

**THE DOWNTOWN PEDSTRIAN ENVIRONMENT:
AN EXAMINATION OF WINNIPEG'S WEATHER-PROTECTED
WALKWAY SYSTEM FROM A USER'S PERSPECTIVE**

by
Robert M. Eady

A Practicum
Submitted to the Faculty of Graduate Studies
in Partial Fulfillment of the Requirements
for the Degree of

Master of City Planning

Department of City Planning
University of Manitoba
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ABSTRACT

Over the past two decades, weather-protected pedestrian walkway systems have become an increasingly popular element of the downtown streetscape of many North American cities. Whether in the form of overhead skywalks or underground concourses, they are a means of providing the pedestrian with safe, uninterrupted movement in a climate-controlled environment. By facilitating access to grades other than at street level, walkways offer pedestrians a new alternative to downtown movement. With any new system comes change, both in how people perceive their environment and use it. Since grade-separated walkway systems represent a dramatic change in the ability to move about the downtown, a shift can be expected in people's behavioral patterns. The consequences, either beneficial or detrimental, often takes three forms: social, economical, and behavioral.

The intent of this practicum is to examine the problems and benefits of Winnipeg's Downtown Walkway System from a user's perspective. The problems and benefits of a system may be real or perceived - this study seeks to investigate the case of Winnipeg by focusing on user perception. The main issues examined centre on socio-economic and behavioral aspects in an attempt to provide an overview of the attitudes, social habits, and usage patterns of the system user.

The practicum concludes with a summary of findings on the state of the Winnipeg system as it exists today. This is expressed in terms of the problems, benefits, social behavior and usage patterns identified through user surveys. Finally, a recommended course of action for improvements to the system is advanced.

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INTRODUCTION: Statement of Purpose

Skyway systems are rapidly becoming second cities running over and through the existing ones like threads through a loom. Since they are not going to disappear, integrating them into existing cities - socially, economically, and architecturally - has become a critical planning issue.¹

-- David Dillon

The purpose of this practicum is to examine the problems and benefits of grade-separated walkway system development on the downtown pedestrian environment. The problems and benefits of such systems may be real or perceived - this study seeks to investigate the case of Winnipeg by focusing on the perceptions of users of the Downtown Walkway System.² The practicum describes and evaluates the system in terms of various user-related planning and design issues as identified through a survey of users.

Problem Statement

Over the past two decades, weather-protected pedestrian walkway systems have become an increasingly popular element in the downtown streetscape of many North American cities. The stated reasons vary as to why such off-street systems are being implemented in our downtowns. Firstly, improved pedestrian safety is accommodated with the separation of vehicular from pedestrian traffic. Secondly, by allowing most trips to be made in less time and in more comfort, they facilitate pedestrian mobility. Finally, they can serve as a strategy for downtown redevelopment. Whether in the form of overhead

¹ David Dillon, "Conference Looks at the Benefits, And Problems, of Skyways", *Architecture* , 1985, p. 13.

² The Downtown Walkway System is the official name of Winnipeg's downtown weather-protected pedestrian system. The system consists of both overhead skywalks and an underground concourse.

skywalks or underground concourses, they are a means of providing the pedestrian with safe, uninterrupted movement in a climate-controlled environment.

Although the reasons may vary, the establishment of internal pedestrian walkway systems is viewed by many as a major contributor to the transformation of downtown space. By facilitating access to grades other than at street level, walkways offer pedestrians a **new** alternative to downtown movement. With any new system comes **change**, both in how people perceive their environment and use it. Since grade-separated systems represent a dramatic change in the ability to move about in the downtown, a shift might be expected in people's perceptions of the downtown and how they use it.

Questions concerning the impact these systems have had on the pedestrian raise a number of **user-related issues** that need to be addressed:

- * Since internal walkway systems can cause significant shifts in where and how people entertain, shop, and conduct business, how have they affected the **social behavior** of people in using downtown space?
- * What are the consequent usage patterns of the pedestrian?
- * Does the system present any **problems** for pedestrian movement, or usage, and what improvements can be made to alleviate these difficulties?
- * How are internal walkways **beneficial** to those who use them?

Objectives

In the mid-seventies Winnipeg City Council adopted a series of programs to strengthen the importance of the downtown as the focal point for Winnipeggers. With this objective in mind, one important component in the rejuvenation strategy for the downtown was the establishment of a weather-protected pedestrian system. The walkway system was included in the Council strategy as an essential amenity to encourage downtown revitalization and, because of climate extremes, could allow the downtown to compete with

peripheral shopping centres. As well, the walkway was required to serve the downtown resident population as it assists in supporting on-going redevelopment.³

Although the above explanation provides the *raison d'être* of the Winnipeg walkway system, it is necessary to justify the objective of a practicum inquiry of this type. With the recent introduction of an upper level system to complement the existing below grade concourse at Portage and Main, Winnipeg's weather-protected system now offers the pedestrian an **alternative** to movement in the downtown. Traditionally, pedestrians have had only one route along which to travel, that being the street. Now they have three options: street level, above-grade, and below-grade.

As previously mentioned, with any new system comes change, both in how people perceive their environment and use it. Certainly a change in the downtown movement patterns of Winnipeggers is apparent. Since a significant portion of the downtown (retail components mainly) is now connected by skywalks and tunnels, a progress report on the effectiveness of the system is in order. Thus, an examination of pedestrian movement is proposed by this practicum, in an effort to **assess the various attributes of the existing walkway system based upon user perception and patterns of use.**

Study Limitations

The walking opportunities afforded pedestrians in and around cities are numerous. They include, for example, arcades, sidewalks, market places, parks, and indoor shopping centres. Since most people become pedestrians at one time or another, the pedestrian environment is familiar to all. The way in which it is linked to other movement systems and its impact on other facets of city life are important considerations.

Due to the breadth of the practicum topic and the time constraint, certain **limitations** must be placed on this study in order to focus the research efforts towards the desired

³ Irwin Torry, "Welcome to Winni-PEDI" *Quarterly News* , vol. 1, no. 4, 1988-89, p.5.

objectives. The type of research most needed, therefore, should be **selective**, and adhere to the following limitations:

- (1) This practicum documents **North American** experiences with pedestrianization and focuses on **Winnipeg** as a case study. Although other American and Canadian cities are examined, they are only considered in order to place the Winnipeg situation in a broader perspective.
- (2) This study deals strictly with the **downtown** pedestrian area.
- (3) The three principal types of pedestrian schemes used in downtowns can be identified as pedestrian districts, pedestrian malls, and interior pedestrian walkways. This study focuses on **interior pedestrian walkways** as they are one of the more common to be found.
- (4) Winnipeg's walkway system is evaluated as it **presently exists**. The study does not attempt to compare the existing system with what was there before.
- (5) The assessment of Winnipeg's interior pedestrian walkway system is based upon **user perceptions and patterns of use** as identified through a survey of users. Thus, the attitudes, opinions, perceptions, and usage patterns of system users forms the basis upon which the walkway system is evaluated. The attitudes and opinions of people not located on the walkway are not considered.
- (6) All survey respondents are over the age of seventeen and therefore, the perceptions of children are not considered in the study.
- (7) The problems and benefits associated with walkway systems are architectural, economic, social, and user-related. Since the purpose of this practicum is to solicit the opinions of the system user in identifying the issues, the study focuses on the social behavior of the user and the user-related consequences of walkway system development.

Organization of Practicum - Structure and Method

This practicum is organized into five chapters (see Figure 1). The first chapter is a review of existing **theories** on downtown pedestrian planning and begins with an examination of its **goals** -- that of overall downtown livability and pedestrian movement. A key point to be explored here is **linkage** of the pedestrian environment to other movement systems. The conflict between pedestrian and vehicular movement and the separation of these activities as a response to the problem is also examined.

The second chapter comprises a literature review of pedestrian skywalk/concourse systems found in North American cities. By examining the **experiences** in other cities

with similar pedestrian schemes, insight can be gained into what **issues and aspects** must be given special consideration when analyzing Winnipeg's system. In short, this review cites **precedents** in the examination of the Winnipeg situation and raises the user-related issues of walkway system development.

The focus of the practicum shifts from a generalized look at pedestrian walkway systems to a more specific 'case study' approach in chapter 3 with the examination of Winnipeg's Downtown Walkway System. This chapter sets the scene for the remainder of the practicum and begins with an **overview** of the walkway system from its origin to what currently exists today. Since this study proposes an evaluation from a user's perspective, the **types of users** - employees, residents, shoppers - are identified in an attempt to determine the potential target groups for the survey. Finally, an explanation is provided on the methods and techniques utilized in the development of the **questionnaire and survey** of walkway users. The results of this survey form the main data base for the case study as the information obtained from user perceptions are used in the analysis of the Winnipeg system.

In chapter 4, all of the findings and data collected from the user survey is presented and a question-by-question **analysis** of the results is carried out. The data base used in this analysis is as follows:

- (1) findings from the user survey,
- (2) key interviews,
- (3) relevant literature, and
- (4) personal observations.

At this point a large amount of information has been brought together into one place - many comments, opinions, and biases. Thus, it is necessary to screen all the material so that only those **findings** relevant to the practicum remain - such as, user concerns and the user-related aspects and issues of the walkway system. These selected findings form the specific information needed to make an evaluation of the Winnipeg walkway system in chapter 5.

Chapter 5 involves the examination of those user-related aspects and issues identified in the analysis stage. They are dealt with in greater detail to determine whether an issue is: a

problem or benefit; of major or minor concern; an identifiable social behavior and usage pattern. In this final analysis on the state of the Winnipeg walkway system, concluding remarks are made as follows:

- (1) issues identified as **benefits** are listed as such (no recommendations are necessary),
- (2) issues identified as **problems** are addressed and **recommendations** towards their solutions are proposed, and
- (3) any general social behaviors and usage patterns of system users.

