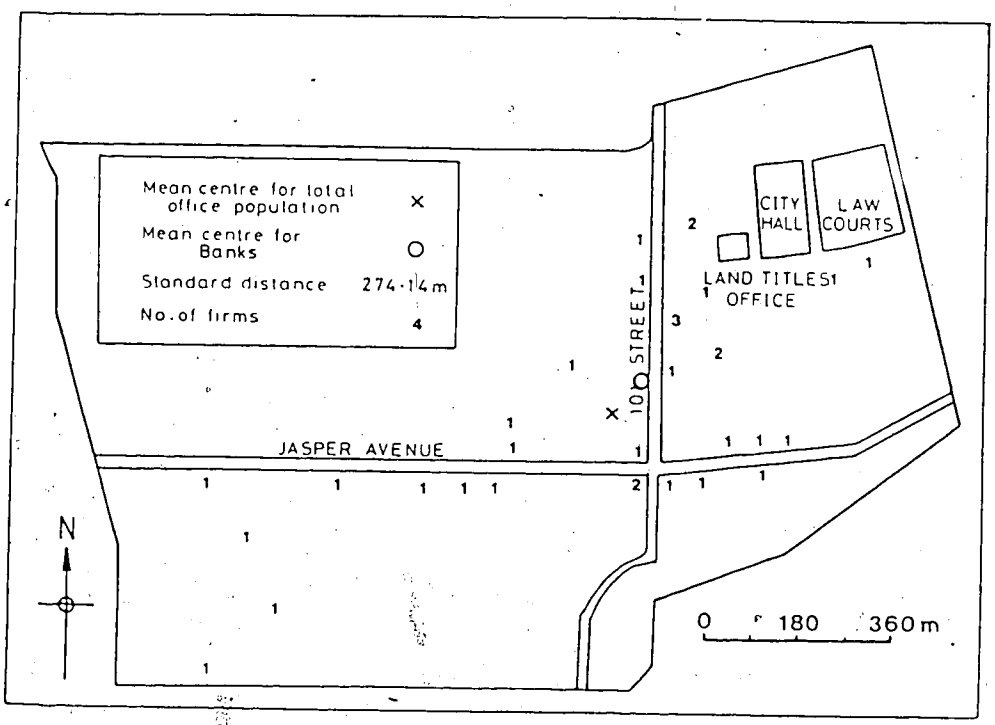


Figure 5.2 Location of Banks

In general, therefore, financial offices appear to be drawn to one another. Although it is hazardous to attempt an explanation of a clustered pattern from a spatial analysis, research in London has shown that interlinkages between different types of finacial offices in the form of inter-office contacts are rich (Goddard, 1973). Thus, the spatial distribution of financial offices appears to reflect their need for contact with one another.

5.2.2 Professionals

As a group, professional activities are highly dispersed with a relative index greater than 1 and a standard distance of 432m (Table 5.3). Within this group legal offices are the only activity to show any degree of concentration. With a relative index of 0.810 they are described as moderately concentrated. The mean centre of legal activities is to the north-east of the mean centre for the total office population, towards the civic centre where the land titles office and law courts are located (Figure 5.4). Morgan (1961) found the courts and land titles office to have an important localizing influence on legal offices. The tendency for legal firms to cluster in the vicinity of these institutions has been noted in many cities (Murphy, 1972).

In contrast to legal offices, accountants and architects with indices of greater than 1 and standard distances of 416m and 503m respectively, are highly dispersed, while engineering and management consultants are moderately dispersed.

5.2.3 Business Services

This group of office activities is highly dispersed throughout the CBD (Figure 5.5). Within the group there are two activities, leasing agents and property management services, that are highly concentrated and moderately concentrated respectively. However, there are only a very small number of these activities and the degree of concentration may be due to their presence in a limited number of cells, rather than the need to be close to each other. Business services are primarily engaged in providing services to other commercial activities and therefore tend to be widely distributed throughout the CBD area.

