THE INTEGRATED STRUCTURE OF URBAN FUNCTIONS IN THE TORONTO CORE

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1. Introduction

The central areas of Canadian cities went through change between the mid-1970s and the mid 1990s. The intensity of these changes, however, varied according to the city and the time. In some cities the central areas were dramatically affected by growth (as in Toronto, Vancouver, Calgary), whereas other downtowns showed more stability (Quebec City, Halifax, Ottawa) or struggled while losing social and economic pride of place in the metropolitan area (Edmonton, Winnipeg, Kitchener, Hamilton). Some downtowns, like those of Toronto and Montreal, saw relatively little change in the second half of the 1970s, while those of Calgary, Vancouver, and Edmonton were covered with construction cranes. After 1981, the cranes came down in the western cities and moved back east, where downtown Toronto experienced great amounts of development. Although less so than Toronto, downtown Montreal also witnessed growth. Then, in the 1990s, construction in downtown Toronto almost came to a halt, while downtown Vancouver became the scene of major change through construction.

The purpose of this study is to examine the spatial structure of the urban function in Canadian urban areas by utilizing Toronto as an example and analyzing the distribution and accumulated structure of its core area.

A large number of studies have been made of the core areas and how it has changed with the growth of commercial districts in Toronto. Official planning documents released by municipal governments in Canada include a variety of labels related to the center of the city or to concentrations of commercial land uses at important transportation nodes at some distance from the core of the urban center. Plans for the entire urban area, rather than just the central city, mention other kinds of centers: the official plans of the City of Toronto (formerly the Municipality of Metropolitan Toronto) include a number of "major centers" in metropolitan suburbs (Figure 1). These suburban nodes, along with counterparts in cities across North America, are often referred to as "suburban downtowns" (Hartshorne and Muller, 1989). CBD as defined by Murphy and Vance (1954) should include a somewhat larger area comprising land uses strongly related to the CBD, such as railway and bus terminals, warehouses, automobiles, financial companies, medical services and government offices. Here one finds the greatest concentration of offices and retail stores reflected in the city's highest land values and its greatest amount of employment. Commercial activities in the core are typically much larger than the average for the greater urban area, in every sector. This view of the CBD, then, includes a CBD core (retail and offices) and a CBD frame (Horwood and Boyce, 1959). The Murphy-Vance definition of the CBD implies two notions that are important in understanding downtowns. One is the notion of high-order goods and services, the other is the notion of centrality.

Another concept in portraying downtowns is that of "agglomeration economies" and "face-to-face linkages". These concepts are used in many studies of downtown business complexes, starting with Haig's (1926) analysis of downtown Manhattan and including Robbins and Terleckyj's study of Wall Street (Robbins and Terleckyj, 1960) and the major studies of office location and linkages of the 1970s (Gad, 1979). Recently, Sassen's outline of the "producer services complex", which is at the core of global cities, has also relied on these concepts (Sassen, 1991, 1994).

The following text focuses to a large extent on urban function development and those activities

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which are accommodated in buildings. The subject of this study is how the urban functions are integrated into the core area of Toronto. The six branches of urban function examined in this study are retail functions (retail, services, auto services, sales), Eating and Drinking functions (restaurants, coffee shops, bars), office functions (private offices), lodging functions (hotels), residential functions (apartments, houses, town-houses) and public functions (government offices, schools, places of amusement, libraries, hospitals, churches, transportation facilities). Most of the core area of Toronto is characterized by high-rise buildings where the spatial use may differ from one floor to another. The purpose of this paper is also to clarify spatial use in the core area of Toronto. For this purpose, the author undertook field surveys on the floor use of almost all the buildings in its core area.

2. City Centers in Metropolitan Area

The Greater Toronto Area (GTA), which had more than five million people in 1999, is the largest urban market and one of the fastest growing in Canada. GTA consists of 5 regions: the City of Toronto and the regional municipalities of Halton, Peel, York, and Durham, and this area extends over a radius sixty kilometers from the downtown core adjacent to Lake Ontario (Figure 1). The City of Toronto, with 2.5 million people covering 620 square kilometers, is located on the north shore of Lake Ontario.

For this research, the core area was bounded by John Street on the west, Yorkville Avenue to the north, Church Street to the east and the VIA rail tracks to the south (Figure 2).

In the mid-1970s the municipality of Metropolitan Toronto encouraged the creation of several suburban centers with densities sufficiently high to attract and maintain a wide range of central area types of activities and to support related improvements to the transportation system (Metro Toronto, 1976), thus to increase the number and range of jobs in, and provide a focus for, the surrounding suburban communities (Figure 1). Metro's 1980 Official Plan (Metro Toronto, 1980) designated two "major centers" (North York and Scarborough) that were meant to contain a wide range of functions and up to 40,000 jobs.