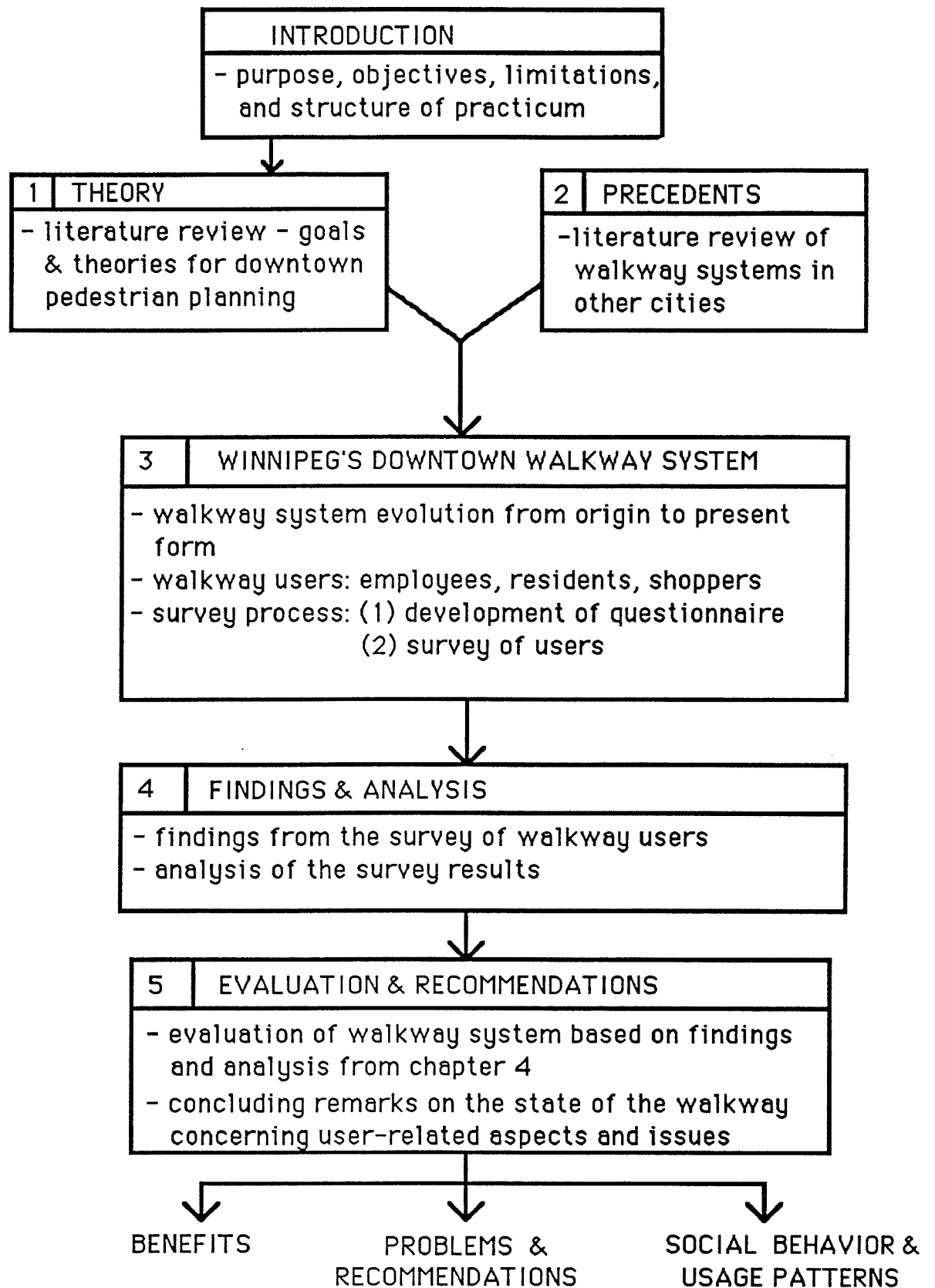


Figure 1: Summary of Practicum Structure

Chapter 1

THE DOWNTOWN PEDESTRIAN ENVIRONMENT

For too long have cities grown cancerously, with activities separated and unrelated; with traffic routes dividing the city; with buildings designed and placed without connection to each other and to the city as a whole. The relation between the physical and social disorganization of city life is becoming apparent.

(What is needed now is) to again place **people** in the foreground of attention in the design of cities: to provide the settings and occasions for sociability and dialogue; for civic and communal participation; and for aesthetic experience.¹

-- Suzanne and Henry Lennard

This critical view may seem somewhat harsh in its overtones on the state of the city, but the fact remains that past trends in urban design have not been too responsive to the needs of people. As the quote suggests, **human values** in the urban design process have been largely lacking in our plans and designs. What has increasingly occurred is the inversion of past values of traditional architecture and design; a building's form is now derived from the internal functional and structural requirements of the building (the *functionalism* concept). Buildings structured in this manner show little or no regard for the design characteristics of the surrounding environment. This contributes to the physical and social disorganization of city life.

Only recently have actions been taken to reverse this trend as designers and planners once again have begun to place people in the foreground in urban design. The purpose of this chapter is to examine the downtown pedestrian environment in light of recent developments recognizing people as the essential component in the urban design process. Livability and pedestrian movement are examined as goals for pedestrian planning. As

¹ Suzanne H. Crowhurst Lennard and Henry L. Lennard, ed. *Livable Cities*, Gondolier Press, Southampton, N.Y., 1987, p. 7-8.

well, the conflict between pedestrian and vehicular movement and the need for a balanced planning approach is discussed. In response to this conflict, various methods for separating pedestrian and vehicular activities have been implemented in many North American cities. These strategies involve horizontal and vertical separation through such developments as pedestrian malls, transitways, and interior pedestrian walkway systems. This chapter concludes with an examination of these different types of pedestrian schemes.

1.1 The Realm of the Pedestrian

The urban environment serves a wide array of social, economic, commercial, and administrative functions. Subsequently, our cities have been planned and designed to facilitate the fulfilment of these needs with the central area functioning as the focal point for activity. Since this central business district (CBD)² also contains concentrations of buildings and places of regional and national importance, it forms a major element in the identity of the city.

Somewhere within the urban fabric of this bustling core exists the "people" element, that one key ingredient which adds life and vitality to our cities. However, the human element does not exist in an isolated world of its own. Many other factors make up and influence life as we know it in the downtown - it is dynamic, often fast-paced, and sometimes dangerous. If we wish to partake in the activities that city life has to offer we must compete and co-exist with a wide array of external elements. Some of these elements occur naturally, such as seasonal variations in the weather. Most are dependent, however, on the general character of the downtown itself, that of high intensity development within a relatively small area. This type of development creates problems in the form of air pollution, traffic congestion, pedestrian safety, and competition for space from non-pedestrian land uses. This is the realm of the pedestrian.

² For the purposes of this practicum, the term "central business district", "CBD", "downtown", and "core/central area" are synonymous.

The degree to which these external elements affect the pedestrian environment varies with respect to the context of the setting - geographically and physically. Within the context of the downtown, the domain of the pedestrian is set against a backdrop of circumstances much different from that of the suburbs.³ The mutual accessibility of the various land uses located in the CBD often determines, to a great extent, the competitive success or failure of the district. But there is a problem to be faced if sufficient internal access and growth is to be maintained - closeness without congestion. This has implications for pedestrians. For instance, if an activity area grows laterally, distances become too great to be overcome by pedestrian travel. If the centre grows by an intensification of land use activities within a small area, great pressures are made to accommodate high volumes of vehicular traffic in a limited amount of space.

The typical response of many cities has been to accommodate the motor vehicle and minimize congestion; this is often accomplished at the expense of the pedestrian. Streets and parking areas in downtowns frequently account for over 50 percent of the land area, and this unavoidably lengthens the distance of pedestrian trips.⁴ Furthermore, accommodation of high volumes of vehicular travel also discourages walking by causing greater accident possibilities and pedestrian delays. In addition to these traffic concerns, the pedestrian also encounters inclement weather and heavy concentrations of air pollutants.

In view of this situation, it is of no surprise that there has been greater attention directed towards the provision of special improvements to aid in the movement and enjoyment of downtown pedestrian travel. This trend towards increased urban pedestrianization has taken on a number of forms - including pedestrian malls, skywalks, and tunnels (discussed later on in this chapter) - all of which are changing the face of the urban landscape and how

³ Since this practicum ultimately seeks to examine interior pedestrian walkways as a scheme for downtown pedestrianization, the focus is on the downtown pedestrian environment.

⁴ Richard C. Podolske and C. Todd Heglund, "Skyways in Minneapolis/St. Paul: Prototypes for the Nation?" *Urban Land*, vol. 35, no. 8, September 1976, p. 3.

we use it. The reasons, or goals, as to why changes are being made to the downtown pedestrian environment are next examined.

1.2 Rationale for Pedestrianization: An Appraisal of Goals

Since the 1960s, great concern has been expressed over the declining importance of the CBD as the focal point of city activity. This decline has been attributed to such factors as the steady shift of residential populations to the suburbs, an increased reliance on the private automobile, and the formation of areas of commercial activity outside the central core - the downtown had been overlooked in favor of what appeared to be more competitive suburban locations.⁵ The downtown's importance has been challenged by the development of these outer areas, and it has been put in a position of having to compete with them for its continuing health and economic vitality.

In view of the circumstances, cities are attempting to strengthen and redevelop their core areas as the relative decline of the CBD has kindled an interest in new downtown opportunities. The pedestrian environment, for one, has benefitted from this as planners and designers are re-evaluating their goals on pedestrianization. Traditional goals have focused primarily on the safety of man from the intrusion of the automobile. The realization has now developed that some attempt must be undertaken at making the pedestrian environment more conducive to the personal and behavioural needs of pedestrians.

The goals of pedestrianization vary from situation to situation, but the aspirations and intentions behind them are all interconnected. This next section examines livability and pedestrian movement as goals for planning the pedestrian environment.⁶

⁵ Ibid.

⁶ Economics is also a goal of pedestrian planning, but for the purposes of this study it is not dealt with. For further discussion see Brambilla and Longo, *For Pedestrians Only: Planning, Design, and Management of Traffic-Free Zones*, Watson-Guption Pub, New York, 1977, p. 20-21.

1.2.1 Livability and Related Social Benefits

The term urban livability, what does it mean? This is an important concept, but one that is difficult to define as it encompasses so many facets of urban living. As Dietrich Garbrecht points out, livability transcends the boundaries of economic, social, and physical dimensions:

Urban livability...(it means) jobs, educational opportunities, quality of retail stores, taxes, and so forth. But there is also livability of spaces, that of the interior of buildings and that of the exterior space between : the open spaces of parks, rivers, plazas, piazzas, gardens around houses, playgrounds, sport-fields - and streets!⁷

Individual and social development, safety and comfort, streets and squares, spatial and architectural qualities, and transportation systems are all concerns of a livable downtown area. Livable cities pay attention to the creation of streetscape, architecture, spatial design that facilitate the presence of people in the public domain and in the heart of the city. Such cities are also entrusted to managing traffic, and to resolving problems of pollution and safety by utilizing a variety of mechanisms.

As urban centres become larger and more crowded, the stronger the quest for the quality of the urban environment. To ensure the health and welfare of man in this environment, planning directives must focus on the people or pedestrian element by providing a city-wide **goal of livability** for its citizens. As stated by Oosthuizen and Wicks, "... the greater awareness of a positive urban environment, amongst others, calls for a greater concern for people and for finding solutions to the diverse and everchanging demands for accommodating daily activities in the physical environment."⁸ The challenge of making the city a more livable place depends upon the decision of the city planner-designer-architect in creating a balanced , functional and attractive urban setting. Since these decisions often rely on city policy for direction, it is important that the goals of city planning policies be aimed

⁷ Dietrich Garbrecht, "Forward", in *Contact*, vol. 13, no. 2/3, 1981, p. xi.

⁸ A.J.G Oosthuizen and Roger S. Wicks, "Pedestrianization in South African Urban Centres", in *Contact*, p. 323.

at the creation of a more livable city. Nowhere is this livability goal more crucial than in planning the **pedestrian environment**.

Ideally, the pedestrian environment should be a livable place in every respect: economically, socially, and physically. In reality, however, virtually the only attention given to pedestrians is with respect to their physical safety, not to their comfort or amenity. This lacuna in city planning and design over the years has been manifest in the changing nature of pedestrian space: the example of the ever-shrinking New York sidewalk is commonly cited.⁹ For the sake of the pedestrian, this "lost space" must somehow be reclaimed.