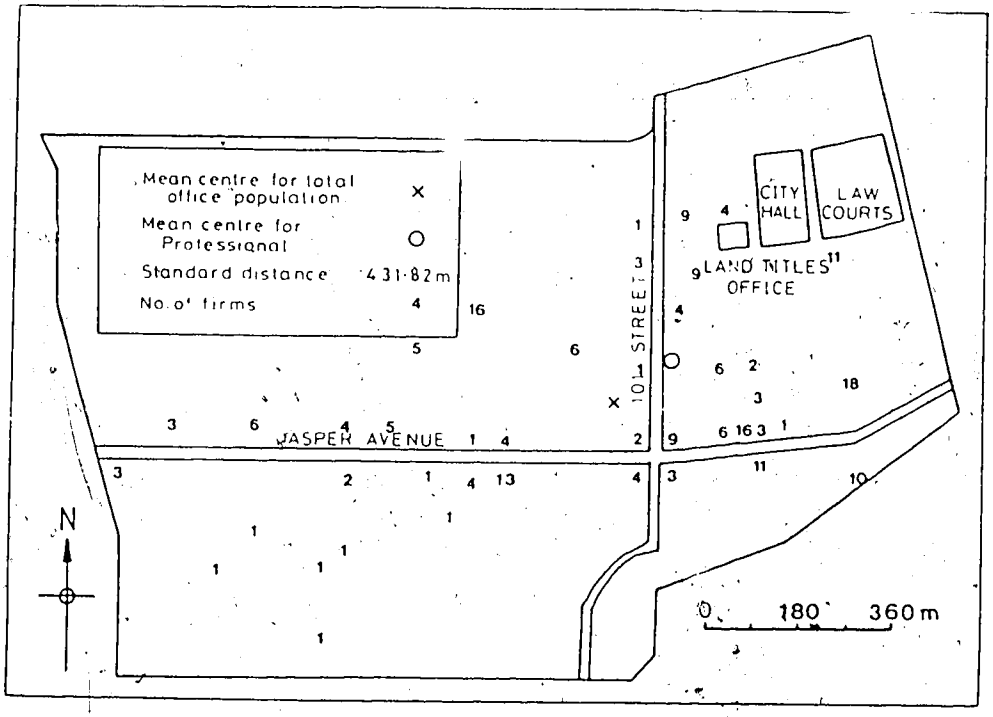


Figure 5.3 Location of Professional Offices

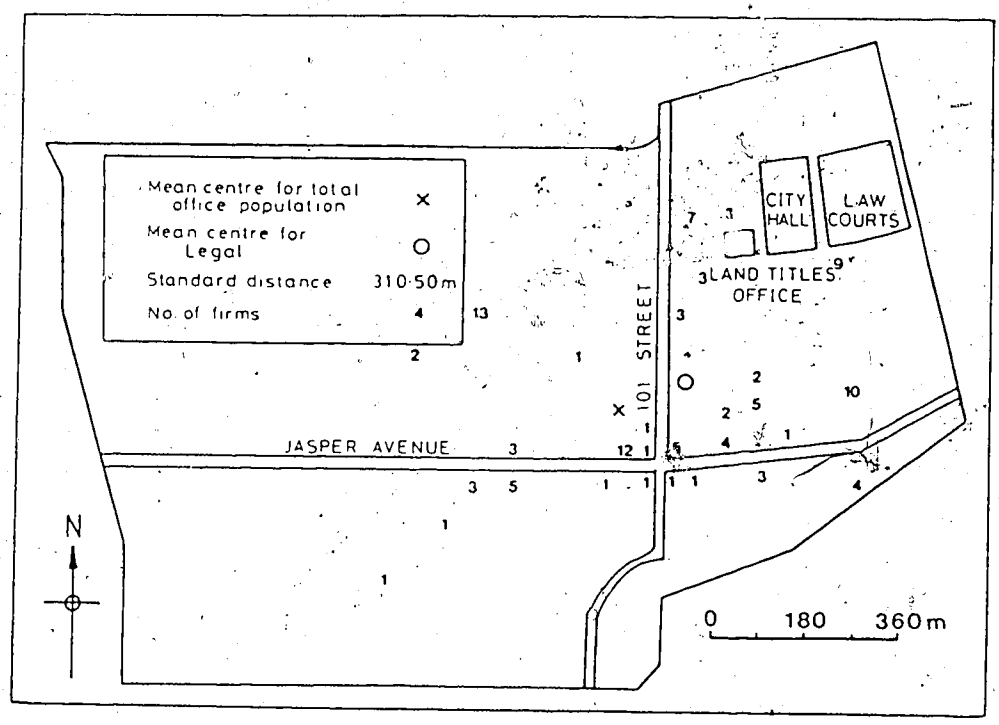


Figure 5.4 Location of Legal Offices

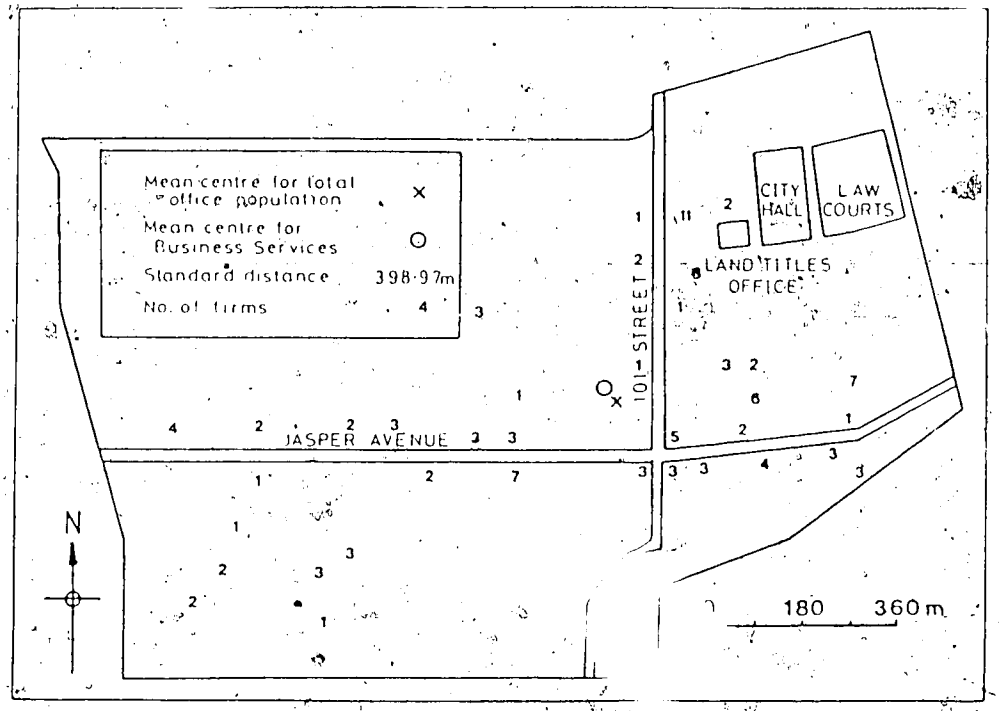


Figure 5.5 Location of Business Services

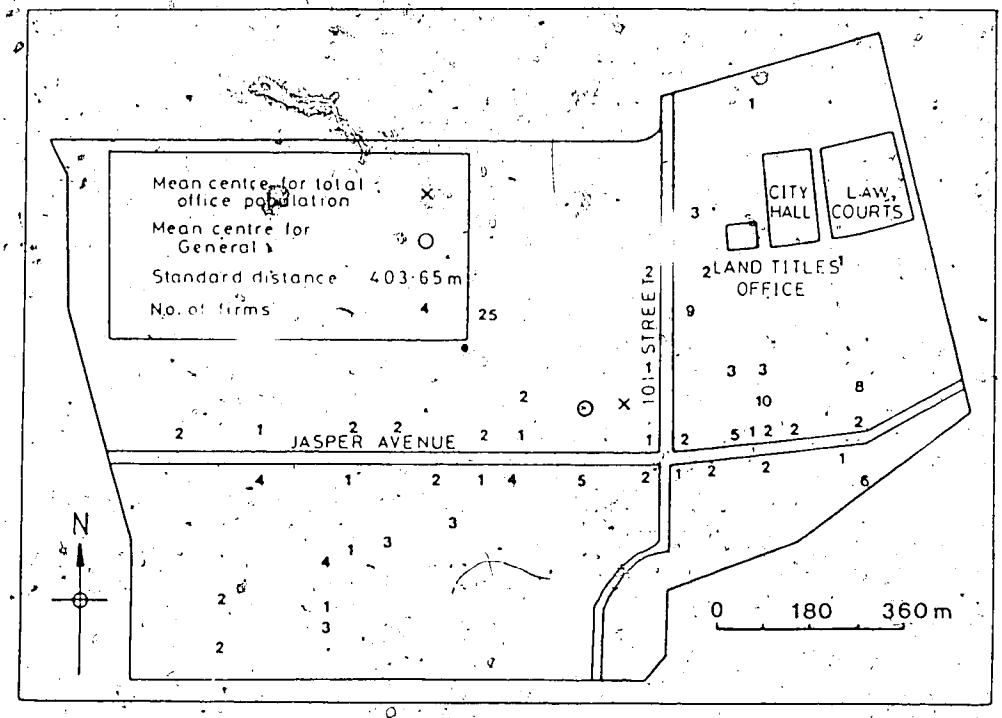


Figure 5.6 Location of General Offices

5.2.4 General Offices

As the name suggests, this category includes a wide variety of offices (Table 4.3). They have a standard distance of 404m and a high relative index of 1.054, indicating that they are dispersed throughout the CBD. Most of the office activities within this group have a high relative dispersal index and are thus widely dispersed throughout the CBD with little tendency to concentrate in particular areas (Figure 5.6). The overall picture, therefore, is of a fairly footloose locational pattern. The tendency of general offices to scatter within the core has also been noted by Davies (1965) in Capetown and Alexander (1974) in Perth.

5.3 Summary

There are only two distinctive office clusters in Edmonton's CBD:-

1. The financial group
2. The legal group

These clusters are explicable in terms of intra and inter-group linkages and ties to nearby locational anchors such as the law courts and land titles office. Such clusters have been well documented elsewhere and seem a relatively stable element in the CBD structure, although the extent and significance of the linkages cannot be determined from this spatial analysis. However, Edmonton's CBD is relatively small and the degree of spatial segregation may increase as the CBD and office function expands. More technically sophisticated techniques such as multivariate analysis may show higher degrees of clustering than the methods used here.

Edmonton is not unique as far as the lack of clearly identifiable spatial office clusters are concerned. Similar conclusions were reached by Gad's study in Central Toronto (1976) and by Takahashi's study of Vancouver's CBD (1972). It can be argued that, in Canadian cities at least, clearly identifiable clusters of activities may be the exception rather than the rule.

The CBD of Edmonton forms a large agglomeration of offices, and due to the high degree of accessibility within this relatively small area, it can be argued that there is no necessity for spatial clustering. Furthermore, it can be reasoned that the office agglomeration is due to factors not reflected in the contact structure. The following

chapter examines the questions arising from this preliminary analysis:-

1. What are the presently existing contact patterns?
2. To what extent are these contacts rigid? That is, do offices need to be located in the CBD?
3. How important are these contacts compared with other factors of location?

6. The Office Location Decision

Introduction

This chapter analyses the results of two separate questionnaire surveys distributed to offices located in both the CBD and specific non-central locations in Edmonton. The main objectives of the questionnaires were firstly, to determine and compare the importance of selected factors, found to be important in previous studies, on the location of offices in the CBD of Edmonton and outlying areas. Secondly, the survey was designed to provide some indication of the pattern and importance of selected business contacts. It must be noted however, that the questionnaires were designed with the intention of a follow-up contact study, thus the questions concerning business contacts were brief and as a result a comprehensive overview of contact patterns is not possible. However, some useful results with respect to the relative importance of business linkages for both CBD and non-CBD offices emerged. The final objective was to provide some distinction between the types of firms that are establishing in or relocating from the CBD to non-central locations.

6.2 CBD office location

A total of 136 questionnaires was returned from CBD offices. A comparison between the structure of response by office group and the structure of the survey population (Table 6.1) shows that the sample is similar to the overall structure of Edmonton's CBD office complex. FIRE offices, which form over 40 per cent of the office population, are slightly overrepresented in the sample, while business services and general offices are underrepresented. This reflects an above average response rate from insurance and investment companies and a below average response from most of the firms in the business service and general office categories.

The administrative status of each firm obtained from the 'Contact Influential' directory is listed in Table 6.2; 50 per cent of respondents are branch offices and a further 40 per cent are indigeneous, single office firms. Only 13 firms (10 per cent of the respondents) are headquarter offices. Such a low number of headquarter offices is indicative of Edmonton's secondary role to Calgary as a location centre for such offices.

Table 6 1 CBD and Sample Office Structure

Office Category	CBD (%)	Sample (%)
FIRE	41.3	48.1
Professional	27.1	31.9
Business Services	13.2	10.4
General	17.9	9.6

Table 6.2 Administrativre Status by Type of Firm

ADMINISTRATIVE STATUS	N	%	FIRE N	FIRE %	PROFESSIONAL N	PROFESSIONAL %	BUS. SERV. N	BUS. SERV. %	GENERAL N	GENERAL %
HEADQUARTER	13	10.1	10	15.6	1	2.5	0	0	2	18.2
BRANCH	64	49.6	38	59.4	9	22.5	12	35.7	5	45.5
LOCAL	52	40.3	16	25.0	30	75.0	2	14.3	4	36.4

Missing = 6 Chisquare = 35.29 Sig = 0.05 d.f. = 6

More than eighty per cent of Alberta's headquarter offices are located in Calgary, many of them related to the petroleum industry (Spizett).

There is a significant difference between office type and administrative status (Table 6.2). Ten of the thirteen headquarter offices fall into the FIRE category, while local offices predominate the professional group, comprising 75 per cent of all professional offices. Branch offices are the most common in the remaining three groups forming 86 per cent of all business services, 60 per cent of FIRE, and 45 per cent of the general office group.

The majority of firms in the sample were small in terms of employment figures, 60 per cent employ ten or fewer workers, and only 3 per cent employ more than one hundred (Table 6.3). This distribution is similar to other office surveys carried out in intermediate sized cities (Davey, 1973; Facey and Smith, 1969; Daniels, 1982).

It can be seen from Table 6.3 that the different categories of offices differed significantly in terms of employment. Professional offices in general tend to be smaller, 56 per cent of this group employ between one and five people. Business services and commercial offices also tended to be small with more than 60 per cent employing ten or fewer workers. FIRE offices are predominantly medium sized with 41 per cent falling into the eleven to twenty five group.

A breakdown of the respondents by floorspace is given in Table 6.4 altogether the sample uses 68,450 m^2 (760,557 ft^2) which is 6.5 per cent of the total downtown office space. If government office space is excluded the percentage increases to 8 per cent. Average office space is relatively small, 580 m^2 (6,445 ft^2). Only one firm recorded office space of more than 4,500 m^2 (50,000 ft^2).

6.2.1 Office Mobility

Office mobility, which refers to the movement of an office firm from one office to another, both within the CBD and between the CBD and peripheral areas, was determined by asking office management how long they had been located at their present address and where they were previously located. The overall period of occupancy was short; 73 per cent of the respondents reported they had resided at their present address for five years or less (Table 6.5). Only 10 per cent of firms have been located at the same

Table 6.3 Number of Employees by Type of Firm

NUMBER OF EMPLOYEES	SAMPLE N	SAMPLE %	Type of Firm: FIRE N	FIRE %	PROFESSIONAL N	PROFESSIONAL %	BUSINESS SERVICES N	BUSINESS SERVICES %	GENERAL N	GENERAL %
1 - 5	57	44.2	23	36.5	6	42.9	23	56.1	5	45.5
6 - 10	21	16.3	10	15.9	3	21.4	5	12.2	3	27.3
11 - 25	39	30.2	26	41.3	4	28.6	7	17.1	2	18.2
26 - 50	6	4.7	1	1.6	0	0	5	12.2	0	0
51 - 100	2	1.6	0	0	1	7.1	1	2.4	0	0
>100	4	3.1	3	4.8	0	0	0	0	1	9.1

Missing = 7 Chi square = 24.236 sig. = 0.05 d.f. = 15

Table 6.4 Size of Offices by Square Metres

Office Size (square metres)	Number of firms	% Total
<500	84	71.2
501 - 1000	17	14.4
1001 - 2500	11	9.3
2501 - 4500	5	4.3
>4500	1	0.8

N = 118 Missing = 18

Table 6.5 Mobility of Offices by Type of Firm

Length of Stay	SAMPLE n	%	FIRE n	%	Type of Firm PROF. n	%	BUS. SER. n	%	GENERAL n	%
<1 year	11	8.1	5	7.7	2	4.7	2	14.3	2	15.4
1 - 2 years	38	28.1	19	29.2	15	34.9	2	14.3	2	15.4
3 - 5 years	49	36.3	26	40.0	13	30.2	7	50.0	3	23.1
6 - 10 years	23	17.0	11	16.9	8	18.6	1	7.1	3	23.1
>10 years	14	10.4	4	6.2	5	11.6	2	14.3	3	23.1
	n.s.									