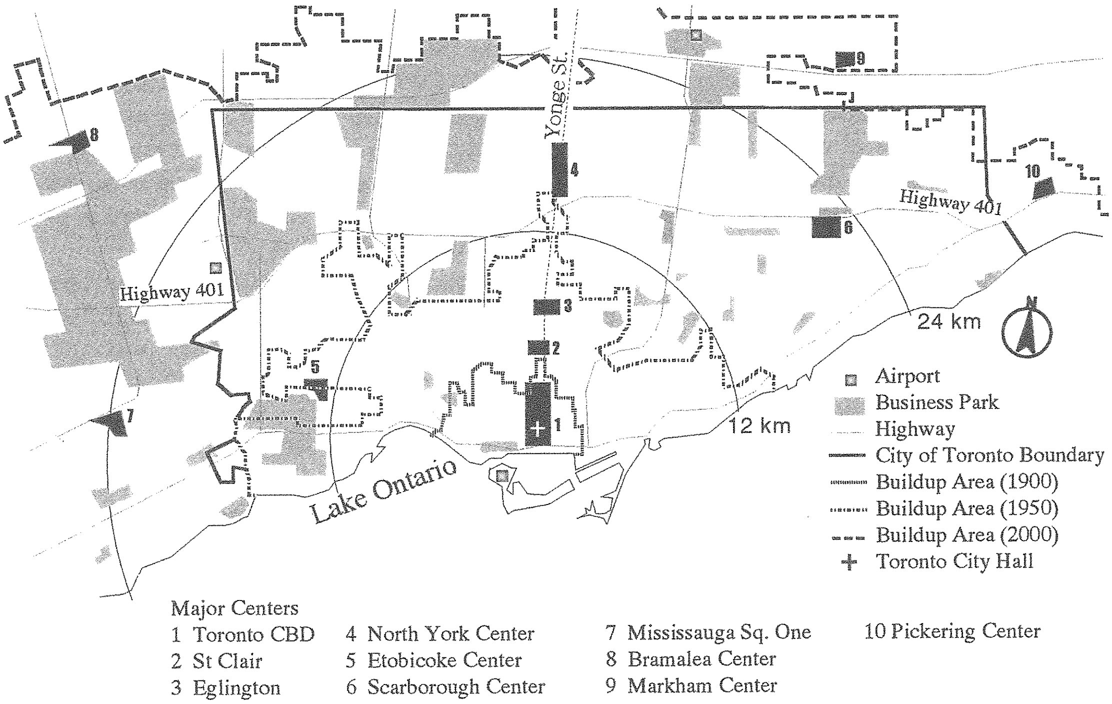

Figure 1. Location of City Centers and Business Parks in Metropolitan Toronto

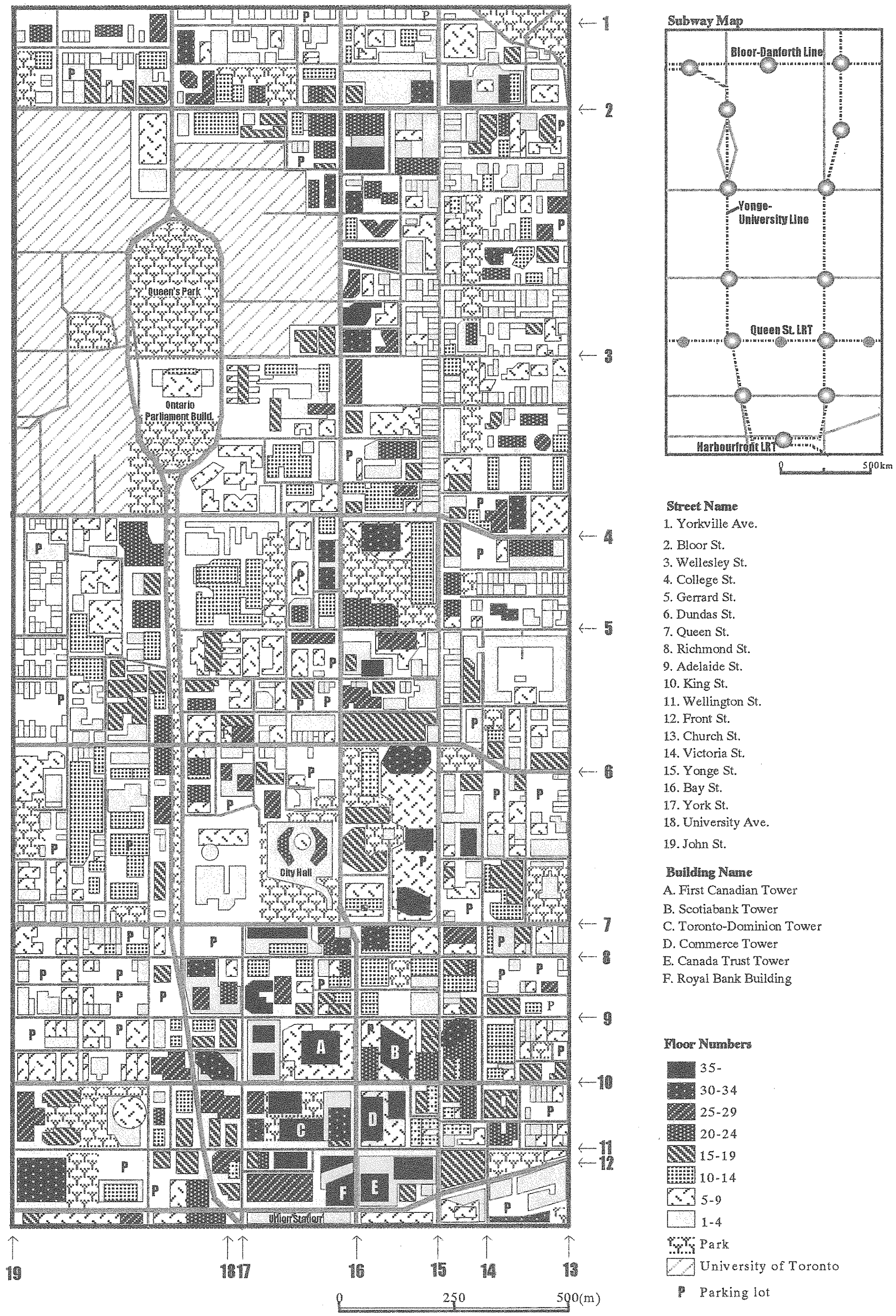

Figure 2. Location of buildings by floor number in Toronto Core

Source : Fieldwork by the author in October 2000

These two municipalities actively supported the creation of their major centers. North York, with a population of 550,000, improved its services along an old shopping strip, served by two subway stations on a northward extension of the Yonge subway, immediately north of Highway 401. In 1979 North York revised its official plan (City of North York, 1979) to offer incentives for new buildings housing a range of shops, personal services, office functions, and apartments within a three-kilometer Yonge Street corridor. It built a new civic complex in the southern half of the corridor, with a theater complex, the Ford Center, next to it. North York center has grown consistently so that in 1995 it contained 638,000 square meters of office space (Filion and Burke, 1997) with a total employment of 27,900, of which 82 per cent were office jobs (Metro Toronto, 1997). The center is quite diverse, containing over a thousand jobs each in retailing, services, and institutional activities. It also accommodated 6,800 apartments with a total of over 10,000 residents (Filion and Burke, 1997). The City Center contains the offices of major municipal functions (City Hall and Board of Education) and public facilities such as a major library and an aquatic sport center. A third subway station was built in the mid-1980s and most of the development is in the southern half of the corridor, within easy walking distance of two subway stations, though only 22 per cent of all rush-hour trips to and from the center are by transit (Filion, 1997). Nonetheless, it is convenient to visit this center by public transit and its bustle, with some on-street shopping, restaurants, and pubs, gives the area a downtown atmosphere.