Fortunately, attitudes towards the pedestrian are changing; the pedestrian as an individual, and not simply a moving "vehicle", is being recognized by urban designers. This is evident by the use of various strategies aimed at reclaiming lost space in the downtown, or even creating new space, and turning it over to the pedestrian. There are many methods for locating usable space and their application essentially serves two **social purposes**: to create an environment for pedestrian activity and improve the social image of the city.¹⁰

Providing socially responsive places for pedestrian activities in crowded downtown areas is an important service to an urban population, particularly to children, the elderly, and the handicapped. An environment free from the threats and restraints imposed by traffic can begin to offer social amenities, unhampered movement, and comfort to pedestrians.

Residents and visitors alike are affected in their image of the city by the existence or nonexistence of pedestrian activities.¹¹ Cities in which the streets are populated both day

⁹ The minimum standard width of the New York sidewalk was 15 feet in 1912, 13 feet in 1925, and 11 feet in 1963 as cited by Hannah Shostack in *City Centre Pedestrian Systems: A State-of-the-art Review*, Canadian Surface Transportation Admin., Montreal, Mar. 1978, p. 1.

¹⁰ Roberto Brambilla and Gianni Longo, *For Pedestrians Only: Planning, Design, and Management of Traffic-Free Zones*, Watson-Guptill Pub., New York, 1977, p. 25.

¹¹ *Ibid.*

and night seem welcoming. Urban spaces often represent an entire city; they are places with a constant stream of people and activities. The degree to which these spaces are used affects our imageability of that space and of the city as a whole.

It is important that the design of these urban spaces be responsive to the social needs of pedestrians and that livability be derived from localized and contemporary interpretations. The growing emphasis on **pedestrianization schemes** in many central areas illustrates this point quite well as they are one of the more successful ways of humanizing the city.

1.2.2 Pedestrian Movement

In addition to providing an exciting and varied urban experience, the **basic goal** of the downtown pedestrian environment is to ensure safe, unobstructed movement for users of the downtown area. In essence, it is a movement system unto itself. However, in planning the pedestrian environment it is important that strategies aimed at improving pedestrian movement consider people as being both drivers and pedestrians. Virtually all people, whether they come downtown by car or bus, must become a pedestrian before they can become users of the environment.¹² Likewise, most people become drivers at some point or other upon entering and exiting the central area.

Thus, it should be realized that the pedestrian environment cannot be looked at in isolation as it is **linked** to other **movement systems**, most notably the vehicular system. This interconnectiveness of the different urban movement systems is best described by Harold Hanen:

The city is like a symphonic core. Stripped, it can be seen as a layering of interrelated movement systems whose structure provides the orchestration and direction which synthesizes the individual solos and improvisations over time. The quality of a city depends, as does the symphony on the harmonious interplay of the parts of the system.¹³

12 Harris N. Forusz, "The Cincinnati Skywalk, Cincinnati, Ohio: A Case Study", in *Contact*, p. 336.

13 Harold Hanen, "A City For All Seasons", *Livable Winter City Association Newsletter*, vol. 3, no. 2, April 1, 1985, p. 9.

The patterns of the movement system and their linkage can either protect, enhance or stimulate the use of the city, or conversely make it miserable and disorganized. It can welcome all of its citizens to its activities, or it can exclude them. How well the different systems are linked often determines how accessible the city becomes.

This concept of linkage is examined by Roger Trancik in the book *Finding Lost Space*. On the basis of research into the evolution of modern space and the analysis of historic precedents, he identifies **linkage theory** as one of the three key approaches to urban-design theory and stresses the importance of linkage as the most powerful generator for urban form.¹⁴ Linkage theory is derived from "lines" connecting one element of the urban landscape to another. These lines are formed by pedestrian ways, streets, linear open spaces, or other linking components that physically and functionally connect the parts of a city. The designer utilizing the linkage theory attempts to organize a system of connections, or a **network**, that constitutes a structure for ordering spaces. The network of movement systems and efficiency of the infrastructure take precedence over patterns of defined outdoor space.

In his work *Image of the City*, Kevin Lynch also looked at the city and the interconnection of its parts. He proposed that in order to design successful urban spaces, three principal rules of design were required: (1) legibility; (2) structure and identity; and (3) imageability.¹⁵ The parts of the city, which he termed "elements of urban form", that should be designed around these requirements were paths, edges, districts, nodes, and landmarks.¹⁶ According to Lynch, every city can be broken down into these five parts and its spatial structure analyzed and used as a basis for design.

¹⁴ Trancik's three approaches to urban-design theory are: (1) figure-ground, (2) linkage, and (3) place theory. According to the author, the most successful urban places are the ones that combine all three theories. For further discussion see Roger Trancik, *Finding Lost Space*, Van Nostrand Reinhold Company, New York, 1986, p. 97.

¹⁵ Kevin Lynch, *The Image of the City*, The M.I.T. Press, Cambridge, Mass., 1960, p. 8.

¹⁶ Ibid., p. 46.

In examining pedestrian movement in urban centres, two of Lynch's elements demand further discussion: **paths** and **nodes**. He defines them as follows:

Paths are the channels along which the observer customarily, occasionally, or potentially moves. They may be streets, walkways, transit lines, canals, railroads.

Nodes are points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is travelling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of paths. The concept of node is related to the concept of path, since junctions are typically the convergence of paths.¹⁷

Although Lynch feels that all five elements together are essential in the structure of the city, the paths or the **network of movement** through the urban complex, are the most potent means by which the whole can be **ordered** and that nodes serve as the anchors to these networks.¹⁸

When studying movement systems in the central area, paths and nodes are important to both drivers and pedestrians alike. To enter, exit, or get around the downtown motorists and public transit passengers make use of paths, or streets. The motorist must park his vehicle at some junction or node - a parking lot or parkade - before he can become a user of the pedestrian environment. Similarly, transit passengers enter the pedestrian environment at nodes along the movement network - such as bus stops or transit terminals. Thus, the **circulation cycle** is complete: people enter the downtown as drivers or passengers and in so doing make use of paths and nodes before becoming pedestrians; as pedestrians, paths are traversed to get to various destinations or nodes in the core area; finally, people become drivers or passengers once again at nodes and travel along paths in the journey back to the suburbs.

This circulation element, the connection between nodes and paths, plays an integral part in the structuring of our urban areas. It can direct, shape, and control activity patterns in a

¹⁷ Ibid., p. 47.

¹⁸ Ibid., p. 96.

city, as when a transportation system of public roads, transit systems, and pedestrian ways links and focuses movement. With motorists, transit passengers, and pedestrians all competing for space within the transportation system, the next question to be asked should be: How much space do we give to drivers and how much to pedestrians?

1.3 The Pedestrian-Vehicle Conflict

In order to satisfy the needs of drivers and pedestrians, a certain amount of space must be cut out of the urban fabric to allow for the movement of both man and machine. This can be a problem in the highly-developed and compact downtown area as land is often scarce and available land is at a premium.

Since the beginning of this century the new unprecedented realities of high rise building technology and vehicular mobility have profoundly increased the intensity of competition for the city's land surfaces. As density increased in cities, allocation of open space decreases to the extent where pedestrians are squeezed into the leftover spaces between traffic and buildings. This is most apparent in the core area where emphasis was placed on exploiting land values and making use of decreasing open space for building construction and the accommodation of more vehicles - this makes it difficult for municipal administrators to find room for pedestrians.¹⁹

These **conflicts** have all too often resulted in an urban environment detrimental to basic rights of access, comfort and safety. As a consequence we are left with an environment which strongly favors the wheeled at the expense of the footed. The feeling of William H. Whyte reflects this point:

Almost every American city gives them (pedestrians) the short end of the stick. Local transportation authorities usually have it written in their charter that transportation embraces pedestrians as well as vehicles and that they ought to plan for them. But they do not. They plan against

¹⁹ Roberto Brambilla and Gianni Longo, *For Pedestrians Only: Planning, Design, and Management of Traffic-Free Zones*, p. 25.

them. In almost every U.S. city the bulk of the right-of-way is given to vehicles; the least, to people on foot.²⁰

Other automobile-related problems include road congestion, pollution, effects on aesthetics and on the quality of life in urban areas - all issues for which solutions are not easy to find.

Although past planning policies have tended to favor vehicles, it is now realized that the intrusion of the automobile is the major contributor to the congestion and deterioration of the downtown pedestrian environment and something needs to be done to alleviate this problem. As a result, cities are spending millions of dollars in research and planning to solve this problem; proposals for freeways, subways, parking facilities, restrictions on downtown growth and traffic have all been implemented. The solutions may vary from one city to another, but one thing is clear - the conflict between the car and the pedestrian must be solved, otherwise the central area will continue to be unpleasant. Essentially, there are **three solutions** to this car-pedestrian conflict:

1. remove the car from downtown;
2. abandon downtown as a place for the pedestrian; or
3. follow a balanced approach by managing the mix of car and pedestrian - one way to do this is by separation.²¹

Banning the automobile from the downtown area might be one solution to this conflict. This, however, would be impractical as Jane Jacobs points out that "the main virtue of pedestrian streets is not that they completely lack cars, but rather that they are not overwhelmed and dominated by floods of cars, and that they are easy to cross."²² Calling for the removal of vehicles is to go at the problem from the wrong end. Our city streets are designed and developed mainly for cars and buses while truck servicing of buildings further emphasizes the need to retain streets and lanes for vehicles. The complete or partial

²⁰ William H. Whyte, *City: Rediscovering The Center*, Doubleday, New York, 1988, p.68.

²¹ Calgary Planning Department, *The Downtown Pedestrian*, March 1970, p. 4.

²² Jane Jacobs, *The Death and Life of Great American Cities*, Random House Inc., New York, 1961, p. 348.

removal of vehicles would cause hardship as many activities would disappear and the large shopping centres would take over the downtown. Clearly, the vehicle must stay.

The second solution is to abandon downtown as a place for the pedestrian. In any urban centre, people become pedestrians as soon as they park their cars - business and shopping can only be carried out on foot. Unless the pedestrian has pleasant surroundings, however, he is likely to avoid downtown. The pedestrian must be encouraged to stay, and he will stay if there is protection from the bad influences affecting his enjoyment of the city centre.

Neither car nor pedestrian can be or should be excluded from the downtown. However, a good pedestrian environment is unobtainable if the vehicular and pedestrian activity within the same area is not properly managed. Since all modes of transportation, including walking, are in constant interaction, influencing and conflicting with each other, the problems arising from their operations are necessarily linked. Thus, it becomes necessary to **balance** the activities of pedestrians and vehicles, and one way of managing this mix is through **separation**.

1.4 A Balanced Approach To Pedestrian Planning

The fact that the pedestrian element cannot be planned without giving consideration to vehicles suggests that the solution is not one of removal but that of co-existence. Our dependence on the private automobile and need for public transit guarantees their presence in the urban environment for some time to come. This requires planning strategies to be responsive to both pedestrian and vehicular movement.