Table 6.6 Mobility of Offices by Number of Employees

Length of stay	Number of Employees 1-5	6-10	11-25	26-50	50-100	100
<1 year	12.3	9.5	5.1	0	0	0
1 - 2 years	29.8	28.6	28.2	16.7	50.0	0
3 - 5 years	36.8	42.9	35.9	33.3	50.0	0
6 - 10 years	7.0	14.3	20.5	33.3	0	100
>10 years	14.0	4.8	10.3	16.7	0	0
	N=(57)	(21)	(39)	(6)	(2)	(4)

Chi square = 30.358 sig. = 0.05 d.f. = 20

address for more than ten years. These long established firms were mainly legal and insurance firms which comprised 29 per cent and 21 per cent of this group respectively.

In Table 6.6 the differences between the number of employees and length of stay are given. More than 80 per cent of the firms that have been located at their present address for less than one year employ ten or fewer workers. Alternatively, all four firms employing more than a hundred people have been located at the same address between six and ten years. This agrees well with the findings of Cowan in London (1969), Bannon in Dublin (1973), and Davey in Wellington (1973), that small firms are more likely to undergo frequent moves because as they grow their requirement for office space increases forcing them to relocate.

More than two-thirds of the sample (Table 6.7) were previously located elsewhere in the CBD; a further 20 per cent had not moved from their present location in the CBD. Only 7 per cent have moved to the CBD from elsewhere in Edmonton and a further 3 per cent from outside Alberta. Such a pattern reflects the importance of the CBD as a major centre for office location. It also confirms Goddard's findings in London (1967) that many more office firms were moving within the centre than were moving into the centre from outlying areas. Cowan *et al* (1969) also found firms were inclined to make several moves within a confined area as they outgrew their existing accommodation. Thus while office mobility is high, it is more likely to lead to a decision to remain within the centre than it is to a decision to move out from the centre.

The reasons for office movement within the CBD are beyond the scope of this study. Previous research has found however, that intra-CBD movement is related to a combination of factors, such as insufficient space for expansion, expiring leases, or unsatisfactory conditions of premises in terms of working environment for staff or inadequate facilities. The desire for a more prestigious building is also often cited as an important reason explaining intra-CBD mobility, especially for those firms concerned with their corporate image, such as a head office or a main regional office (e.g., banks in Edmonton).

Table 6.7 Previous Location of CBD offices

Previous Location	N	Percentage
Established at present location	27	20.0
Elsewhere in the CBD	94	69.6
Elsewhere in Edmonton	9	6.7
Outside the Province	5	3.7

N = 135 Missing = 1

Table 6.8 Firms Intending to Leave the CBD

	SAMPLE	FIRE	PROFESSIONAL	BUSINESS SERVICES	GENERAL
YES	11.1	10.8	7.0	14.3	23.1
NO	88.9	89.2	93.0	85.7	76.9

N = 135 Missing = 1

6.2.2 The Decentralization Decision

A small percentage (11 per cent) of the sample are intending to move to a non-CBD location within the next five years. There is no statistically significant correlation between the type of office and the decision to decentralize. Although the percentage of general firms (23 per cent) is greater than the sample mean (11 per cent) (see Table 6.8).

The reasons for decentralizing are listed in rank order of importance as determined by the mean scores in Table 6.9. The mean score was calculated by assigning responses indicating "very important" a value of 1, "some importance" a value of 2 and "not important" a value of 3, and dividing the total score by the number of responses. Also presented in this table are the proportions of the sample that responded "Very Important" to each factor.

The diseconomies of the CBD, such as high rents, inadequate parking facilities, and traffic congestion, are the major motivating factors encouraging sample firms to leave the CBD. These "push" factors were also found to be important in several other studies.[14] Previous research also shows that the decision to relocate is most often prompted by the lack of space for expansion or the need to consolidate offices. These factors although applicable in Edmonton are less important. This again reflects the youth of Edmonton's CBD area. Unlike the larger, older cities where the majority of previous research has been undertaken and where problems of space and deteriorating premises are of paramount importance, new buildings with large amounts of space are abundant in Edmonton. When analyzed by type of firm, (using-analysis-of-variance tests) the response patterns did not lead to any meaningful correlations because of the limited number of firms in each category. Because of the small number of firms intending to leave the CBD (15) no definite conclusions can be drawn, but the reasons firms give for relocating seem, in general, to be in agreement with other studies. Although rent/lease rates rank as the most important factor causing Edmonton firms to want to move out of the CBD it may have been reduced in importance since the survey was undertaken because of the current slump in the economy which has reduced the demand for office space in the CBD. Many new office buildings are suffering from high vacancy rates which has led to a reduction in

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[14] See for Example Fernie (1977), Davey (1972), Alexander (1979).

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[14] See for Example Fernie (1977), Davey (1972), Alexander (1979).

Table 6.9 Reasons for Wanting to Leave the CBD

Reason	Mean Score*	Percentage of sample responding "very important"
Rent/lease savings	2.0	42.9
More Profitable location	2.42	33.3
Parking space/congestion	2.60	25.0
Consolidation of office space	2.62	20.0
More office space	2.64	14.3
Expiry of lease	2.92	0.0

* Mean score calculated by assigning responses indicating "very important" a value of 1, "some importance" a value of 2, "not important" a value of 3.

rents, thus reducing the rent differerential between non-central and central areas. Manners(1974) argues however, that since rent forms only a small percentage of total office costs (approximately 6-8 per cent), rent savings, although real, are often too small to be of any major significance in the decisions of management. However it can be argued that the percentage of total costs that rent forms is related to the size of the firm. Since the majority of sample firms are relatively small compared with the firms in New York where Manners conducted his study, rent savings are likely to be of more importance.

6.2.3 The Attractiveness of a CBD Location

Of those firms remaining in the CBD 37 per cent had undergone a location assessment and opted to remain downtown (Table 6.10). The percentage for each type of office in this group is relatively uniform, except for commercial offices where 60 per cent had undergone a location assessment.

The reasons for remaining downtown are listed in rank order as shown by mean scores in Table 6.11. General accessibility, which refers to the ease with which a given site may be reached, either by customers or workers, and the ability of the office located at the site to communicate with other firms and customers, were considered very important by 54 per cent of the respondents. Proximity to support services and good transportation facilities were also considered important. Prestige of location or building was considered very important by only 23 per cent of the respondents. However when the of "some importance" response is included the percentage increases to 78 per cent. It has been suggested by other researchers[15] that many companies, especially larger ones, relate the importance of prestige to its effect on the image of the firm and possibly its product. Other firms relate prestige to links with financial institutions from which they obtain loans; a prestigious address may increase their credibility and chances of obtaining loans. In the case of smaller firms, prestige derived from a central area location may also reflect their dependence upon the larger organizations for business, rather than on prestige in the broader sense. The precise role of prestige has always been difficult to quantify in office location because it is not a tangible variable. Studies undertaken in London by two separate research teams emphasizes the difficulty in evaluating the

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[15] E.I.U., 1964; Alexander, 1976; Davey, 1973.

Table 6.10 Consideration of a Non-CBD location

	SAMPLE	FIRE	PROF.	BUS. SERV.	COM/GEN.
YES	37.0	33.3	37.5	33.3	60
NO	63.0	66.7	62.5	66.7	40

N = 121

Table 6.11 Reasons For Maintaing a CBD Location

Reason	Mean Score	Percentage of sample responding "very important"
1. General convenience and accessibility	1.55	54.5
2. Proximity to services	1.80	40.9
3. Good transportation	1.90	37.2
4. Prestige	2.07	23.3
5. Tradition	2.39	20.5
6. Cost of relocation	2.40	14.3

importance of prestige as a location factor. The E.I.U. survey (1964) showed prestige to be important or very important for 68 per cent of the respondents. Cowan's study, however, produced a figure of just 4 per cent. This discrepancy underlines the influence of questionnaire design. In the E.I.U. study, prestige was explicitly listed as a location factor, as it was in the Edmonton survey while Cowan did not prompt respondents on any location factor.

More than 60 per cent of all firms in the sample remaining in the CBD had never considered relocating outside the central area. The reasons for this decision are listed in Table 6.12. The two most important reasons are communication orientated. Loss of contact with similar firms and organizations was the most important, followed by loss of contact with clients. The above findings are corrobarated by the findings of Davey & Cowan (1969) and the E.I.U. (1964). Access to contacts was a major influence on the location of offices in all three surveys.

However, discrepancies in survey method lead to wide differences in the role attributed to various other factors affecting location, such as prestige, tradition and staffing. Nevertheless, although the details vary, the relative importance of the main location factors is consistently expressed in the findings of the different surveys. Thus, one of the most important constraining factors in a decision about decentralization is the strong belief that contacts would be lost if the firm moved out of the CBD. Communications take on several forms and influence office activities in various ways. Business contacts are discussed in greater detail in the following section.