Scarborough, with a population of almost 400,000, started creating its own "Town Center" by constructing a municipal and school board office building next to a new regional mall. The emerging center is bounded on one side by Highway 401. In comparison to North York, Scarborough has been conservative in the building densities and range of activities that its plan and zoning by-laws permitted, so that development, after promising beginnings, has been spasmodic since the mid-1980s. In 1995 the center contained 247,000 square meters of office space and 1,200 apartments. A total of 19,500 were in employment, of which over 3,000 were in retailing and 4,700 in manufacturing and warehousing. Offices accounted for only 52 per cent of the center's jobs (Metro Toronto, 1997). The overall density of this complex is so low that owners of one office building operate a shuttle bus to and from the mall, 400 meters away, as walking, especially in winter, is too uncomfortable. A light rail transit line built to the center from the eastern terminus of the Bloor-Danforth subway has not met expectations. Transit accounts for 18 per cent of all rush-hour trips to and from the center.

Other major city centers called Etobicoke Center, Eglington, and St Clair are all located inside the City of Toronto.

Outside the City other new suburban downtowns are at various stages of development: in Mississauga to the west; in Brampton to the northwest; in Markham to the north; and in Pickering to the east. Three of these began as privately developed shopping centers to which developers added office space. Mississauga's City Center is by far the largest and has the widest variety of functions: a very large shopping mall (about 93,000 square meters in the mid-1990s), a striking city hall with a public square, a large public library, a live-theatre complex, restaurants, cinemas, and other entertainment facilities. A new transit terminal serves as a hub for an emerging public transit system. About 12,000 are employed in the shopping mall and the 286,000 square meters of office floor space. Mississauga City Center also includes a hotel and over 1,000 apartments in high-rise buildings.