The key issue in pedestrian planning, therefore, is **balance**: How much to give pedestrians and how much to give vehicles? That is to say, we have to balance the use of pedestrian elements to maintain attractive, livable public spaces at the same time allowing for such related activities as access, delivery services, and individual property requirements. Dietrich Garbrecht holds this view of a balanced approach to pedestrian

planning as he feels "the concept of livability *does* include the car. It does not exclude it. But we have to think about how to use the car in a reasonable way. We need a balanced approach to accessibility, and a balanced approach to spatial movement."²³

What we have seen so far is the need for a balanced approach between pedestrians and vehicles. There is a second component to this, however, as balancing must also deal with the interactions among pedestrians themselves. Just as safety plays an important role in the confrontation of man and machine, the provision of space adequate to the number of people who walk there is equally important. Urban spaces designed larger than required for the number of people who use them result in barren, open spaces and underuse of amenities. When spaces are too small or too narrow, congestion, as well as underuse of amenities similarly result.²⁴ Provision of amenities along the pedestrian system must also be considered. If there is nothing but banks and offices, fewer people need to walk nearby.

A question yet to be addressed is how do we achieve a balancing strategy in pedestrian planning? Transformations of the street surface intended to redress the imbalance between pedestrian needs and those of the automobile demand comprehensive planning interventions and new tools to implement them. This next section examines the use of these strategies for mediating pedestrian needs with those of automobile access.

1.5 The Separation of Pedestrian & Vehicular Activities

Balancing street space requires us to examine the ways in which automobiles and pedestrians can be separated. The separation of the pedestrian realm from vehicular traffic is both a **management** and **design** problem. Management solutions involve the separation of these activities in **time**; this is accomplished through changes made to regulations which control street functions, such as restricting vehicular traffic from specific

²³ Dietrich Garbrecht, "Walkability: A Prerequisite for Livable Cities", in *Livable Cities*, p. 109.

²⁴ Hamid Shirvani, *The Urban Design Process*, Van Nostrand Reinhold Company, New York, 1985, p. 32.

parts of the downtown at certain hours.²⁵ The most common method for separation involves changes to the physical design of the street surface. By changing the physical design of a street, balance can be attained through such methods as widening sidewalks or creating traffic-free malls. Basically, there are two ways to separate pedestrian and vehicular activities in **space** utilizing design strategies:

1. **horizontal separation** - pedestrians and vehicles both use ground level but somehow avoid each other; all movement occurs at grade; or
2. **vertical separation** - one uses a level other than ground level, either below or above existing streets; movement is grade-separated.

1.5.1 Horizontal Separation

Horizontal separation can be very difficult and expensive in the core area as traffic surrounds and penetrates each block. Pedestrians need direct paths from place to place without incurring physical danger from collision with vehicles or time consuming delays waiting for traffic lights.

Street-widening is one form of horizontal separation, but this is intended mainly to increase the rights-of-way for cars, not people. Sidewalks cannot be substantially increased in width without taking more private land at impossible cost. Even supposing that we could widen sidewalks, a good pedestrian environment may be difficult to achieve with traffic being so close and at the same level - this depends on the area.

A second method of separation is the **pedestrian district**. Pedestrian districts are created by eliminating vehicular traffic over a portion of a city - considered as a unit for commercial, historic, or architectural reasons. Although the use of these districts are a popular form of pedestrianization in European cities, they have gained limited acceptance in North America; this difference mainly has to do with city form. Where Europeans have built highly dense inner cores (thereby creating more compact cities), most modern North

²⁵ Separation in time, traditional in some European communities, and occasionally proposed for the lunch hour in North American cities, has been rarely adopted, except for special occasions such as annual parades. See Hans Blumenfeld, "The Conflict Between the Two Functions of the Street", in *Contact*, p. 12.

American cities have been developed with the notion of a more or less infinite supply of land. This has given way to significantly different urban patterns in North American and European cities. It is in large part because of this difference in urban pattern that European cities have tended to implement district schemes as opposed to North American cities where **malls** are usually favored.

With over one hundred in the United States and upward of a dozen in Canada, the most widely applied strategy of horizontal separation has been the **pedestrian mall**. This concept emerged in new commercial shopping centres that were developed in American suburbs after World War II. In an attempt to create favorable inner city shopping conditions analogous to those offered by suburban shopping malls, many cities have closed a downtown thoroughfare to automobile traffic with the hope that this more attractive setting will entice more people to use the downtown. In most pedestrian streets or malls, the entire roadway is filled to grade between curbs and pedestrian-oriented amenities are introduced to encourage pedestrian movement.

These full pedestrian streets were most common when urban renewal funds provided cities with the money and autonomy to implement them. Since the late 1960s, however, many cities found that **transitways** were a more feasible alternative as governments made available transportation monies for such projects. Transitways are pedestrian precincts that offer a pleasant walking environment through sidewalk widening and by restricting the use of private cars; buses, taxis and emergency vehicles are usually allowed, subject to pedestrian priorities. Motor routes are narrowed to one or two lanes of roadway at the maximum, while the rest of the street and sidewalk area is repaved and furnished for the pedestrians.²⁶

²⁶ Some transitways are also called malls. The prototype for many cities has been the transitway on Nicollet Avenue in Minneapolis (completed in 1967), where a traffic lane in each direction is kept open for buses. For more information on pedestrian districts, malls, and transitways, refer to Brambilla and Longo, *Banning the Car Downtown*, U.S. Department of Housing and Urban Development, Washington D.C., December 1976.

Although these strategies may appear to be solutions to downtown movement problems, the horizontal separation of pedestrian and vehicular activities does have its limitations. Separation horizontally in space can be applied only within a limited area as vehicles must be able to move on **some** paths within the downtown; a central area with too many blocks devoted to at-grade pedestrian schemes can seriously hamper vehicular circulation. In addition, the high density character of most CBDs makes it difficult to separate the conflicting transportation elements in a horizontal manner, so it becomes appropriate to examine a **vertical separation** whenever possible.

1.5.2 Vertical Separation

The main idea (of grade-separated schemes) is to give the motorist and the pedestrian equal rights to freedom of movement and freedom of access discriminating against neither.²⁷

-- Peter Smithson

While at-grade pedestrian strategies of various types and sizes have been successful in some cities, a perhaps more significant functional development has been the evolution of **grade-separated pedestrian systems** linking large portions of many downtowns. In North America over 30 cities have attempted to resolve, by grade separation, the functional conflicts of scale, speed, convenience, safety and comfort which arise between vehicular and pedestrian movements.²⁸ The main advantage of separating these activities vertically, compared to horizontally, is that it allows for complete and unlimited protection of the pedestrian realm; pedestrian movement is not only separated from vehicles, but movement can be focused **internally** - an attractive solution for cities considering downtown improvement strategies.

²⁷ Peter Smithson designed a grade-separated scheme for Berlin in 1958. See Harold Hanen, "A City For All Seasons", *Livable Winter City Association Newsletter*, p. 10.

²⁸ The terminology used to describe these systems varies among the different cities; they are referred to by names such as skywalks, skyways and +15 for above-ground systems, and downtown tunnel system or underground walkway system for below-ground systems. For a listing of the grade-separated pedestrian systems in North American cities, see Appendix "A".

The grade-separated pedestrian system can be defined simply as a network of elevated and/or underground interconnecting pedestrian walkways. The network consists of bridges and/or tunnels, corridors within buildings, and various activity hubs. For the most part they are enclosed and climate-controlled, and connect a body of retail and service establishments that may or may not have any relationship to the street level. These interior pedestrian walkways, therefore, permit pedestrians to walk indoors for blocks passing across elevated bridges and through underground tunnels through buildings whose corridors are lined with shops.²⁹

The debate over whether the walkway system should be above or below the street depends on the situation. Montreal, for example, has a pedestrian walkway system underground which is suitable because of local conditions. Its hills and subway combine to make an underground walkway system practical. Calgary developed a walkway system above the street because it was cheaper and easier to provide than an underground system. Many cities have developed a duo-system where both skywalks and tunnels have been incorporated into the plan, although in most cases one grade often dominates the other (in terms of number of connections).

Whether above- or below-grade, vertical separation with cars remaining at street level is one of the ways of managing the mix. However, just as the types of pedestrian walkway systems vary from city to city, so too do the reasons for implementing them and the problems and benefits associated with their development. Chapter 2 addresses these statements as the practicum now focuses on the internalization of the downtown pedestrian environment.

²⁹ For the purposes of this practicum, the terms "grade-separated pedestrian system", "interior pedestrian walkway system", "interior walkway system", "weather-protected walkway system", and "pedway/walkway system" are synonymous.

1.6 Summary

For a long time planning for pedestrians in the design of urban areas was neglected. When suburban shopping centres did consider the welfare of pedestrians *and* vehicles, their advantage over downtown shopping areas increased. What this has taught us was that in order to compete with these suburban commercial areas, changes had to be made to the downtown to draw people back to the core.

Although on the surface this reasoning appears to be economically motivated, it has forced planners and designers to re-evaluate their approach to pedestrian planning. Past strategies emphasized physical safety and not much else. While safety from vehicular traffic is a viable goal, what the downtown pedestrian environment lacked, which the suburban mall provided, was consideration for the personal and behavioural needs of pedestrians: comfort, amenities, safe and easy access, and weather protection. Competition for land in the CBD is intense as more and more space is being allocated for commercial and vehicular purposes. How can the downtown provide all the social and physical benefits of a place like the shopping mall in an area where so little space is available for pedestrian activities?

Recent developments in pedestrian planning are attempting to correct this imbalance. Pedestrianization schemes which isolate man's activity spaces from incursions of vehicles are being implemented in our downtowns in an effort to humanize the pedestrian environment. This is partially a reaction to the threat to central city viability created by the exodus to the suburbs, but it is also attributed to the sincere desire to improve the quality of life, coupled with the growing disenchantment with the auto and its accompanying noise, fumes, and insatiable demand for urban space. While separation of vehicles and pedestrians is one goal of pedestrian planning, many northern cities - like Winnipeg and Edmonton - have adopted such strategies as a means for improving the pedestrian environment through weather protection. This trend toward increased urban pedestrianization has taken a number of forms including pedestrian malls, elevated pedestrian skywalks and underground walkway systems. One of these pedestrian schemes, interior walkway systems, merits

further discussion as Chapter 2 focuses exclusively on the use of such systems as a means for improving livability and pedestrian movement in the downtown. Their problems, benefits, impact on the downtown and on the pedestrian are examined next.

Chapter 2

INTERIOR PEDESTRIAN WALKWAY SYSTEMS

The value of the (walkway) experience is not only in providing the physical convenience, comfort and safety provided by continuous connections above traffic, but more in the opening up of a new attitude to integrating what were conflicting activities so that they support each other and create another new dynamic.¹

-- Harold Hanen

CBDs are easily recognized by the intense activity and the presence of large buildings. Congestion is common, with traffic, people and buildings competing for limited space. The allocation of space for pedestrian activities is quite small in comparison to the land reserved for other downtown uses. The physical size of the pedestrian environment, usually a 10' sidewalk, limits the range of activities that can be safely pursued by the pedestrian. Under these conditions, the health and welfare of the pedestrian is often jeopardized as walking becomes unsafe and unpleasant (especially during periods of inclement weather and heavy traffic).