6.2.4 Business Contacts

The business contacts are listed in Table 6.13 in rank order of importance as determined by the mean score of each contact. To obtain a more accurate assessment of the importance of business contacts a value of 4 was assigned to the "unrelated" response when calculating the mean score. This procedure was adopted because it is felt that there is a difference between a contact being "not important" and "unrelated" i.e., having no contact at all. The inclusion of the "unrelated" response also enabled a more complete data set to be used. The proportions of the sample that responded "Very Important" to each contact are also included in the table to give an indication of the pattern of response for

Table 6 12 Importance of Factors Tying Offices to a CBD Location

REASON	MEAN SCORE	PERCENTAGE RESPONDING "VERY IMPORTANT"
1. Loss of contact with similar firms	1.66	59.5
2. Loss of contact with customers and clients	1.69	52.7
3. Loss of prestige	2.03	34.7
4. Loss of key staff	2.55	13.7
5. Loss of contact with suppliers	2.72	10.8
6. Space availability	2.88	5.6

Table 6 13 Importance of Business Contacts for CBD Offices

CONTACT	MEAN SCORE	PERCENTAGE OF SAMPLE RESPONDING "VERY IMPORTANT"
Customers/clients	1.56	59.6
Banks	1.68	51.9
Legal	1.90	38.2
Government Institutions	2.06	35.3
Suppliers	2.49	15.4
Financial Services	2.50	23.7
Accounting	2.57	14.7
Insurance/Assurance	2.66	11.1
Business Services	2.79	7.4
Investment Companies	2.87	14.1
Real Estate/Developers	2.87	14.7
Stockbrokers	2.94	12.5

each contact which is not evident in the summary nature of the mean scores.

It should be noted that there is a general congruence in rank ordering if either the mean scores or proportions responding "Very Important" are used as a basis for ranking. Noteworthy exceptions are contact with real estate companies and developers which would have ranked eighth if proportions are used but is ranked eleventh among the mean scores, and contact with business services which would have ranked twelfth using proportions instead of ninth using the mean score format. These contacts, although not essential, are probably considered of "Some Importance" by quite a large proportion of the firms, thus influencing the value of the mean score.

A comparison of the different classes of offices' mean scores of importance for each business linkage is presented in Table 6.14. The statistical significance of the differences in mean scores was determined by means of analysis of variance tests (Fox and Guire, 1976). A graphic representation of the differences in mean scores is shown in Figure 6.1.

An examination of Table 6.14 and Figure 6.1 shows that the mean scores of importance for the four types of office were statistically different for six of the twelve contacts. Legal and financial services were more important for FIRE and professional offices; government institutions were of more importance to professional and business services, while suppliers were a more important contact for general and business service offices. Investment companies and stockbrokers although of general low importance were more important to offices in the FIRE category.

The differences between the four groups, with respect to the importance of business contacts, can also be examined by listing the contacts in rank order of importance for each group as shown in Table 6.15.

Customer/Clients

Contact with customers and clients was considered the most important linkage overall. Two-thirds of the sample considered this to be very important. It also ranked the most important for three of the four office categories (Table 6.15). The nature and distribution of customers and clients varies from firm to firm and also the pattern of movement to and from offices. Where a selling relationship is involved customers may be visited at their places of work, while consultation with professionals and specialists is

Table 6.14 Mean Scores of Importance for Business Contacts by Type of Firm

BUSINESS CONTACT	FIRE		PROFESSIONAL		BUSINESS SERVICES		GENERAL		f value	level of sig.
	$\bar{x}$	ST DEV	$\bar{x}$	ST DEV	$\bar{x}$	ST DEV	$\bar{x}$	ST DEV		
Customers/clients	1.62	0.86	1.53	0.80	1.29	0.61	1.69	0.35	0.75	n.s.
Banking	1.56	0.79	1.77	0.81	1.71	0.91	1.92	0.95	0.97	n.s.
Legal	1.92	0.88	1.60	0.76	2.36	0.93	2.23	0.83	3.76	0.01
Govt. Institutions	2.38	1.03	1.56	0.70	1.78	0.89	2.38	0.59	3.33	0.001
Suppliers	2.75	0.87	2.48	0.94	1.86	0.94	1.92	0.64	6.00	0.001
Financial services	2.14	0.99	2.59	1.01	3.21	0.57	3.23	0.72	8.53	0.001
Accountants	2.55	0.92	2.43	1.01	2.79	1.12	2.69	1.03	0.40	n.s.
Insurance companies	2.68	1.02	2.64	0.82	2.71	0.91	2.54	0.87	0.11	n.s.
Business Services	2.77	0.75	2.93	0.86	2.43	1.16	2.85	0.80	1.30	n.s.
Investment Companies	2.58	1.14	3.11	0.88	3.14	0.77	3.23	0.73	3.65	.01
Real Estate	2.87	1.05	2.74	1.03	2.96	1.10	3.46	0.78	1.65	n.s.
Stock brokers	2.67	1.09	3.09	0.87	3.21	0.89	3.46	0.66	3.57	0.01

Table 6.15 Business Contacts in Rank Order of Importance by Type of Office

	FIRE Contact	$\bar{x}$	PROFESSIONAL Contact	$\bar{x}$	BUSINESS SERVICES Contact	$\bar{x}$	GENERAL Contact	$\bar{x}$
1.	Banking	1.56	Customer/clients	1.53	Customer/clients	1.29	Customer/clients	1.69
2.	Customers/clients	1.62	Govt. Institutions	1.56	Banking	1.71	Banking	1.92
3.	Legal	1.72	Legal	1.60	Govt. Institutions	1.78	Suppliers	1.92
4.	Financial services	2.14	Banking	1.77	Suppliers	1.86	Legal	2.23
5.	Govt. Institutions	2.38	Suppliers	2.48	Legal	2.36	Govt. Institution	2.38
6.	Accountants	2.55	Accountants	2.49	Business Services	2.43	Insurance Cos.	2.54
7.	Investment Cos.	2.58	Financial	2.59	Insurance Cos.	2.71	Accountants	2.69
8.	Stockbrokers	2.67	Insurance Cos.	2.64	Accountants	2.79	Business Services	2.85
9.	Insurance Cos.	2.68	Real Estate	2.74	Real Estate	2.86	Financial Services	3.23
10.	Suppliers	2.75	Business Services	2.93	Investment Cos.	3.14	Investment Cos.	3.23
11.	Business Services	2.77	Stockbrokers	3.09	Stockbrokers	3.21	Real Estate	3.46
12.	Real Estate	2.87	Investment Cos.	3.11	Financial Services	3.21	Stockbrokers	3.46

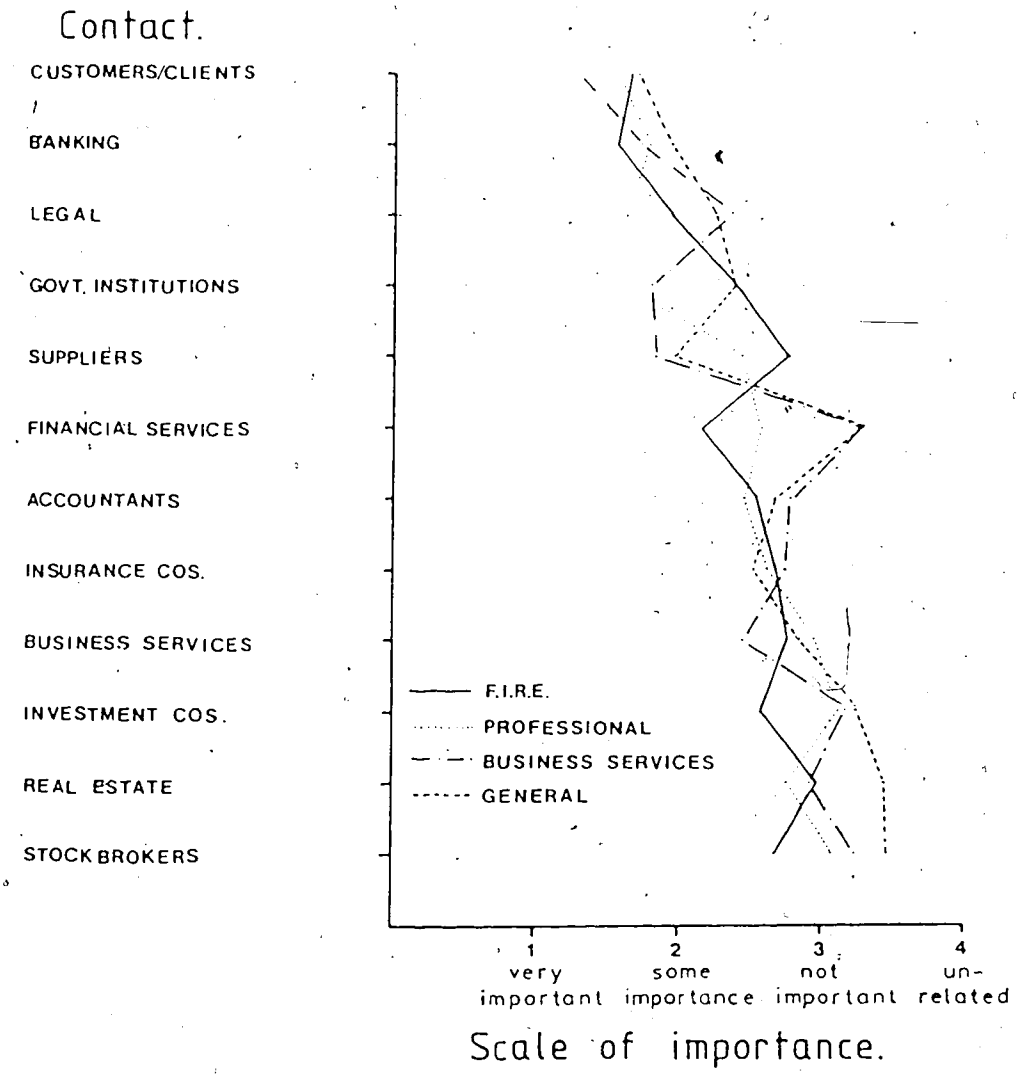

Figure 6.1 Comparison of Office Firms: Mean Scores of Importance for Business Contacts

more likely to take place in the office. Thus the location of clients tends to be relatively more dispersed when compared with other contacts (Table 6.16). However, the concentration of work places and daytime population in the CBD means that such contacts can be most readily made there.

Banking Facilities

Banking is the second most important contact overall, used by nearly all firms at high frequency. Thus there is no significant difference among different office categories. Table 6.16 shows that over 90 per cent of all banking contacts are located in the CBD. However, it has been suggested that branch banks could adequately serve the needs for most offices in non-central locations (Davey, 1973 p.51).

Legal Firms

Contact with legal firms was the third most important linkage, though Table 6.14 and Figure 6.1 show a significant difference between the importance of legal services and the type of office. FIRE and professional offices considered contact with legal firms more important than business services and commercial offices. Legal contacts are particularly important for lawyers. Like banking facilities over 90 per cent of legal contacts were reported to be located downtown.