3. Urban Functions in Core Area

1) The Outline

The overall Core employment is not evenly distributed, with magnitudes varying from 94,150 in the district K, to 31,010 in the district I, down to only 2,200 in the district A (Figure 3). Some of these districts are almost exclusively commercial areas (district C, district K), but others simply provide the employment that supports nearby commercial areas (district D, district F). In terms of commercial activity, district K is the most active with over 80,000 jobs, followed by the district I (17,000), district C (12,000) and district

J (10,000).

The downtown also has segregation of functions: a ceremonial ground floor with plazas and entrance halls, stacked offices above, and shops and services underground. This area has a variety of buildings, such as the Toronto Dominion Center (Figure 2), which is not just one building but a complex consisting of several buildings, which attached a height of 72 floors with the completion of the First Canadian tower (Figure 4).

As in previous periods of strong growth, the use of space was intensified yet again in the core section of downtown. The general office district that had emerged in the first half of the twentieth century was partially redeveloped. Building densities increased. It has been calculated that the average floor-space density of commercial and government offices in Toronto's inner core area almost doubled between 1962 to 2000. With the grouping of similar and related activities within the CBD, a mosaic of different land uses has gradually crystallized.

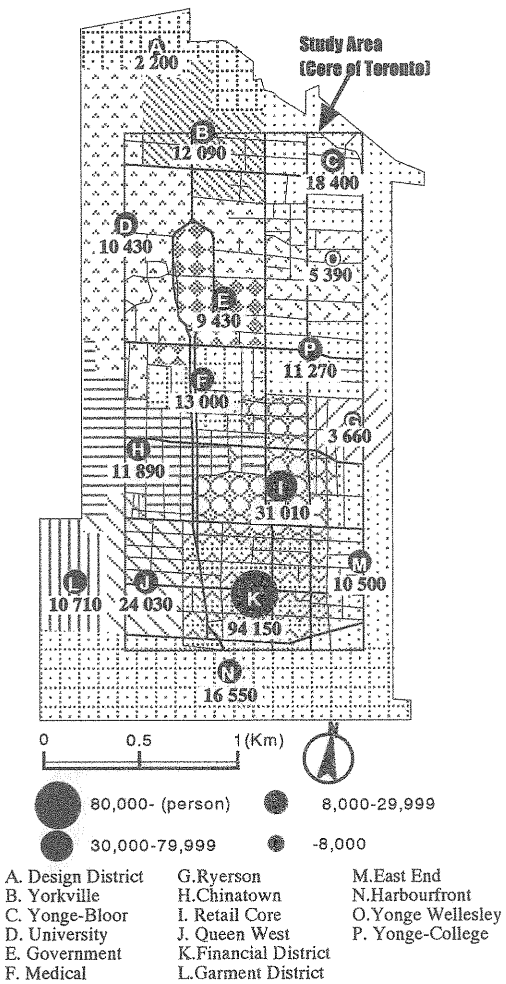

Figure 3. The Number of Commercial Employment per District in Toronto Core (1996)

A lot of large buildings have been constructed between Yonge Street and University Avenue and small buildings have been developed along the east and west sides of the core area (Figure 2). There are high accumulations of offices in the northern and southern areas, and in the central core area, residences predominate.

The author conducted a land-use survey to obtain the data for urban functions by floor in the Toronto CBD. The first, second, fifth and fifteenth floors were selected as the object of this study. These floors were selected because they reveal a marked change in land use.

2) Retail (Commercial) Function

Figures 4 and 5 show an outline of the retail function and according to the diagram, the retail function is concentrated on the first floor in the north and underground in the south; outlets are also clustered along Yonge Street, connecting the two large-scale shopping districts. So this arterial strip plays an important role in connecting those districts. As for the retail distributional structure, it is possible to divide the retail district in the Toronto core into three districts, which are called the Bloor / Yorkville district, the Yonge Street strip and the Underground Shopping District (Figure 4).

(a) Bloor / Yorkville District

Specialty shopping streets or whole districts such as the Bloor / Yorkville district spring up, catering to locals and tourists alike. This is a complex amalgam of eight malls and six street-front strips including Yorkville Village located at north of Bloor Street between Yonge Street and Avenue Road. This area includes two large department stores, four large specialty stores, and three cinema complexes totaling 17 screens. The total area of this district is 210,000 square. meters. While the Eaton Center complex is characterized by the presence of two huge department store anchors which comprise 70% of the space in the area, the Bloor / Yorkville district is characterized by store proliferation-almost 900 stores/outlets, with an average size (excluding the large specialty stores and department stores) of about 150 square. meters per store (CSCA, 2000). international designer label goods stores cluster along Bloor Street West and between Yonge Street and Avenue Road, while Yorkville Village is dominated by domestically owned specialty stores, services, and restaurants.