This is not to say that the downtown should be avoided or that use of the pedestrian environment be kept at a minimum. Walking is pollution-free, reliable, healthy, and even interesting; its enhancement is an important objective for upgrading the quality of life in the central area of the city. The use of **interior (or internal) pedestrian walkway systems** is one such "enhancement strategy" for improving both pedestrian movement and livability in the core area. They represent a transformation of downtown space which attempt to redress the imbalance between pedestrian needs and those of the automobile. This chapter looks at North American experiences in downtown pedestrianization by

¹ Harold Hanen, "A City For All Seasons", *Livable Winter City Association Newsletter*, vol. 3, no. 2, April 1, 1985, p. 10.

focusing on the use of interior pedestrian walkway systems - systems which are both grade separated and offer weather protection. The primary **goals** of pedestrian walkway development are dealt with first; they are the basic principles which provide a sort of framework or "recipe" to guide walkway system planning efforts. The **rationale** for system development is examined next as walkway construction is climatically or economically motivated. Finally, a detailed discussion on the **user-related issues** of walkways closes out the chapter.

2.1 Interior Walkway System Development

Most interior walkway systems modestly begin with the implementation of a few pedestrian links near the core of the downtown and gradually expand outward over the years. Early development is often initiated by private sector interests as many of the first skywalks and tunnels are used to connect privately-owned structures that have some interrelated function; for example, a pedestrian link between a hotel and convention centre or an office building and parkade.² The concept of a **system**, at this point, is not an uppermost concern as the idea is simply to connect things that are related to one another.

Although one or two connections do not constitute a system, these initial links often prove to be very popular and this usually results in a push for further expansion. However, a system cannot be allowed to evolve unless there is the commitment from the public and private sectors to ensure that all future development conform to an overall **long range plan**. There have been many unsuccessful experiences with single pedestrian overpass or underpass structures, where these structures cause circuitous routing or require inconvenient stair climbing for limited safety advantages.

² Although generalization regarding North American systems are necessary for simplification purposes, it is recognized that each system is distinctive in its own way. Generalizations were made from data available in the government document *A Survey of Downtown Grade-Separated Pedestrian Circulation Systems in North America*, St. Paul Department of Planning & Economic Development, December 1986.

This points out the need for **total system planning** and the provision of an attractive and utilitarian environment that fulfill human needs. Livability and movement as general goals for pedestrian planning have already been examined, but what is needed now is to take a look at the specific objectives behind pedestrian walkway system development.

2.1.1 Goals & Objectives of Walkway Planning

In order to determine policies to guide the development and operation of walkways, it is necessary to define the goals to be achieved through the construction of the network. The primary goals of walkway system development are: coherence and continuity, imageability, attractiveness, comfort, safety and security.³

System **coherence** and **continuity** is most important, because if a system is circuitous, has route or grade discontinuities, it will not be successful. Ideally the system should connect as many major traffic generators as possible with convenient direct, logical linkages. All of the component parts of the downtown - such as major transit points, office buildings, hotels, apartments, commercial and cultural activity centres - require a degree of coherence if they are to exist in the same setting for people to experience. This degree of order is required for users to be able to organize their perceptions for 'way-finding' purposes. Walkway design should help them to orient, direct and locate their destination with ease thereby allowing them to move swiftly along the functional walkway that connects these destinations together.

The goal of **imageability** relates to the concepts of system identity developed by Kevin Lynch in his book *The Image of the City*. In essence it is the premise that specific descriptive elements such as paths, nodes, edges and landmarks are needed to clearly define a human environmental space to give it its place image. Related to imageability is

³ John J. Fruin, "Pedway Systems in Urban Centers", *Civil Engineering - ASCE*, vol. 43, no. 9, September 1973, p. 66.

attractiveness. This means more than just esthetic design as use of a pedestrian space should be an experience by itself, through the provision of pedestrian amenities, planned sensory gradients of light, colour, sound, texture, and interest features such as special entertainment events.

Comfort is provided by protection from the elements along the walkway, and climate control where possible. The objective of **safety** is inherently promoted by the separation of man and vehicle. Pedestrian **security** is enhanced by providing high lighting levels, areas with clear lines of sight and activity generators to attract people throughout the day.

The use of these seven principles serve as important goals for successful walkway system planning. While most cities would do well to consider these objectives before embarking on the development of a system, there is often one overriding motive for walkway construction in the first place. The next section examines the reasons that cities use to justify the creation of these internal pedestrian environments.

2.1.2 Rationale For System Development

There is basically an **economic** versus **climate** rationale for walkway system development in North America. Development often begins with the objective to provide protection against extremes of climate by offering pedestrians a safe, weather-protected alternative to city sidewalks; this was the motivation for the earliest systems developed in the 1960s in the northern states and Canada. An underlying objective to this climate control rationalization is that these systems facilitate pedestrian **mobility** and **safety**. They permit most trips to be made in less time and more comfort, especially in bad weather, and since pedestrians are separated from vehicular traffic, improved pedestrian safety is accommodated.

But interior walkway systems are no longer simply makeshift solutions to winter city miseries. They have given an economic boost to both cold- and warm-weather communities

- systems can be found in cities as far north as Edmonton and as far south as Dallas.⁴ The **economic rationale**, which is responsible for their proliferation in the United States, is because they are generators of retail activity and cities have funded them as elements of their overall strategies to thwart the exodus of downtown stores to the suburbs. Walkway systems are used as a redevelopment tool to stem downtown decay by making the heart of the city more convenient to traverse and thereby compete with suburban shopping centres in an attempt to attract people to the downtown.

By allowing the downtown to maintain a tight core with vertical rather than horizontal growth, they also encourage density and, hence, the creation of a new layer of commercial activity (other than at street level). As the walkway system spreads, more enclosed routes are created to connect with the major activity components of the downtown. The result is a system of interior lobbies, tunnels and bridges overlaid on the grid pattern of the street - in effect they become multi-block/multi-use malls on upper and lower levels.

At this point one may justifiably enquire what contribution is made by the walkway system to the well-being of the city and its inhabitants and whether the system amounts to more than buildings simply connected to each other by skywalks and tunnels. There are many benefits and shortcomings associated with pedway development, including user-related issues that are social, behavioral, and operational in nature.⁵

⁴ The 1986 survey of North American walkway systems, conducted by the city of St. Paul, reported that economic development was the main reason for building such systems in 11 of the 24 responding cities. Weather was the primary reason in only 5.

⁵ Other issues associated with walkway development are architectural and economic in nature. For an overview of these issues, refer to Kent A. Robertson, "Pedestrian Skywalk Systems: Downtown's Great Hope or Pathways to Ruin?", *Transportation Quarterly*, vol. 42, no. 3, July 1988, p. 457-484.

2.2 User-Related Issues of Walkway System Development

The basic premise of interior walkway system development is the creation of a second (and sometimes third) level of pedestrian movement in the downtown. By adding an internal layer to the public movement infrastructure, conditions that favor the pedestrian can be established - a setting that allows easier and safer movement and improved livability. Besides the obvious benefits, walkway systems can also cause problems for users of the downtown pedestrian environment, such as difficulties with access and orientation.

This section examines the problems and benefits associated with walkway system development and the subsequent impact on the downtown pedestrian. These **user-related issues** are behavioral, social and operational in nature. **Behaviorally**, walkways can cause significant shifts in where and how people shop, eat, entertain and conduct business. **Socially**, these multi-level systems can lead to social stratification and interaction of different classes of people. The **operational** implications include access, signage, levels of security, and hours of operation. Since many of these issues are interrelated, it is necessary for examination and simplification purposes to divide them into the following five categories: access and orientation, comfort and convenience, safety and security, social issues, and system usage.

2.2.1 Access and Orientation

One of the keys to a successful and well-used grade separated walkway system is the ease with which people can gain access to the network and orient themselves once on the network. Issues related to accessibility and orientation, both to and within walkway systems can be broken down into five areas: user experience, street level access, signage, hours of operation, and mobility needs of the elderly and handicapped.

User Experience

The functional components of walkway systems are: the entrances to it, the doorways, stairs, elevators, escalators, connecting corridors, skywalks, tunnels, and the signage

system, that together allow the pedestrian to find their way through the system. The person that uses the walkway system, on an ongoing basis, quickly learns to decipher the patterns that will allow him to reach a particular destination from a particular origin. The problem of comprehending the order of the walkway arises for the **first time user**, because of the lack of cohesion between the functional components and their related buildings. These components are unable to convey to the user direction of movement or provide a sense of orientation. These factors contribute to the confusion that the initial user of the walkway environment experiences.

Street Level Accessibility

Access from the street level is problematic in many North American walkway systems because entry points are usually found in the center of private buildings. Not only are the walkway entrances not detectable from the outside, but people may get the feeling that they are treading on private space when they have to walk far into the interior of an office building or hotel to locate a skywalk or tunnel. Ascent and descent to and from the system is rarely specifically designed, but more often relies on existing stairs, escalators and elevators that are tucked within existing buildings, in locations that do not relate too well to the walkway route. This results in a subsequent lost sense of direction by users.

One remedy to this problem is to provide direct access to the skywalk (or tunnel) from the street level, without requiring pedestrians to enter buildings. The Cincinnati system, for example, has numerous stairways and escalators leading to the skywalks and are linked directly to the sidewalk, thereby enhancing the system's visibility and use by a wide cross-section of people.⁶

Signage

Related to the question of access is the ease and ability with which pedestrians negotiate the walkway once they have entered the system. Perhaps the best way to facilitate

⁶ Kent A. Robertson, "Pedestrian Skywalks in Calgary, Canada: A comparison with US downtown systems", *Cities*, vol. 4, August 1987, p. 212.

movement and orientation is to provide clear and consistent directional signage. Because the vast portion of the total walkway system is comprised of interior corridors, it is extremely important that the system be clearly marked and that overall graphic treatment be uniform - this relates back to the need for **coherence** among the functional components of the system. Those persons using the internal corridors of a building or the tunnels of an underground network cannot use outside landmarks as a means of orientation.

Through maps and signing, each North American system attempts to facilitate clear user orientation, although their degree of effectiveness varies significantly. Probably the most successful at this is Calgary, whose +15 skywalk system provides clearly marked overhead signs that are visible from a considerable distance and indicate directions to buildings, facilities and the street below.⁷ Signage on many of the other systems, however, is less useful due to problems of clarity, consistency and conspicuousness; in Minneapolis, for example, the signage is small and varies from block to block in terms of location and colour.⁸

Hours of Operation

Whereas streets fully belong to the public and are open 24 hours a day, walkway systems are largely under private management and open for operation only for a defined period. Few walkway systems provide around the clock accessibility. Cincinnati comes close to this accomplishment as the system is open to the public 24 hours except where it passes through department stores, and St. Paul's system is open daily from 6:00 a.m. to 2:00 a.m.

Hours in most cities, however, are inconsistent and more limited. In Minneapolis, where skywalks are privately owned and operated, hours are set block by block by the

⁷ Refer to Appendix "B" for an explanation of Calgary's +15 signage program.