Government Institutions

Contact with government institutions is considered very important by 35 per cent of the respondents. Again there is a significant difference in the importance of this contact and type of office as indicated in Table 6.13. Contact with government institutions was considered more important for professional services and business services than for the other two groups. Custom brokers (financial), in particular, find contact with the government institutions very important and many of them reported that the location of the government office dealing with customs and excise determined their own location.

Suppliers

Contact with suppliers is of far less importance, considered very important by only 15 per cent of the sample. However, contact with suppliers was of slightly more importance for business services and general offices. Suppliers, like clients, are also dispersed throughout the Edmonton area. Less than 50 per cent are located downtown.

Table 6.16 Percentage of Contacts Located in the CBD According to Importance

CONTACTS	VERY IMPORTANT	SOME IMPORTANT	NOT IMPORTANT	% TOTAL CBD	SIGNIFICANCE LEVEL
1. Banks	95.7	95.5	90.0	95.1	n.s.
2. Financial services	96.8	96.3	84.6	92.9	n.s.
3. Stockbrokers	94.1	100.0	88.0	91.9	n.s.
4. Investment Co.	89.5	100.0	88.0	92.2	n.s.
5. Legal services	94.0	90.2	90.9	92.0	n.s.
6. Insurance services	80.0	90.0	53.3	70.6	n.s.
7. Accountants	90.0	79.5	56.0	75.3	n.s.
8. Business Services	88.9	87.5	51.4	70.5	0.01
9. Real Estate	66.7	52.6	40.0	51.6	0.01
10. Suppliers	47.6	53.7	42.3	48.9	n.s.
11. Clients and Customers	54.7	48.5	-	50.4	n.s.
12. Govt. Institutions	81.4	81.6	63.2	78.0	n.s.

Other Contacts

Financial services, accounting and insurance companies are the sixth, seventh, and eighth most important contacts respectively. There is no significant difference between their importance and type of firm except for financial services, which are slightly more important to FIRE and professional offices. These services are predominantly located downtown (see Table 6.16).

Business services are considered very important by only 7 per cent of the respondents. However, when the "of some importance" response is included the percentage increases to 33 per cent. Proximity to such services may be convenient but not essential. On the other hand, the services themselves often seek a central location for maximum accessibility to clients.

6.3 Non-CBD Office Location

Tables 6.17 to 6.19 show the percentage of non-CBD firms by type, administrative status, and number of employees. Two thirds of the sample is composed of professional firms (Table 6.17), which is partly a reflection of the type of firm that has tended to establish in new office buildings outside the downtown area. It is interesting to note that Davey (1973), based on an interview survey in Wellington, found few indications that decentralization would be feasible for professional firms, due to their complex and intense contact patterns which encourages a central location. The contradictory trend in Edmonton illustrates the difficulty of generalizing about office location behaviour.

Unlike the CBD survey where branch offices predominate, 67 per cent of the respondents in the non-CBD survey are local offices. This is in agreement with the trend of decentralization that Hardwick found in Vancouver, i.e., the western head/branch and local office concept (1974). In common with the CBD sample the majority of firms are small in terms of the employment figures, 93 per cent (Table 6.18) employ fewer than 26 workers.

The period of stay for most firms is short with 83 per cent (Table 6.20) having been located at their present address for less than five years. This is a reflection of the relatively new development of office space in non-central areas.

Table 6.17 Non-CBD Office Sample by Type of Firm

Office Type	n	%
FIRE	18	18.0
PROF	67	67.0
BUS. SERV.	11	11.0
COM/GEN	4	4.0

Missing = 2

Table 6.18 Non-CBD Offices by Administrative Status

Status	n	%
Headquarter	7	8.8
Branch	18	22.5
Local	55	66.8

Missing = 22. N = 80

Table 6.19 Non-CBD Offices by Number of Employees

No. of Employees	n	%
1 - 5	37	46.8
6 - 10	16	20.3
11 - 25	17	21.5
26 - 50	6	7.6
51 - 100	2	2.5
>100	1	1.3

Missing = 23

Table 6.20 Number of Years at Present Location

Length	n	%
<1 year	11	10.8
1 - 2 years	42	41.2
3 - 5 years	36	35.3
6 - 10 years	8	7.8
>10 years	5	4.9

N = 102

Table 6.21 Previous Location of Non-CBD Offices

Previous location	n	%
Established	26	25.5
Downtown	23	22.5
Elsewhere in Edmonton	50	49.0
Outside Edmonton	2	2.0
Outside Province	1	1.0

N = 102

Table 6.2.1 shows the previous location of the respondents; 23 per cent had relocated from the CBD, whereas only a small fraction (3 per cent) had moved into Edmonton from outside the city. The remaining 74 per cent had moved to their present address from elsewhere in the city or had established office space at their current location. Firms that had relocated from the CBD had, on average, moved only a short distance (3 miles). Short moves from the CBD have been common in many cities (Alexander, 1974). While moving far enough to avoid the diseconomies of the CBD offices remain with easy access of the CBD.

6.3.1 The Location Decision

The non-CBD offices were divided into two groups for analysis. The first group consists of those firms that have moved from the CBD to an outlying area and are referred to as "Relocators". The second group comprises those firms that established their offices in a non-central location at the outset. They are referred to as "non-Relocators". Table 6.22 shows the percentage responding "very important" to each location factor for the two groups. factor.

Parking

Better parking facilities was the most important factor causing both groups to choose a non-central location. This confirms the findings of Damestick in Manchester (1973), Knight and Ito in Chicago (1972) and the E.I.U. survey in London (1964), where parking problems and traffic congestion in the city centre appeared to be the most important motive encouraging the dispersal of offices. However, in other studies previously mentioned, parking, although of some importance, was not considered a prime motivating force.

The high ranking of parking in the Edmonton survey is a reflection of the present planning policy to discourage the use of the car in the downtown area and encourage a transit orientated work force. Parking standards in the downtown are set at one space per 200 square metres. Outside the CBD area commercial parking standards for office development are about six times those of the CBD.[16] The high importance attached to parking facilities was accompanied by several comments such as those listed below:-

[16]City of Edmonton, Planning Department, 1978. Downtown commercial parking study, a working paper.

Table 6.22 Reasons for Selecting a Non-CBD Location

Factor	"Non-Relocators", % responded "Very Important"
1. Better parking facilities	62.9%
2. Savings on rent/lease	50.7%
3. Better contact with clients	
4. More available space	24.3%
5. Decreased commuting time	13.0%

Factor	"Relocators" % responding "Very Important"
1. Better parking facilities	62.5
2. Better contact with clients	43.5
3. Lower rent/lease rates	33.3
4. More available space	30.4
5. Purchase of own building	16.6

"Parking is the biggest problem with a downtown location."

".....the only problem found with a downtown location was the lack of parking facilities without doubt."

"Downtown offers little in the way of parking facilities for clients and personnel."

"We will stay out of the downtown area because it is a 'pain-in-the-neck' for our staff to fight traffic and parking problems"

The public transport system in Edmonton, especially the light rail transit system, is not yet sufficiently developed to serve outlying residential areas. The private car is the main mode of transportation for work journeys and as a result parking and traffic congestion have become major problems in the CBD area. For example a report undertaken in 1978 by the City of Edmonton planning department found that there were approximately 2000 individuals on waiting lists for monthly parking stalls, and the average waiting period for a stall was between 2 and 4 years[17].

Customer and Clients

Access to customers and clients was the second most important factor for both groups. As previous research has shown access to customers and clients appears to be a factor of general significance for office firms in all locations. In non-central locations, it holds most significance for professional firms, especially in the development-related professions such as architects, engineers, and surveyors. For these occupations a non-central location is a positive advantage as it allows ready access to the metropolitan fringe where residential and industrial construction is concentrated.

Rent Savings

Savings on rent was the third most important factor for "re-locators" and second for "non-relocators". Office rental levels are affected by the distribution of vacant space. In Edmonton during the 1970's the supply of office space was barely able to keep pace with demand, and this contributed to rapid rent inflation in the centre. However, towards the end of the seventies non-central office development began to accelerate. This new space initially came onto the market at rents significantly lower than those in the CBD. This was a reflection of both lower development costs and lower demand. For firms seeking

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[17]ibib

to escape the rising costs in the centre, the peripheral office space offered rent savings of up to 20 per cent the prevailing central rates.[18] Rents, however, do not always act to encourage dispersal and indeed non-central locations do not always offer rent savings (Alexander, 1979). In Edmonton at the time of writing, a continuing oversupply of central office space has, by forcing down central rent levels, reduced the possibility of rent savings in non-central locations.

Space Availability

The availability of space for expansion was not considered a major "pull" factc ranking 4th for both groups. Previous research has shown conclusively that no room expansion has a strong influence on the decision to choose a non-central location. In most surveys, it was given as the most important factor or mentioned the most times.[19] Pye (1972) suggested that space expansion acts as a locational trigger precipitating the firm's move. Once the decision to move has been made other factors such as costs and associated diseconomies at the centre may favour dispersal. This notion may be extended to suggest that while lack of space for expansion is a factor of obvious importance encouraging office dispersal it is not alone a sufficient cause for dispersal.

Other Factors

Less important locational factors included decreased commuting time for staff, purchase or investment in office buliding, and proximity to the owner or partner's residence. These factors were considered very important by between 12 and 17 per cent of the two groups. Contact with suppliers and similar businesses were of far less importance, considered to be important for less than 10 per cent of the whole sample.

6.3.2 Location Satisfaction

Relocating firms were asked if their expectations had been met on moving to a non-central location; 91.7 per cent responded positively to this question. The remaining 8.3 per cent replied that some of their expectations had been met while others, such as promises of LRT extensions and a better working environment, had not.

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[18] A.E. LePage Commercial Realty. Market Survey Report, 1983.
[19] See Peat, Marwick & Partners, 1975; Alexander, 1979; Burns and Pang, 1977; Pritchard, 1975; Rhodes and Kan, 1971.

Non-relocators were asked if a downtown location would have any advantages for their firm; only 25 per cent responded yes. Prestige was the most frequently mentioned advantage of a downtown location, followed by access to and better amenities, such as hotels and restaurants. Access to the court house and the land titles office was frequently mentioned by lawyers as an advantage of a central location.

Overall, both groups were satisfied with a non-central location as the majority of firms (94.4 per cent relocators and 89.2 per cent of non-relocators) would still choose a non-central location given the location decision again.