(b) The Yonge Street Strip

The bulk of the central shopping district is concentrated in a strip along Yonge Street to the north of Bay department store and Eaton Center. This confinement to a single street is indeed unique. In most North American CBD's, retailing of this type encompasses several blocks, the shops being located on each of the four sides.

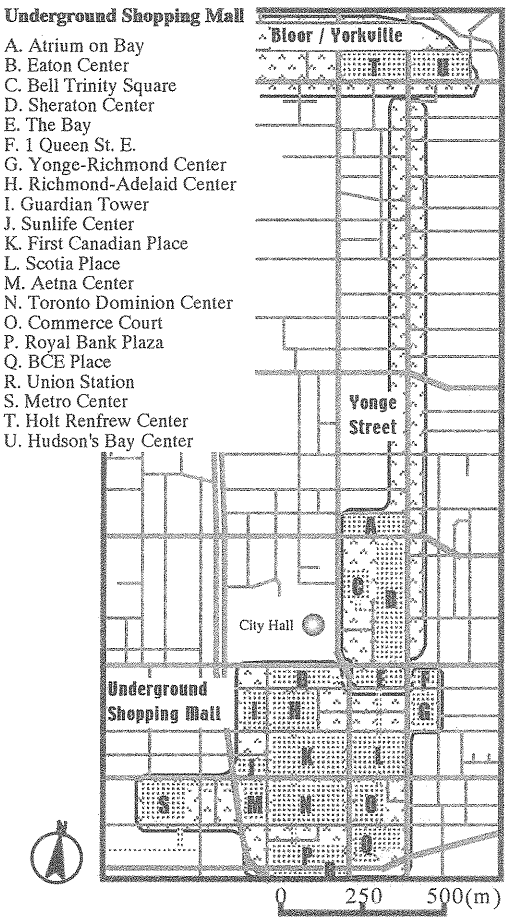

Figure 4. Location of three major shopping istrict and Underground Shopping Mall in Toronto Core

The west side of Yonge between Queen and College Streets is owned by a large department store. A significant concentration of high-class stores that which could effectively compete with them does not exist in this district but lies father north, in the Bloor / Yorkville district.

In the face of suburban competition, downtown retail facilities were modernized by copying the layout of the suburban shopping mall. The Toronto Eaton Center is part of this, as are many smaller downtown malls in Toronto. The Toronto Eaton Center, which opened during the golden age of GTA mall development in 1977, has 160,000 square. meters of commercial space, over 300 commercial activities, and a 16 screen cinema. It is anchored on the northern end by a 100,000 square. meter department store which was originally owned and operated by T. Eaton Co. Ltd..

The southern end, on Queen Street, is also, anchored by an 85,000 square. meter department store called The Bay, but this is not legally part of Toronto Eaton Center, which is now owned by Cadillac-Fairview. The total space in the complex is, therefore, about 250,000 square. meters. It has been a successful mall, with direct access from two subway stations; the public transit system defines the primary reach of Eaton Center.

(c) Underground Shopping District

Office complexes began to be equipped with underground malls in the CBD. A distinctive feature of the financial area in Downtown Toronto is the system of underground malls and walkways which weave together office buildings, retail activities, government offices, and transportation facilities into an integrated but differentiated system. The PATH system in the financial district connects the malls in a pedestrian system which also links up with Union Station, seven rapid transit stations, the bus terminal, and the sports stadium. The part of this system that is addressed in this sub-section involves 16 of these malls, located at the base of high-rise office complexes, and that serve to the 230,000 labor force employed within a half kilometer radius of the center at King Street and Bay Streets. These 16 malls include 710 stores/-outlets and about 100,000 sq. meters of space.

The functional characteristics of the system

Figure 5. Land Use Pattem in Toronto Core (2000)