⁸ Many of these signage problems can be attributed to difficulties with coordination and implementation. City officials and building managers must first come to an agreement on the particulars of the signage program; this includes choosing a symbol design that will be representative of all buildings on the system; and, the signs and maps must then be implemented in a consistent manner throughout the entire system.

private building owners. The result is confusion about the availability of the whole network. Department store links are open only during store hours (mid-morning to mid-evening), which effectively shuts off major segments of the system to downtown office workers coming to work early in the morning. Office building skywalks are closed evenings, preventing shoppers from reaching stores. Condominiums and apartment buildings, which proudly advertise their hook-up to the skywalk, are not always accessible by skywalk, particularly in the evenings and on weekends - access to stores, theaters, and restaurants is hampered and thus existing skywalk hours often discourage nighttime use.⁹ In some cases, the problem of varying hours of operation is compounded by inadequate signage of such hours, which may mean that a walkway user may have to walk right up to the entrance of a particular link or building, only to find that it is closed.

Mobility Needs of the Elderly & Handicapped

Urban spaces that are free from traffic allow all members of society to participate equally in public life in comfort and safety. Interior pedestrian walkway systems facilitate access to these urban places by all - especially the elderly and handicapped.

Young adults have no difficulty in travelling to the public place. It is the elderly and the handicapped who must first be considered if urban places are to be accessible to all. If properly designed, the enclosed system will provide better accessibility than the outdoor environment where pedestrians have to deal with weather, curbs, traffic, stop lights, etc. While more recently constructed walkway links are totally accessible to the physically handicapped, some of the older sections of these systems are not. For example, parts of the Minneapolis system presents the handicapped person with elevation changes connected by steps. Furthermore, interior doors within walkway systems are often inconvenient to the mobility-disadvantaged, not to mention parents with strollers; Des Moines has rectified this problem by utilizing push-button controlled doors along its skywalk system.

⁹ These problems are inherent to both publicly and privately operated walkway systems.

2.2.2 Comfort & Convenience

Comfort and convenience issues of walkway systems are examined under the headings of weather protection, system continuity, transport considerations, and amenities.

Weather Protection

Creating a pleasant pedestrian environment is largely a question of protection from inclement weather. Types of undesirable weather conditions vary from area to area as each region has its own set of climatic circumstances. Protection from the sun and heat plays an important part in the south, while problems in the north are obviously quite different. During recent years recognition of the close connection between **comfort, climate, and activity patterns** has spread quickly within the commercial sector, where shopping centres, large stores, air terminals etc. are climate-controlled as a matter of course.

Most walkway systems are also climate-controlled and thus affords protection from extremes of winter cold and summer heat - an essential amenity which makes the walkway an attractive alternative to sidewalk use. The increase in pedestrian flow within walkway systems during cold or hot temperature conditions supports the contention that pedestrians will seek an indoor climate-controlled system if one is made available. The ability to avoid bad weather and move through the downtown in climate-controlled comfort is certainly one of the main advantages of internal walkway systems.

System Continuity

Elevated skywalks and underground tunnels allows the blockages and barriers in the city's fabric to be overcome by **linking** existing structures into a sequential, unified space - using Lynch's analogy, skywalks & tunnels serve as the paths linking together the various nodes, or buildings, into a movement network through the downtown. The integration of buildings and activities *vis-à-vis* walkway connections enables **continuous** pedestrian spaces to be designed without the negative gaps that often disrupt spatial flow.¹⁰

¹⁰ Roger Trancik, *Finding Lost Space*, Van Nostrand Reinhold Co., New York, 1986, p. 222.

System continuity encourages people to move around the downtown easily, efficiently and in a fairly pleasant setting, realizing the goal of improved pedestrian circulation. Ease of access to retail, commercial, social and cultural facilities has also made the downtown much more convenient to use all year round.

Transport Considerations

An important consideration of pedestrian circulation and convenience is how well the walkway connects to other movement systems within the downtown. In most cities, the extent to which walkways are coordinated with any other form of transport is limited to linkages with parking ramps generally situated at the peripheries of the system. While these connections offer advantages to the automobile commuter, we also need to link public transportation with the walkway system, for instance by making each public transportation stop a small node in the pedestrian network.¹¹

Unfortunately, connections to street level public transit facilities are rarely a high priority in many cities. This problem relates back to the issue of street level accessibility as walkways often fail to provide clear and easy access between the different levels of pedestrian movement.

Amenities

Amenities on a walkway system are desirable - they deal with comfort, convenience, and delight of the pedestrian. An important precept of walkway system design is that the walkway is not only competing with the at-grade pedestrian system, but that the entire environment of these pedestrian systems is in turn competing with other existing and potential developments in a given city or metropolitan area.

In that vein, it is important to consider providing other human amenities that make the pedestrian environment in the CBD an extremely attractive one. The main focal points of

¹¹ Calgary's skywalks, unlike many of their counterparts, are well-integrated with transit. Downtown locations for the light rail transit system have been coordinated with the skywalk system to permit easy transferability between the transit and pedestrian modes. See Kent A. Robertson, "Pedestrian Skywalks in Calgary, Canada: A comparison with US downtown systems", *Cities*, p. 212.

both the Minneapolis and St. Paul skywalk systems are public spaces (arcades, atriums) in various buildings. These spaces attract people to the system and should be considered an essential element of the walkway plan. They provide a place of identity, a place to meet, and an opportunity for shows and other events to attract people into the system. In addition, public amenities along the pedestrian system must be considered, such as benches, lighting, planters, and the like.

2.2.3 Safety & Security

An urban setting that provides a sense of safety and security for its users serves to heighten the pleasantness of that place. As Jan Gehl has stated in his examination of human activities in urban places, "the pleasantness of a place is partly contingent on protection from danger and physical harm, primarily protection from insecurity due to fear of criminality and vehicular traffic."¹²

The ever-present fear of vehicular traffic is one of the most pressing problems in today's traffic-dominated cities. In terms of **safety**, walkway systems are beneficial to the pedestrian as they provide an opportunity for pedestrian crossings to be made in an auto free area. This lowers the accident risk, which translates into increased safety. At the psychological level, it can be shown that the decrease in stress, brought about by the removal of the pedestrian vehicular conflict, encourages people to be more relaxed, which can result in an improvement in the quality of life.¹³

The extent to which the public will use walkways is greatly dependent on how safe and secure people feel. This sense of **security** is usually based more on perceived safety than on documented crime statistics. Keeping this in mind, a recently conducted survey of

¹² Jan Gehl, *Life Between Buildings*, Van Nostrand Reinhold Co., New York, 1987, p. 173.

¹³ Harris N. Forusz, "The Cincinnati Skywalk, Cincinnati, Ohio: A Case Study from the Viewpoint of Users and Public Authorities", in *Contact*, vol. 13, no. 2/3, 1981, p. 348.

walkway users in five American cities showed that the majority of respondents said that they felt safer on the walkway than on the sidewalk.¹⁴ These findings do not mean to imply, however, that security-related problems, both real and perceived, do not exist. The most common incidents in Minneapolis are shoplifting, purse snatching, and package theft, while in Cincinnati and St. Paul, the main problem centers on groups of teenagers who reportedly harass women and senior citizens.

Incidents of personal assault - although not frequent - and acts of vandalism tend to occur on the outer, less frequented walkway segments. Some of the respondents of the American survey felt less secure on walkways, particularly during off-hours (early morning, late evening) and on underfrequented outer linkages, because of the sense of being closed in, where no one could hear pleas for help, and where possible escape routes are limited. One can feel a greater sense of isolation and vulnerability on certain walkway corridors than on the street.

These problems can be related to the studies of Jane Jacobs, who examined the relationship between activity level and degree of safety in public places.¹⁵ During the day, public places (in this case walkways) are essentially self-policing through virtue of high pedestrian volumes - people act as 'natural surveillance' in public areas. It is during the off-hours of system usage and in less-used locations that crime and vandalism is most problematic. Thus, it is important that adequate security not only be maintained throughout the entire system, but special measures also be taken to ensure user protection at those times and locations prone to increased crime levels.

¹⁴ Approximately 70 percent of the respondents felt safer on the walkway system. The five cities surveyed include Des Moines, Cincinnati, St. Paul, Minneapolis, and Duluth. See Kent A. Robertson, "Pedestrian Skywalk Systems: Downtown's Great Hope or Pathways to Ruin?" , *Transportation Quarterly* , p. 457-484.

¹⁵ Jane Jacobs, *The Death and Life of Great American Cities* , Random House Inc., New York, 1961, p. 31-32.

2.2.4 Social Issues

Perhaps the most significant social benefit of the walkway system is the increased social connection fostered by bridging. Walkways can provide new **social opportunities** as the systems are able to penetrate the private realm and encourage the lowering of traditional territorial barriers. An example of this is its influence on the lives of downtown residents, and in particular senior citizens. In Calgary, for example, several senior citizen housing buildings are now linked through the walkway system to museums, cultural centers, hotels and government offices. In their daily outings the residents come into direct and close contact with a unique montage of social opportunities.

On the downside, however, much of the planning literature tends to focus on the concern that interior walkway systems cause **social stratification**. The location of entrances, together with the fact that the majority of structures linked by these systems are luxury hotels, up-market stores, office buildings and expensive condominiums, prompts critics to charge that walkways are elitist. The tendency in many cities is for walkways to separate people according to economic class, in part by sending signals to people with low and moderate incomes and perhaps to some minorities that they are less than welcome. Simple observation of people on the system often reveals a striking difference between the typical walkway user and the street level pedestrian. This suggests the beginnings of a dual level downtown society in which people are physically separated by class.

The privatization of space is yet another social issue. The perception of pedestrian enclosed space included within shopping malls and now walkway systems is that they are public. However, these are not truly public spaces since they are privately owned and the public is allowed to use them only at certain times and under certain conditions - public access to these spaces must be negotiated through contractual agreements with the individual building owners. Quite often, space is either semi-public or private. It is in this combination of public and private qualities that opportunities, as well as confusion, now abound.

2.2.5 System Usage

Basically, walkways offer a **choice** of either using the sidewalks, or following the walkway network in climate-controlled comfort. It is largely because of this option that downtown pedestrian movement has been affected in the manner it has - walkways can cause major changes in where and how people shop, eat, entertain, and conduct business.

Pedestrians can now cover greater walking distances in less time because of the increased accessibility provided by the walkway system. This in effect encourages people to use more of the downtown. For example, before walkways, inclement weather often makes lunch hour a choice between eating at one's desk or at a convenient cafeteria. With a walkway system, workers now have the option of travelling in comfort to many more of the eating establishments in their vicinity. Walkways can also stimulate an increased usage of the downtown during non-business hours utilizing facilities such as restaurants, entertainment and cultural centers.