6.3.3 Non-CBD Business Contacts

Only four of the twelve business contacts were considered to be very important by a significant number of firms. These are, in rank order of importance, customers and clients, banks, government institutions and legal services (Table 6.23). These contacts were also ranked the most important by the CBD offices (Table 6.13).

The location of the contacts is given in Table 6.24. As previously mentioned customers and clients tend to be dispersed throughout the metropolitan area; 60 per cent of the customers and clients for non-CBD offices were located in both the CBD and non-CBD areas. Banking facilities were mainly located in non-CBD areas. This substantiates the theory that most banking needs can be met by branch banks located in the outlying areas. Legal services were also adequately provided in the non-CBD areas. Government institutions were the only important contact with a significant percentage located in the CBD (48 per cent).

Contacts with suppliers, accountants and financial services were considered important by 25 per cent of the sample. The remaining contacts were of far less importance, considered very important by less than 11 per cent of the sample.

6.3.4 Comparison of Business Contacts between CBD and Non-CBD Offices

It is the objective of this section is to determine whether differences exist exist between CBD and non-CBD offices in terms of the importance attributed to selected business contacts. For this purpose analysis of variance tests as outlined earlier in the text, were used to determine the differences between the mean scores of importance for

Table 6.23 Importance of Business Contacts for Non-CBD Offices

	FACTOR	MEAN SCORE	% RESPONDING "VERY IMPORTANT"
1.	Clients and customers	1.47	68.7
2.	Banking	1.93	30.9
3.	Government Institutions	2.21	27.8
4.	Legal services	2.28	19.8
5.	Suppliers	2.61	11.3
6.	Accountants	2.67	11.5
7.	Financial services	2.77	10.3
8.	Real Estate/Developers	2.87	11.3
9.	Insurance companies	2.92	11.3
10.	Business services	2.92	8.3
11.	Investment companies	3.33	1.0
12.	Stockbrokers	3.45	1.0

Table 6.24 Location of Business Contacts Rated as Very Important by Non-CBD Offices

CONTACT	Non-CBD	CBD	BOTH
Banks	58.1	29.0	12.9
Legal Services	44.4	16.7	38.9
Clients	32.4	7.4	60.3
Financial	34.5	34.6	30.9
Stockbrokers	--	100.0	-
Investment Cos.	-	100.0	-
Insurance	-	50.0	50.0
Accountants	30.0	20.0	50.0
Business Services	42.8	28.6	28.6
Real Estate	18.2	36.4	45.4
Suppliers	54.5	9.1	36.4
Government Inst.	14.8	48.1	37.0

each contact. As can be seen from Table 6.25 and Figure 6.2 the mean scores for each contact (with one exception) are consistently lower and therefore of more importance for CBD offices. Only customers and clients were considered of more importance to non-CBD offices. Customers and clients are more inclined to visit offices located in outlying areas where not only is traffic congestion less, but a great many firms can provide their own parking facilities. However, the differences between the mean score values are statistically significant at the 0.05 level for only six of the twelve contacts; these include banks, legal services, financial services, investment companies, insurance companies and stockbrokers.

This result suggests that non-CBD offices have lower contact requirements for these services, especially the six listed above. Hence it can be concluded that such firms can readily survive in a non-central area were contacts are less accessible. On the other hand, evidence from the Goddard and Morris survey (1976) suggests that office activities actually reduce the volume of external contacts after relocation. This is regarded as a reflection of the effects of distance and also as a result of business rationalization. It is impossible from this survey to determine whether communication requirements largely determine location, or whether location influences communication patterns, and much work remains to be done on this aspect.

6.4 Summary

Edmonton, at present is essentially a regional and local office centre, primarily composed of branch and local offices with few headquarter offices. The majority of offices are small, employing less than 25 workers. Office decentralization has been occurring on a limited scale, but the CBD area with its ample supply of office space has discouraged large scale out-migration. Despite the high mobility of offices most of the movement has occurred within the CBD itself. Thus, the net loss of office space from the CBD to outlying areas has been small, indicating the strong attraction of the CBD. The major reasons causing firms to remain in the CBD are communication oriented. Loss of contact with similar firms and with customers and clients are feared if the fims were to relocate to a non-CBD location. Prestige associated with a CBD address is also an important factor resulting in the reluctance of offices to leave the CBD.

Table 6.25 Importance of Busines Contacts for CBD and Non-CBD Offices

	Factor	Mean Scores CBD	Mean Scores NON-CBD	F. Statistic	Significance
1.	Clients qnd customers	1.56	1.47	1.038	n.s.
2.	Banking	1.68	1.93	5.0382	0.05
3.	Legal services	1.90	2.28	10.641	0.001
4.	Government Institutions	2.06	2.21	1.0651	n.s.
5.	Suppliers	2.49	2.61	0.798	n.s.
6.	Financial services	2.50	2.77	4.107	0.05
7.	Accounting	2.57	2.67	0.547	n.s.
8.	Insurance Companies	2.66	2.92	5.028	0.05
9.	Business services	2.79	2.92	1.171	n.s.
10.	Investment companies	2.85	3.33	15.147	0.001
11.	Real Estate & Developers	2.87	2.87	0.8184	n.s.
12.	Stock brokers	2.93	3.45	20.201	0.001

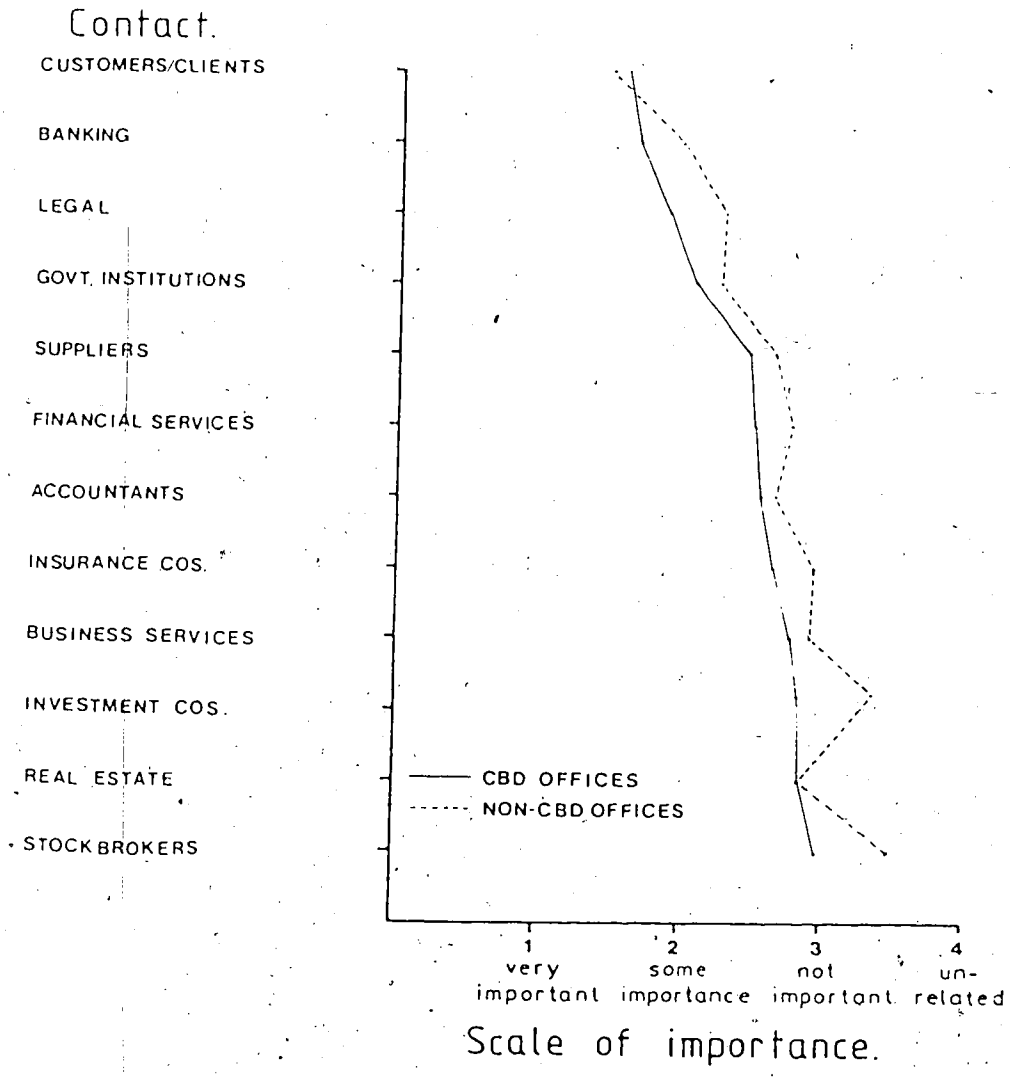

Figure 6.2 Comparison of CBD and Non-CBD Offices: Mean Score of Importance for Business Contacts

However, there is some evidence to suggest that the diseconomies of the CBD, such as parking problems, traffic congestion and high rents may encourage future office dispersal. The types of offices electing non-CBD sites include professional firms especially engineering consultants, architects and surveyors. Offices associated with the natural resource industry are also choosing non-CBD areas.[20] These firms, attracted to arterial roads and within the vicinity of the municipal and international airports, have been drawn by larger parking facilities and the availability of on-street parking, permitting better contact with and access to their customers and clients. Lower rents and a better working environment have also played a role in encouraging office dispersal. The main disadvantage associated with these non-CBD sites appears to be lack of amenities such as hotels, restaurants, shopping areas and some specialist services.

The four most important business contacts for CBD and Non-CBD offices are customers and clients, legal services, banks and government institutions. However with the exception of customers and clients all business contacts were of more importance to CBD than to non-CBD offices.

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[20]Zieber (1971) in his study of oil office location found that petroleum offices were, traditionally, not attracted to the CBD, but located there because that was the only area where suitable office space was available at the time.

7. Conclusions and Recommendations

The purpose of this thesis was to examine the intra-metropolitan office location decision in Edmonton, and in particular to evaluate the role of business contacts. To fulfill this aim a self-administered questionnaire mailed to offices in CBD and non-CBD locations was completed by 238 firms. Initially a diary recording face-to-face contacts was to be completed by office executives, but due to numerous problems outlined in Chapter four, this exercise could not be carried out. Thus, the perceived as opposed to the real role of business contact could only be evaluated Standard distance and mean centre statistics were used to determine the degree of office clustering within the CBD, in order to determine spatial patterns that may reflect contact patterns. The results of the study are summarized and evaluated in this chapter.