Source : Fieldwork by the author in October 2000

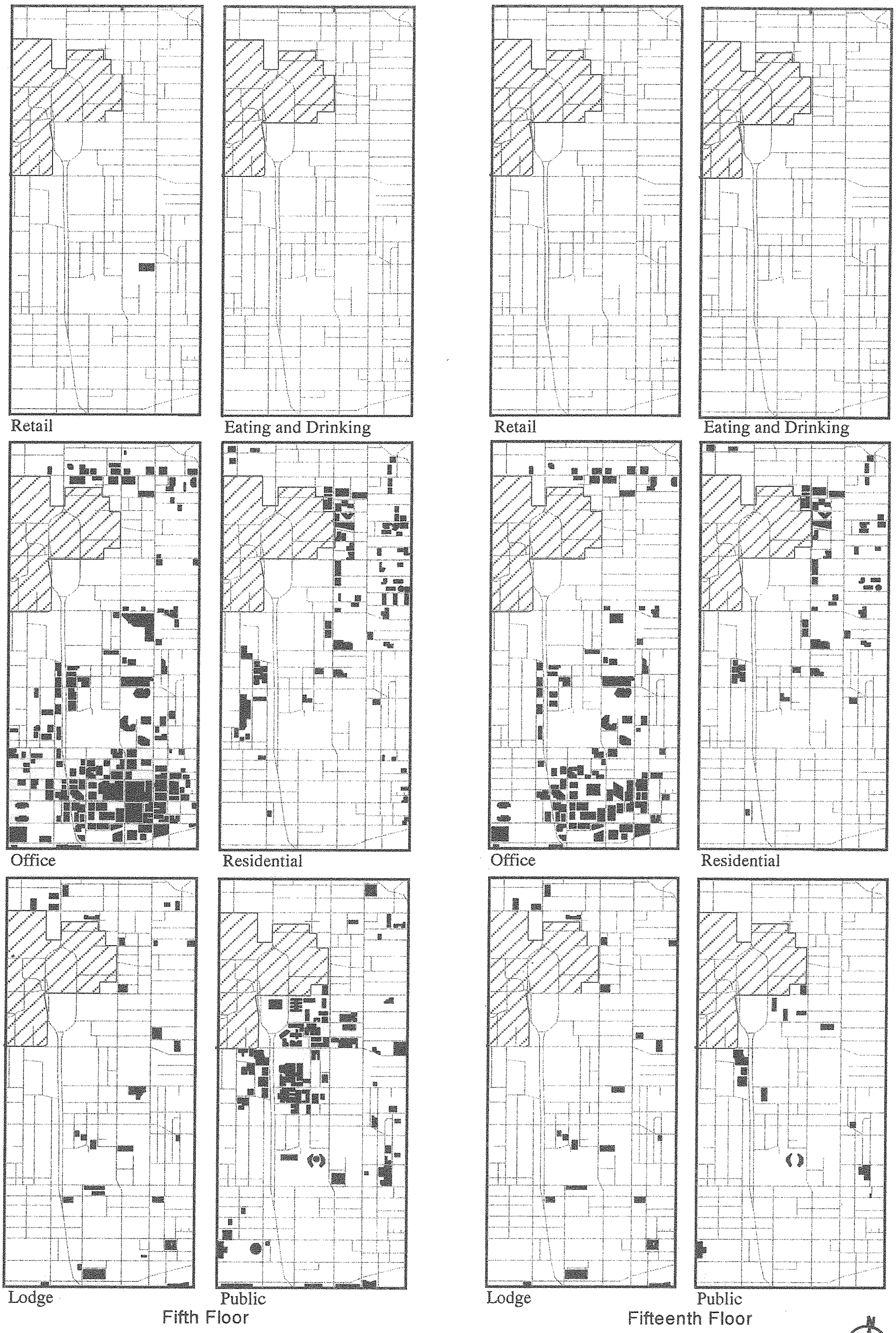

Figure 6. Land Use Pattem in Toronto Core (2000)

Source : Fieldwork by the author in October, 2000 vary from north to south. In the northern part, fashion predominates ; in the middle part, food retailing appears to be concentrated; while in the southern part, close to Union Station, convenience goods, personal and business services, and fast food outlets are clustered.

3) Eating and Drinking Function

The distribution of eating and drinking functions is similar to that of the retail functions (Figure 5). But, unlike the distribution of the retail functions, we can see a high accumulation of eating and drinking function between King Street and Queen Street. It also extends over a larger area than the retail function.

Most of fast food chains are concentrated on the Yonge Street retail strip and the food courts in the Underground shopping district, but exclusive higher scale ranked restaurants and bars predominat in the Bloor / Yorkville district, as it is Toronto's major high-fashion location, and on the west side of King Street and Queen Street. Every site on the west side of King Street and Queen Street has been affected by the theater complexes' transformation of customer traffic.

4) Office Function

The development of Toronto as a leading financial center has increased the importance of financial functions in the core area to rival, if not exceed, those of retailing. In turn it has caused the emergence of a complex district within which financial institutions, law firms and head offices of companies as well as of importers, exporters and manufacturers' agents, among a host of others, are housed in a compact group of office buildings of various kinds, including several skyscrapers.

As shown in Figures 5 and 6, the office function is highly accumulated in the Southern district; and along University Avenue and Yonge Street, the office function extends northward. A high density office functional area is also located along Bloor Street. In the financial district, the underground floors are mainly occupied by restaurants and shops. Most of the high-rise buildings have a lobby or a banking office on the first floor, and financial offices such as banks, stock companies, and insurance companies are concentrated in the high-rise buildings.