One important usage issue concerns the extent to which people use walkways based on varying weather conditions. Pedestrian counts conducted in the mid-1970s in Minneapolis and St. Paul found that skywalk flows exceed at-grade pedestrian flows about nine months out of the year in those blocks where skywalks were provided as an alternative.¹⁶ Other studies have also shown that walkways are just as or more popular than sidewalks year-round.¹⁷ One possible explanation to this is people become so accustomed to the perceived safety, comfort, and convenience offered by walkways that they use them regardless of the weather. Also, chosen walking routes between work and one's favorite

¹⁶ Richard C. Podolske and C. Todd Heglund, "Skyways in Minneapolis/St. Paul: Prototypes for the Nation?", *Urban Land*, vol. 35, no. 8, September 1976, p. 6.

¹⁷ In a survey of walkway users conducted in the cities of St. Paul, Minneapolis, Des Moines, and Cincinnati, between 72-87 percent of the respondents said they would choose to use walkways over sidewalks even on a warm, sunny day of 80 degrees Fahrenheit. The city of Duluth was also surveyed, but only 31% favored walkways over sidewalks. See Kent A. Robertson, "Pedestrian Skywalk Systems", *Transportation Quarterly*, p. 462.

store, restaurant, or parking spot become habitual just as the route one selects to drive to work each morning seldom varies: for many regular walkway users, habit is a stronger force than weather conditions.

Another consideration is the hourly trip distribution of walkway usage. Most studies report heaviest usage on weekdays during the three hour period between 11:00 AM and 2:00 PM. Other peak periods of usage, although significantly smaller than mid-day volumes, occurs during the morning hour and after hour work rushes (7:30-8:30 AM and 4:30-5:30 PM respectively). No information could be found for weekday usage between the hours of 6:00 PM and 7:00 AM or for weekends.

2.3 Summary

Quite often interior pedestrian walkway systems start off with a few separate connections linking various interrelated structures in the downtown. These links, in the form of skywalks or tunnels, usually prove to be popular among building owners (those connected) and pedestrians alike, eventually leading to the further expansion and development into a system of pedestrian linkages.

Whether initiated by public or private interests, it is important to take into consideration seven basic goals of walkway system development, including coherence, continuity, imageability, attractiveness, comfort, safety, and security. It is difficult to place a value on the significance of each goal as a lot depends on the **context** of the situation. For example, a northern community might use weather protection and climate control as a justification for walkway development, and thus pedestrian comfort becomes a primary objective in planning of the system. Another city may view walkways as a means for unifying the core area, whereby system coherence and continuity become essential. The rationale for walkway system development, therefore, varies from city to city with climate and economics often proving to be the main reasons for implementation.

No matter what rationale is adopted, ultimately walkway systems are viewed as a means for improving the downtown pedestrian environment. If walkways are introduced for the sake of pedestrians, one might wonder what effect these systems have on users and on use of downtown space. The subsequent user-related issues associated with walkway system development includes problems and benefits that are social, behavioral, and operational in nature. These issues are often categorized according to specific user concerns under the headings of access and orientation, comfort and convenience, safety and security, social issues, and system usage.

Up to this point, most of the discussion has consisted of mere generalizations and "state-of-the-art" descriptions of walkway planning across North America. Various examples have been used to illustrate some of the benefits and concerns of interior walkway development in our downtowns. Although we can learn many things from the experiences in other cities, it is important to realize that each system is unique in terms of the social, cultural, economic and climatic make-up of the surrounding environment.

This practicum is henceforth devoted to the examination of Winnipeg's downtown pedestrian walkway system. The walkway system is examined from a user's perspective as the pedestrian-related issues and concerns raised thus far act as guides in the development of a questionnaire. The questionnaire is used as a means to solicit people's opinions, attitudes and usage habits so that an analysis of the walkway system can be carried out. This next section will now explore the background of the Winnipeg system, the development of the questionnaire, and the methods utilized in the survey of walkway users.

Chapter 3

WINNIPEG'S WEATHER-PROTECTED WALKWAY SYSTEM

The recently-completed, 1.2 mile (walkway) system is a tremendous first step in making Winnipeg's downtown a more livable and inviting place to live and work, considering the extremes in climate we face.¹

-- Mayor Bill Norrie

During the 1950s and 1960s, the traditional role of the downtown as the centre for retail and commercial activity had been challenged by the movement of people to the suburbs and the subsequent formation of nodes of commercial activity in these peripheral areas. In response, Winnipeg City Council adopted a series of programs in the mid-seventies to strengthen the importance of the downtown as the focal point for its citizens. One important component in the rejuvenation strategy was the establishment of a weather-protected pedestrian system. The walkway system was included in the council strategy as an essential amenity to aid revitalization efforts and, because of climate extremes in Winnipeg, could allow the CBD to compete with suburban shopping centres.

Over the last fifteen years, walkway development in downtown Winnipeg has evolved from a few utilitarian links to an extensive system of overhead and underground connections. The weather-protected system offers pedestrians an **alternative** to downtown movement as employees, residents and shoppers can now travel through the walkway-connected areas of downtown in climate-controlled comfort. Traditionally, pedestrians never had this choice as movement was essentially limited to the street. The walkway gives people the opportunity for indoor travel at grades above or below street level.

¹ "City Expands Walkway System", *Downtowner* (Winnipeg), 7 December 1988, p. 1.

In Winnipeg, the pedestrian **now** has the option of internal or external movement in the downtown. For those who choose to travel internally along the weather-protected and grade-separated walkway system, certainly a change can be expected in people's perception (and use) of the downtown pedestrian environment.² User-related issues concerning questions of satisfaction, convenience, access, security, etc. need to be addressed to determine the effectiveness of the walkway system as a strategy for facilitating pedestrian movement and livability. Since the walkway is a relatively recent addition to the downtown, no attempt has yet been undertaken to evaluate the system and, because a significant portion of the CBD is now connected to the walkway, a progress report on the efficiency of the system is in order. Therefore, an examination of the Winnipeg walkway system is proposed to assess the various attributes of the existing system based on user perception.

This chapter begins with a look at the evolution of Winnipeg's Downtown Walkway System up to the point of what presently exists. Next, the types of walkway users are examined in an attempt to determine the potential target groups for the survey of the Winnipeg system. Finally, an explanation is provided of the methods and techniques utilized in the development of the questionnaire and the survey of walkway system users.

3.1 Walkway System Evolution

Like many other downtown walkway systems, the concept of a 'system' was not initially an uppermost concern in Winnipeg. Early walkway construction, usually initiated by private interests, followed no real overall long range plan for system development as the idea was simply to connect structures that had some interrelated function. For example, the

² It is not presumptuous to make this statement as we know this to be true from the literature and studies done in other cities. However, like all other cities Winnipeg's situation is unique as context plays a crucial role when examining various walkway systems in different cities. A study done on the St. Paul system, for example, might raise concerns that may or may not be applicable in Winnipeg's case. Thus, the remainder of this practicum focuses on the Winnipeg system, borrowing in part what has been learned in other cities.

first skywalk built in downtown Winnipeg (1957) linked Eaton's Department Store to the Eaton's parkade, a connection that surely benefitted store patrons and employees who frequented the downtown by automobile.

Over the next twenty odd years a few more walkway links were constructed in the core area, and in 1976 an agreement was reached to build an underground concourse at the intersection of Portage and Main. During this same twenty year time period, downtown merchants and retailers came under hard times as the development of five regional shopping centres shifted the traditional retail focus away from the CBD to the outlying suburbs. In an effort to spur a renewed interest in the downtown, city council in October of 1977 approved the establishment of a weather-protected walkway system and provided an overall plan to guide future pedway development.³ The system was just one of a series of programs adopted by council to reinforce the importance of the downtown as a focal point for Winnipeggers. The walkway system was included in the council strategy as an essential amenity to encourage downtown revitalization and, because of climate extremes in Winnipeg,⁴ could allow the downtown to compete with peripheral shopping centres.

To ensure that the walkway met these ends, **system continuity** was stressed as an important objective. Since the walkway was created primarily to provide a unifying factor linking together major downtown pedestrian routes and activity nodes (especially the retail focus), it was determined that a continuous system could be achieved by designating a mandatory right-of-way (R.O.W.) for the walkway system.⁵ As part of this original agreement in 1977, the City agreed to cost-share the construction of pedestrian links as an

³ For the history of walkway policy and development in Winnipeg, refer to Appendix "C".

⁴ The weather-protected system is particularly useful in a city like Winnipeg as winter temperatures often remain below -30 C for extended periods. Temperatures can reach lows of -40 C in winter and highs of +40 C in summer. Statistics from Environment Canada.

⁵ Refer to the map of downtown Winnipeg in Appendix "D" for the recommended R.O.W.

incentive to focus new development along a 'spine' of growth so that each new building may add directly to the system.⁶ In addition, the walkway programme also emphasized the need to improve the downtown pedestrian environment as **pedestrian comfort and convenience** were regarded as essential goals of system development.

With the adoption of *Plan Winnipeg* in 1980 as a guide for future development in Winnipeg, the City re-affirmed its commitment to the walkway system. The legislation recommended that the walkway continue to be developed and supported as a strategy to facilitate pedestrian movement.

Following approval of the designated system, walkway development has been concentrated in the above-grade or skywalk portion of the system south and west of the Portage and Main concourse; most of this skywalk construction occurred during the latter half of the 1980s. In 1987, the opening of the Portage Place shopping complex allowed two key retail nodes, Eaton's and The Bay, to become linked together along the walkway system. Finally, with the opening of the second level connection through the Post Office in 1988, the walkway reached an important point in system development as pedestrians were now able to travel a continuous route from The Bay to the Westin Hotel.