7.1 Summary of Results

From this study of intra-metropolitan office location in Edmonton the major finding is that offices do agglomerate within the CBD and the main reason for this is the importance of contact with other firms located in the CBD. The results of the CBD survey suggest that this high degree of office centrality is likely to continue in the future as only a small percentage (11 per cent) of the CBD offices sampled are anticipating a move away from the CBD. More than half the sampled firms have never considered a location other than the CBD. Furthermore the continued development of office space within the CBD is likely to encourage centralization.

The major reason for office agglomeration appears to be the perceived importance (by management) of contact with similar firms, customers and clients, business services and with government institutions. This is especially true for legal firms and office activities belonging to the financial sector. The importance of contacts for these two activities is also reflected in their spatial clustering within the CBD (Chapter five), boh these activities were found to have relatively small standard distances.

Other factors have also contributed to the central agglomeration of offices in Edmonton. General accessibility and good transportation facilities play an important role in the decision to remain in a CBD location. Prestige is also an important factor although its effect is impossible to quantify.

There has been a limited amount of office decentralization in Edmonton. The major areas for non-CBD office development are to the south along the Calgary Trail and to the north along 124 Street and in the vicinity of the municipal airport. Low density office development has occurred along commercial strips such as 82 Avenue and in shopping centres. There is no statistically significant correlation between the type of office activity and offices which are leaving or have left the CBD, although there appears to be a trend towards the decentralization of small local market orientated firms. The majority of non-CBD office growth appears to be attributable to the *in-situ* growth of office enterprises rather than the migration of offices from the CBD. The major factors causing firms to decentralize are the disutilities of the CBD, such as inadequate parking, traffic congestion and high rents. The need for better contact with customers and clients has also been an important factor encouraging the decentralization of offices. Contact with similar firms and government institutions were of less importance for non-CBD firms than CBD offices.

7.2 Research Questions and Answers

1. Is there any spatial clustering of specific types of office activities within the CBD which suggests contact patterns of office activities?

Legal offices and offices belonging to the financial sector such as banks, credit unions and trust companies, stockbrokers and investment and finance companies are the only types of offices that showed any degree of spatial clustering in the CBD of Edmonton. It can be argued however, that the small size of the CBD renders spatial clustering unnecessary.

2. What are the major locational factors that confine 75 per cent of all Edmonton's office space to a CBD location?

From the survey of CBD offices it was found that the contact factor was of major importance causing firms to choose a CBD location. Contact with similar firms, customers and clients, business services, especially legal services, and with government institutions were perceived as very important by a large percentage of the CBD sample. Other factors, such as general accessibility, good transportation and prestige were also important factors causing firms to remain in the CBD.

2(a). How essential is it for offices to be located within the CBD?

2(b). Does the importance of contact with other office activities and services located in the CBD suggest locational constraints?

These questions were to be answered by data obtained from the contact diary, so a comprehensive answer is impossible. However, from the survey analysis it is apparent that office management perceives the contact factor to be a major locational constraint, and their strong belief that these contacts will be lost if the firm moves out of the CBD is a major constraining factor in the office location decision. Whether the actual contact pattern supports this belief or not remains unanswered.

3. Are there any significant trends towards dispersal of office activities to non-CBD locations in Edmonton?

As yet factors against CBD concentration are not strong enough to have promoted any significant movement out to non-central areas. Only a limited amount of office decentralization involving small, local market orientated firms has taken place.

3(a). What types of offices are leaving the CBD or have left the CBD? What kinds of offices elect a non-CBD location over a CBD location? To what kinds of areas are offices moving to?

Statistical analysis did not prove any significant correlation between the type of office and offices leaving the CBD. However, the non-CBD sample was dominated by certain types of professional firms, notably accountants, architects, and engineers. These are mainly small firms employing less than 25 people which are dependent upon the resident population for their market. The major areas where office development has occurred are along major arterial roads such as the Calgary Trail, and in the vicinity of the municipal airport. Low density office development has also occurred along commercial strips, for example 82 avenue, and in regional shopping centres.

3(b). What are the major factors causing firms to relocate from the CBD, or to choose a non-CBD location?

The major factors are associated with the disutilities of the CBD such as inadequate parking facilities, traffic congestion and high rents. The need for better contact with customer and clients was also an important factor.

3(c). What are the disadvantages of a non-CBD location?

There were few disadvantages mentioned by the sampled non-CBD firms, the major complaints were the lack of amenities such as hotels and restaurants, inadequate transport facilities and a loss of the general activity associated with a CBD location.

3(d). Are non-CBD locations satisfactory for office activities?

From the survey it is apparent that for the majority of firms located in non-CBD locations it has been a successful decision in the sense that most (>80 per cent) would make the same locational decision again. However, for the offices located in the CBD, a non-CBD location is desirable for only a small proportion.

4. Is contact with other offices activities and services more or less important to offices located in non-CBD locations?

Analysis of variance tests showed that the importance of business contacts was less for non-CBD offices. The differences in importance between CBD and non-CBD offices were statistically significant for banking, legal, finacial, investment, insurance and real estate services. Contact with customers and clients was of slightly more importance to non-CBD offices. This result suggests that firms in non-CBD locations are less constrained by the contact factor than are CBD firms. They are therefore able to survive in a non-central location.

7.3 Evaluation of Results

A complexity of factors influences office locational choice, but business contacts play a dominant role in attracting and maintaining offices in the CBD and firms are unwilling to move from the CBD because of these ties with other firms. This result supports the findings of many other studies undertaken in large cities. Contacts thus appear to exert a strong locational constraint on office mobility despite the technological advances in telecommunication systems. The office has not yet become a 'dispersed 'cottage industry' as was forecast in the 1970's (Daniels, 1975; Gottmann, 1978).

It must be recognized however, that there are still many other factors which constrain office mobility and encourage them to remain in the CBD, or to relocate only short distances. The good transportation facilities and general accessibilty of the CBD are major forces encouraging centralization. Unlike many U.S. cities, where high-speed freeway systems have made suburban areas attractive to offices, non-CBD areas in Edmonton are much less accessible, and hence non-CBD office development has tended to be restricted to arterial roads (e.g Calgary Trail). Furthermore, the feeling that vital contacts with the CBD would be lost if the firm were to decentralize and the importance of prestige attached to a CBD address have discouraged large scale decentralization.

From the analysis of the importance of business contacts the mainstay of office infrastructure appears to be financial, especially banks, and legal services. Thus the hypothesis that most office establishments rely on the presence of financial and legal services, particularly the former, and that their presence is a prerequisite for the establishment of an office centre can be put forward. However, further analysis of the inter-dependencies among offices is necessary before more detailed conclusions can be reached.

The decentralization of offices has been occurring on only a small scale and appears to be dependent upon the status and function of an office. Local market oriented offices and small professional service firms appear to be the major types of offices leaving the CBD. This trend as been well documented in the literature (Hardwick, 1974; Fernie, 1977). In many cases a non-CBD location offers these firms superior market access. However there has been a strong tendency to move only a short distance away from the CBD sufficiently far to escape the disutilities of the centre but still within easy

access of the CBD. In the case of Edmonton, offices related to the petroleum industry have traditionally located in non-central areas preferring arterial locations due to their links with Calgary (Zieber, 1971). The limited amount of office decentralization in Edmonton does not support the findings in the U.S.A. that the dependence of offices on a CBD location is declining and offices are being attracted to suburban areas, but lends support to the theory promoted by Gottmann and Vernon that the CBD will continue to attract a substantial share of future office growth. It appears that large scale office decentralization is not suited to Edmonton's office stucture and that while such a move would decrease the problems of parking and traffic congestion it would have adverse effects for the office industry. The creation of office sub-centres outside the CBD could solve this, but Edmonton at present is of insufficient size for such developments to be successful.

7.4 Recommendations For Future Research

The importance of communication in the decision of office location has been extensively reviewed in this study, but much work still remains to be done. Due to the unsuccessful attempt to collect information on the characteristics of contacts there are many gaps in the analysis and the only firm conclusion that can be made is that office managers perceive the need for contacts derived from a CBD location to be very important in the location decision. More information concerning the form of communication used and the interdependencies of office activities needs to be collected and analyzed, either by the use of a questionnaire survey or by a recording of actual contacts.

The development and use of advanced telecommunication systems capable of replacing existing business communications was excluded from this study. There is much speculation about the impact of telecommunication systems for office location and further research in this field is required to clarify their role and to determine the extent to which face-to-face commminication could eventually be replaced by telecommunication systems. Another important factor omitted from this study is the role of developers in the location of offices. This role should not be underestimated. A developer will provide space only where it is economical to do so *vis-a-vis* a fair return on investment and the

ability of a project to attract finance from institutions. Many researchers (Cowan, 1969; Alexander, 1979) have put forward the idea that developers have reinforced CBD preferences by continuing to develop there. The actual location requirements of office organizations might be considered secondary and their actual behaviour could be governed by the developer's assessment of demand.

In order to expand the collective knowledge of office location in Edmonton more systematic studies must be undertaken. Information should be collected on the following:

1. The effectiveness of the City' Planning Department policies to control the development of offices. A major objective of the 1981 Edmonton General Municipal Plan is to encourage office decentralization to town centres, LRT stations and other selected locations along major transportation routes (Figure 1.4). The Area Redevelopment Plan for the CBD area addresses the policy of office decentralization via the policies proposed for transportation.[21] The Planning Department appear to be of the opinion that a well developed transit system will assist in attracting office space to decentralized locations, by making such areas more accessible.

   In addition the Planning Department has adopted policies to diversify the land uses in the CBD area. The major objective is to maintain a balance between office development and other uses in the CBD such as residential, retail and entertainment facilities. To evaluate the success of these policies requires first that all changes in the location of offices be effectively monitored, including the distances moved by offices from the CBD.

2. The major users of Edmonton's office space are government agencies and departments(Business Development Department, 1983). Thus research into the location of such offices and their interaction with the private sector will provide valuable information on the office structure of Edmonton.