The core offices in Toronto can be separated into two areas mentioned above, the northern business district and the southern one. In this paper, the author focuses on the southern business district as it is the larger one. The southern business district is divided into two areas called the financial district and the outer financial district.

(a) The Financial District

Every one of the major banks of Canada has its headquarters in the financial district around the corner of Bay Street and King Street, where stand the buildings of more than twenty large banks. The financial district is bounded by University Avenue on the west, Queen Street to the north, Yonge Street to the east and Front Street to the south. A preoccupation with massive buildings first expressed itself in the black 54-story tower of the Toronto-Dominion Bank (TD Center). There are four towers there now, as well as the silver mirror-like walls of the Bank of Commerce building (52 stories) is, right across the street. Only a few meters away - is the Bank of Montreal's tower (72 stories), covered with handsome marble and now holder of the title "Tallest Building in the British Commonwealth". Other major Canadian bank buildings, the Royal Bank Building (40 stories), the Scotia bank Tower (68 Stories) and the Canadian Trust Twine Tower (51 Stories) are also all concentrated in the same area. The location of stockbrokerage firms and bond houses is a criterion for the distribution of financial institutions, and the concentration of stock brokers and bond dealers along Bay and King Street is striking.

There are also advantages in having a collection of services within the financial district. Corporation lawyers, economists and printers, for example - to name only three groups - all provide the financial community with varied and special services, and the accessibility of such specialists is important.

(b) The Outer Financial District

Occupying a larger area but including the previously defined financial district is the zone of office buildings. Some of these buildings are head offices of large companies, by whose names they are known. The company concerned may, however, occupy only part of the floor space, the surplus space being rented to other companies, enterprises or individuals. In contrast, other buildings are owned by individuals or groups, including foreign interests, for the purpose of investment.

A great deal of office space is occupied by a wide variety of small to medium- sized establishments run by building contractors, industrial auctioneers, foreign consulates, trade associations, planning and building consultants, manufacturers' agents and many other enterprises and organizations. In the main, they are found south of Queen Street. On Bay Street, south of King Street there is a rather significant concentration of steamship and airline offices and of travel agencies and services. The clustering, although partly historical, is due mainly to the large surrounding market. It need only be noted that scattered through the general office district are also businesses such as chartered secretarial, public stenographic, addressing and letter services and telephone-answering agencies.

5) Residential Function

Housing has gone from being concentrated in the district around the outer edge of the core. Its distribution also indicates an attraction to the new residential areas in the central parts of the core. Few people are attracted to the central core, and most gains were oriented to the neighborhoods on the outer edge of Toronto's core (Figure 5 and 6). To put it concretely, there are accumulations of office functions along Bloor Street and in the financial district. We found that there are residences on each side of the Yonge Street retail strip. There are high-rise apartment buildings clustered along the northern part of Bay Street. A few large-scale apartment buildings are distributed on the west side of University Avenue. Small-scale residential complexes are located on the north-east side of Yonge Street and the west side of University Avenue. Smaller households are found along the western part of Dandus Street and along the eastern part of King Street.

6) Lodging Function

In the case of the lodging function, no accumulation is found anywhere in the core area. The lodging facilities are scattered throughout the area.

New high-rise hotels cater to tourists and business travelers. 26 large hotels, providing more than 9,000 hotel rooms, are located in the study area, along with numerous smaller establishments. There are 25 theaters and 65 movie screens, a great variety of restaurants, two major league sports facilities, and twelve theaters are in the same area around the lodging functions. The Sheraton Hotel is located on the corner of York Street and Queen Street and the Hilton Hotel is also located in the same area. The distribution of lodging functions is not concentrated but is spread out.

7) Institutional & Service Function

The core area of Toronto has been broken down into a myriad of planning districts and use designations, which is a far cry from the broad-brush high-density commercial, residential, and institutional designations of 1950s and 1960s master or official plans. The new generation of plans recognizes core area diversity, with their specialized shopping, hospitals and medical treatment centers, theaters and cinemas, and museums and art galleries.

Service and Government offices located between the University of Toronto and the financial district are highly accumulated. The northern part of the district is dominated by provincial government facilities. The district across College Street, which is dominated by a medical complex, is the center of the service functional region. The facilities of municipal government are concentrated in the area to the south of the service functional region. In the east, on the northern side of Dandus Street, the University and its related buildings are located. To the south, across Dandus Street, schools, churches and a hospital are crowded into a small area. At the bottom, along Front Street, there are public transportation facilities, and a convention center. Metro Hall, Roy Thomson Hall, and many theaters are located near those facilities on King Street in the west.

From this analysis, the combination of functions has kept downtown Toronto healthy. But so has the overall growth in the region. Growth can take place outside the core but there is still

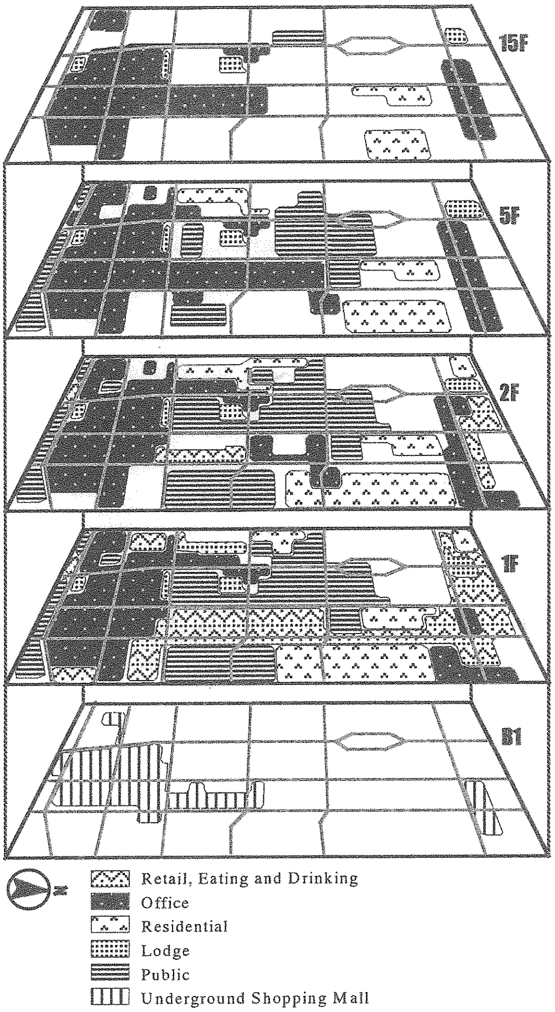

Figure 7. Dominant land use in Toronto core

always enough demand left to keep the downtown area healthy.

8) Summary

One characteristic is a high accumulation of office functions found in the northern and southern parts of the area. This indicates the polarization of the central public functions. Furthermore, the retail strip along Yonge Street connects the northern and southern districts. Residences are highly accumulated in the eastern and southern districts. Medium-level accumulations of residences are also to be found on the fringes of the area. The lodging function is distributed irregularly and shows no sign of high accumulation. It could be said that the dispersion of the lodging function has progressed. Areas of public function have formed around Queen's Park and medium-scale public function is scattered around these areas.

Indicating a two-centered structure in the core area, public functions and lodging functions are dominant around the southern and northern business districts where the office function is accumulated, while residences dominate on the fringes. This structure clarifies the structure of the functional differentiation that is characteristic of Toronto.

4. Conclusion

In this research, the author examined the spatial arrangement of urban functions in a large-scale Canadian city with a vertical perspective from the viewpoint of the distribution of urban functions.

Figure 7 shows a model of how each branch of urban function is locally differentiated in the Toronto core. The six main components: underground shopping zones, commercial areas, offices, lodging, residential areas, public areas are clearly marked.

The result of the data analyzed here are as follows:

① The coexistence of the retail, eating and drinking, and office functions in the financial district is shown in figure 7. There are office functions on the first floor or higher level, under which shopping facilities are located in the basement. On the other hand, outside of the financial district, retail or eating and drinking functions are located on the first floor, and office functions are above them, especially on Yonge and Bloor Streets.

② It has been made clear that the office function increases its presence as you go up higher in a building through a study of space utilization of all the buildings in Toronto core. The basement is typically as a shopping mall district, and on the first floor, all functions are equally distributed. Retail, eating and drinking functions are extremely reduced by the second floor. At the fifth floor or higher level, office, public, residential and lodging functions are prominent.

③ It has been made clear that there are two centers to the pattern of urban function.

Hereafter, urban space will continue to expand and circumscribing areas will be developed. Also, it is possible that a large-scale accumulation of urban functions may cause the spatial rearrangement of urban functions in the small area between the southern and northern business districts.

From this urban functional study, we have seen that the core area of Toronto has remained commercially healthy, because it has managed to retain a concentrated mix of clusters of activities, which individually reap external benefits because of their proximity to other activities of the same type and other clusters that relate to them in some way. This cluster of clusters is strong when the compounding of external benefits works, but it can become quite fragile when particular components weaken. For the downtown to remain healthy, each component in the cluster of clusters has to remain healthy. There is no doubt that the population growth, on which the future health of the consumer service sector is strongly related, is directly dependent on the dynamism of the cluster of clusters.

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