Finally, there is a need for a classification scheme that more clearly distinguishes between industry and occupation and enables relationships between the two to be determined. The problem with existing taxonomies is that they were developed to provide an understanding of the industrial and occupational structure of earlier eras. From the

[21]The reader is referred to the City of Edmonton Planning Department, 1981 "Downtown: Area Redevelopment Plan Bylaw" for a discussion of these policies.

geographer's perspective the current classification greatly limits our understanding of the location of jobs and hence the function of urban centrality. The classification system developed by Abler and Adams (1977) provides specific guidelines for some of the most important census changes that are necessary for improved research of occupational groups and industrial groups. By cross classifying whether work is is involved with tangible or intagible goods and services, with whether work is routine-repetitive or individualized-customized, Abler and Adams have proposed a reclassification of industries that is more reflective of the kinds of structural shifts that have occurred in many economically advanced nations and their transactional metropolitan areas.

7.5 Conclusion

Offices are continuing to choose a CBD location despite improvements in telecommunications. The role of business contacts appear to be a major factor causing firms to remain in the CBD. It appears that the pull factors of non-central locations in Edmonton are not yet strong enough to overcome the advantages of a CBD location. There is an ample supply of modern office space in the CBD and more will be released onto the market in the near future. Thus the decentralization of offices is likely to be slow, involving firms that do not depend on the intense contact network of the CBD, or which are dependent upon the resident population for their market.

Unless more restrictive controls with respect to office development within the CBD are imposed and/or government incentives are offered to decentralizing firms, the high centrality of offices is likely to continue in Edmonton.

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Example of a Contact Diary Sheet

MEETING RECORD

1. How long did the meeting last?

- ☐ 2-10 minutes
- ☐ 10-30 minutes
- ☐ 30-60 minutes
- ☐ 1-2 hours
- ☐ more than 2 hours

2. Was the meeting arranged in advance?

- ☐ Not arranged at all
- ☐ Arranged on the same day
- ☐ Arranged the day before
- ☐ Arranged 2-7 days in advance
- ☐ Arranged more than 1 week in advance

3. Who initiated the meeting?

- ☐ Myself/another person in my firm
- ☐ Any person outside the firm or any other organization

4. How many people apart from you were at the meeting?

_____

PLEASE COMPLETE THE DETAILS OVERLEAF FOR THE PEOPLE PRESENT AT THE MEETING (QUESTION 11).

5. How often on average do you have a meeting with this person or group of people?

- ☐ Daily
- ☐ About once a week
- ☐ About once a month
- ☐ Occasionally
- ☐ First contact
- ☐ Other (please specify).....
  .....

6. What was the main purpose of this meeting? (see notes)

- ☐ To give an order or instruction
- ☐ To receive an order or instruction
- ☐ To give advice
- ☐ For bargaining
- ☐ To give information
- ☐ To receive information
- ☐ To exchange information
- ☐ For general discussion
- ☐ Other (please specify).....
  .....

7. What was the range of subject matter discussed?

- ☐ One specific subject
- ☐ Several specific subjects
- ☐ A wide range of general subjects

8. If the meeting was outside your place of work what is the address of the meeting place?

.....
.....

9. What was your principal method of transport from your office or previous meeting place?

- ☐ Walk
- ☐ Bus
- ☐ Private car
- ☐ Taxi
- ☐ U.R.T
- ☐ Plane

10. How long did the journey take?

_____

11. For as many of the people at the meeting as you have details for please state their work address and the nature of business of their firms (there is no need to name the people).

	FIRM'S BUSINESS	ADDRESS
1.	.....	.....
2.	.....	.....
3.	.....	.....
4.	.....	.....
5.	.....	.....
6.	.....	.....
7.	.....	.....
8.	.....	.....
9.	.....	.....
10.	.....	.....
11.	.....	.....
12.	.....	.....

APPENDIX B

CBD Questionnaire

Department of Geography, University of Alberta

Office Location and Linkage Study

Questionnaire.

Name of Firm:.....

Address:.....

Type of Business:.....

Position of Respondent:.....

Total office space: sq.ft/sq.m

1. How long has your firm been located at this address?

less than 1 year	____
1-2 years	____
3-5 years	____
6-10 years	____
more than 10 years	____

2. Where was your previous location before moving to this address?

Firm established here	____
Elsewhere downtown	____
Elsewhere in Edmonton	____
Outside the city	____
Outside the province	____

3. Ple indicate using the scale below the importance of the following firms and institutions to your operation, stating where the firm/institution is located.

Importance	Location
1. Very Important	A. Downtown
2. Some Importance	B. Outside the downtown area
3. Not Important	C. Both
4. Unrelated	
5. Don't Know	

Firm/Instituion	Importance	Location
Contact with the following services:		
Banks	_____	_____
Other financial(trust cos. etc.)	_____	_____
Stockbrokers	_____	_____
Investment dealers	_____	_____
Legal	_____	_____
Insurance	_____	_____
Outside Accountants	_____	_____
Business services(eg advertising)	_____	_____
Real estate/developers/appraisers	_____	_____
Contact with suppliers	_____	_____
Contact with clients	_____	_____
Contact with government institutions	_____	_____

Others (specify) .....

4(a). Is your firm intending to move its office outside the downtown area in the near future (ie. within 5 years)?

Yes _____

No _____

(b). If yes please rank using the same scale of importance as in question 3 your reasons for doing so.

Rent too high _____

Lease due to expire _____

Building to be demolished _____

Need for more office space _____

Inadequate Parking/traffic congestion _____

Desire to consolidate offices _____

More profitable location foreseen elsewhere _____

Other (specify) .....

NB Ignore this question if you answered yes to question 4(a).

5(a). Has your firm ever considered locating its office in a non-downtown location?

Yes ____

No ____

(b). If Yes what factors made you stay downtown? Please rank the importance of the following factors:

1. Very Important
2. Some Importance
3. Not Important
4. Unrelated
5. Don't Know

General convenience and accessibility ____

Proximity to support services ____

Good transportation facilities ____

Prestige of location/building ____

Traditional site for office ____

Cost of relocation ____

Other (specify) .....

.....

(c). If No why not? Please rank the importance of the following factors as above.

Loss of prestige ____

Loss of contact with similar firms ____

Loss of contact with suppliers ____

Loss of contact with clients ____

Loss of key staff envisaged ____

Availability of space ____

Other (specify) .....

.....

Thankyou very much for your cooperation.

Non-CBD Questionnaire

Department of Geography, University of Alberta

Office Location and Linkage Study

Questionnaire.

Name of Firm:.....

Address:.....

Type of Business:.....

Position of Respondent:.....

Total office space: sq.ft/sq.m Please ring units.

1. How long has your firm been located at this address?

less than 1 year	____
1-2 years	____
3-5 years	____
6-10 years	____
more than 10 years	____

2. Where was your previous location before moving to this address?

Firm established here	____
Downtown (see enclosed map)	____
Elsewhere in Edmonton	____
Outside the city	____
Outside the province	____

3. Please indicate using the scale below the importance of the following firms and institutions to your operation, stating where the firm/institution is located.)

Importance	Location
1. Very Important	A. Downtown
2. Some Importance	B. Outside the downtown area
3. Not Important	C. Both
4. Unrelated	
5. Don't Know	

Firm/Institution	Importance	Location
Contact with the following services:		
Banks	_____	_____
Other financial(trust cos. etc.)	_____	_____
Stockbrokers	_____	_____
Investment dealers	_____	_____
Legal	_____	_____
Insurance	_____	_____
Accountants	_____	_____
Business services(eg advertising)	_____	_____
Real estate/developers/appraisers	_____	_____
Contact with suppliers	_____	_____
Contact with clients	_____	_____
Contact with government institutions	_____	_____

Others (specify) .....

.....

NB Firms that have relocated from downtown (see map for definition) please turn to question 7.

4. Why did your firm choose to locate at the present address and not in a downtown location? Please indicate the importance of the following factors using the scale below:

1. Very Important
2. Some Importance
3. Not Important
4. Unrelated
5. Don't Know

Better contact with clients _____
Better Contact with Similar firms _____
Better contact with suppliers _____
Savings on rent/lease rate _____
More available space _____
Better parking facilities _____
Decrease in staff commuting time _____
Other (specify) .....
.....

5(a). Would you expect a downtown location to have any advantages for the operation of your company?

Yes ____

No ____

5(b). If Yes please indicate why:

Increased contact with clients ____

Increased contact with similar firms ____

Increased contact with suppliers ____

Prestige of location/building ____

Availible amenities (eg. restaurants, hotels) ____

Other (specify) .....

.....

6. If you had the opportunity to make the locational choice again would you still choose a non-downtown location?

Yes ____

No ____

Are there any furthur comments you wish to make?

.....

.....

.....

.....

.....

The following questions are to be answered only by those firms which have relocated from a downtown location to a non-downtown location.

7. What was the approximate distance involved in your relocation?

----- miles

8. Why did you choose to relocate outside the downtown area? Please indicate the importance of the following factors using the scale below.

1. Very Important
2. Some Importance
3. Not Important
4. Unrelated
5. Don't Know

Better contact with clients _____
Better contact with suppliers _____
Better contact with similar firms _____
Savings on rent/lease rates _____
More available space _____
Better parking facilities _____
Other (specify) .....

9(a). Have your expectations in moving been met by your present location?

Yes _____
No _____
Partially _____
Don't know _____

9(b). If no or partially what expectations have not been satisfied?

Better contact with clients _____
Better contact with suppliers _____
Better contact with similar firms _____
Savings on rent/lease rates _____
More available space _____
Better parking facilities _____
Other (specify) .....

10. What advantages to the operation of your firm can you attribute to its present location?

Better contact with clients ____

Better contact with suppliers ____

Better contact with similar firms ____

Savings on rent/lease rates ____

More available space ____

Better parking facilities ____

Other (specify) .....

.....

11. What disadvantages, if any, have you noticed?

Loss of contact with clients ____

Loss of contact with suppliers ____

Loss of contact with similar firms ____

Loss of contact with support services ____

Cost of transportation ____

Loss of key staff ____

Lack of amenities(eg. hotels, restaurants) ____

Other (specify) .....

.....

12. If you had the opportunity to make the locational choice again would you still choose a non-downtown location?

Yes ____

No ____

Are there any furthur comments you wish to make?

.....

.....

.....

.....

.....

Thankyou for your co-operation.