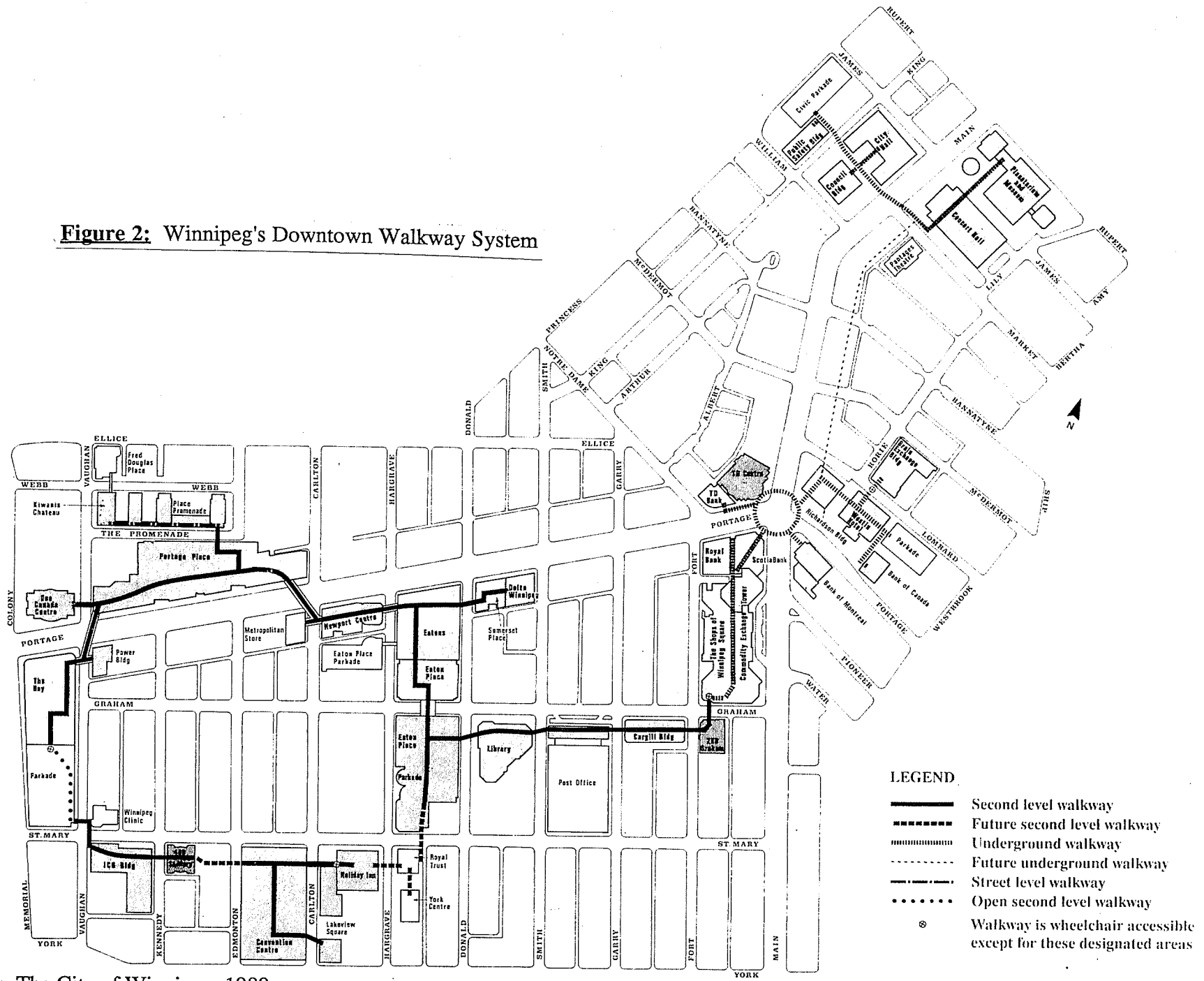
3.2 The Walkway System Today

The 1990 version of Winnipeg's Downtown Walkway System, seen in Figure 2, consists of 27 walkway links (skywalks and tunnels) extending for 1.2 miles through the CBD. This network of linkages provides residents, employees, shoppers and visitors with year-round climate-controlled access to over 8 million square feet of retail and office space, financial and entertainment facilities, hotels, restaurants, the library, post office, apartment complexes and more than 6,000 off-street parking spaces.⁷ As evident by its size and the

⁶ The City cost-shares one-third of the cost of bridge or tunnel construction (within the right-of-way) and the other two-thirds is borne equally by adjoining building owners. The City also shares annual operating and maintenance costs on the same basis.

⁷ Refer to the Downtown Pedestrian Walkway Facts sheet in Appendix "E".

Figure 2: Winnipeg's Downtown Walkway System



Source: The City of Winnipeg, 1989.

diversity of the buildings it connects, the walkway system has truly evolved into a **unifying factor** of downtown space - particularly the retail and commercial components. Many of the major activity nodes are now linked to the walkway, and not surprisingly, almost all new projects in the downtown are adjacent to the pedestrian system.

If the walkway is to facilitate clear and easy pedestrian movement between these numerous activity nodes, it is essential that the system be properly maintained and operated in a way as to provide some degree of comfort, convenience and security for its users. As in all walkway systems, ownership and management are important aspects of this process. Winnipeg's system is **jointly** owned and operated by both the public and private sectors. Under the current cost-sharing arrangement, the City pays for one-third of the annual operating and maintenance costs for those connections made on the designated R.O.W. In exchange for this cost-sharing, the City enters into an agreement with the building owners to cover financial arrangements as well as hours of operation and the establishment of an easement for public access through the buildings. Although the hours of operation vary because of different ownership along the system, most connections are generally open between 7:00 a.m. and 10:00 p.m.⁸ Individual building owners are responsible for maintenance of the walkway components that pass through their properties, including connecting walkways and interior corridors. In addition, each building must also provide security for the walkway, usually in the form of television surveillance and/or security personnel.

Since the City enters into individual agreements with the different owners, it is often difficult to maintain a degree of uniformity to these operational aspects.⁹ The impact this has on users of the walkway are examined in Chapter 4.

⁸ Refer to Appendix "E" for the days and hours individual pedestrian connections are open to the public.

⁹ For walkways both on and off the designated R.O.W., the City does require minimum standards to be maintained. Connected buildings must conform to certain levels of security, maintenance, accessibility (i.e., hours), and design.

3.3 Users of the Walkway System

Winnipeg's Downtown Walkway System basically serves the interests of three different groups: the private sector, public sector, and general public. Private sector involvement principally includes those properties located along the system which have some commercial or retail function. The people who fall into this category - merchants, property and store owners - usually have a financial stake in the walkway. The second group of people, the public sector, are those government representatives in charge of operating and managing the walkway system and the public buildings connected to it, such as the library and post office. The public sector generally has little or no commercial interest in the walkway.

The final group are simply those people who use the walkway, for any number of reasons, as a means for travelling around the downtown. They are the general public, and it is the perceptions of this particular group that the practicum seeks to examine in evaluating Winnipeg's walkway system. In an effort to examine the perceptions of "the general public as walkway user", it is important to realize that a distinction can be made between the different types of walkway user. There are essentially three types of walkway

system user:

- (1) downtown employees,
- (2) downtown residents, and
- (3) shoppers.

3.3.1 Downtown Employees

The City of Winnipeg's planning department estimates that the number of people working in the downtown has grown considerably from 60,040 in 1976 to 68,438 in 1986. While it is understood that the CBD is geographically large in area, and the walkway system links but a small portion of the downtown, 18,731 people currently work within buildings connected to the system.¹⁰ And this number is expected to rise significantly

¹⁰ For a breakdown of building types by number of employees, refer to the Downtown Pedestrian Walkway Facts sheet in Appendix "E".

within the next few years as new links are made to buildings already in place, under construction or still on the drawing board.

What these figures show is that there is the potential for a large number of employee users of the walkway system primarily during the typical "9 to 5" weekday period. Thus, because of their large numbers, the perceptions of the downtown employee must be taken into consideration as one of the user groups to be included in this study.

3.3.2 Downtown Residents

Another walkway user group this practicum looks at are downtown residents. Estimates from the planning department show a relatively stable downtown population as numbers have increased slightly from 11,115 to 11,593 between 1976 and 1986 with this trend expected to continue. Since 1980, three apartment complexes (two of which are for seniors) have been constructed in and around the walkway system - all three are now connected to the system by skywalk. This has added over 600 new dwelling units to the downtown giving some 900 residents direct access to the walkway. It is important to note that 39 percent of downtown residents are 55 and over, so it is essential that not only the downtown resident be represented in the study but the senior population as well.

3.3.3 Shoppers

The third and final user group can be categorized under the heading 'shoppers'. As alluded to earlier, one of the primary reasons the Winnipeg system was developed was to provide a pleasant shopping environment comparable to the conditions of the suburban shopping mall in an effort to attract people (especially shoppers) to the downtown. In addition, the majority of the establishments along the walkway system directly accessible to the general public are either retail or commercial in function. Thus, the people using the walkway for shopping-related purposes must also be considered as another user group when examining the Winnipeg system.¹¹

¹¹ Included in this group are walkway trips made for shopping, banking, eating, entertainment, and appointment purposes.

3.4 Methodology for the Survey Process

The nature and relatively small amount of walkway-related research, together with the rapid and sometimes haphazard rate in which these systems are being constructed, leads to a basic assumption that underscores walkway development. The assumption is that cities are adopting the walkway system as a cure for solving downtown mobility and development problems without fully assessing their positive and negative attributes and, more importantly, evaluating their impact on the downtown pedestrian environment. The intent of this case study, therefore, is to provide an interim evaluation of Winnipeg's walkway system by assessing various user-related attributes of the existing system.

To achieve the research objectives presented above, it was decided that a **survey of walkway system users** would provide the basic information needed to carry out an assessment of the walkway system. The survey was designed to ascertain people's **usage patterns and perceptions** concerning a wide spectrum of walkway features and possible user-related issues. Since the results of this survey form the main information source of the walkway study, it was necessary to devise a strategy to ensure enough relevant data could be gathered to make this study a worthwhile endeavour. There are essentially two steps to this methodology, the first being the formulation of a user questionnaire and, secondly, the survey of users.

3.4.1 Step 1: Development of Questionnaire

The development of the questionnaire involved several preliminary measures to gain a feel for the walkway system and its users.¹² The initial phase entailed spending time on the system to observe personally the various characteristics of the walkway, with particular focus on aspects of design, signage, obstacles, activities, and usage. This phase included interviews with public officials involved in walkway planning to discuss the observations and to gather additional insight and factual information. The next measure

¹² Refer to Appendix "F" for a copy of the questionnaire used in the survey.

taken involved interviews with security and maintenance staff and managers/operators of buildings located along the walkway system. The purpose of speaking to these people was to get their perceptions of the walkway system and of the walkway user so that a better understanding could be gained into what user-related issues needed to be addressed when structuring the questionnaire.¹³ In addition to these observations and interviews, the **user-related issues** raised in chapter 2 were used as a guideline in the development of the questionnaire.¹⁴ Questionnaires and studies done in other cities were also consulted to aid in the formulation of some of the survey questions.

Finally, a series of questions were formulated addressing a wide array of user-related issues and concerns, the answers to which would provide the information needed to examine and evaluate the Winnipeg walkway on the basis of:

- (1) access and orientation,
- (2) comfort and convenience,
- (3) safety and security, and
- (4) system usage.

The types of questions incorporated into the questionnaire were chosen not only to address the above issues, but also to ensure that the results would reflect the concerns of the three walkway user groups, specifically shoppers, downtown residents, and downtown employees. After the questionnaire was developed, it was then tested in order to determine whether or not difficulties were encountered regarding the comprehension of the various questions. A few minor problems arose and subsequent changes were then made.

¹³ The main user-related issues raised in these conversations included the following concerns: poor handicapped access in some locations; lack of a system-wide signage program; lack of uniform hours of operation along the system; and, the need for more visible security during certain hours. Refer to the bibliography for a list of the people interviewed in this study.

¹⁴ The user-related issues of walkway system development raised in section 2.2 were primarily based on studies and surveys done in other cities. This literature, especially the user surveys, was consulted for both the development of the questionnaire and the survey of users.

3.4.2 Step 2: The Survey of Users

Once the questionnaire had been developed and tested, the final step of the survey process involved surveying the walkway system users. This process was conducted in two parts, the **first phase** consisting of a 'shopper-intercept study' in which walkway users were interviewed at various times and locations along the system. Walkway users were interviewed between February 17-24, 1990, in the following locations:

TABLE 1:
Interview Locations

TIME	SATURDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9:30 AM to 11:30 AM	Portage Place to Newport Centre	Lombard Square	Cargill Bldg. to Post Office	Winnipeg Square	Edmonton Court (Portage Pl.)
11:45 AM to 1:45 PM	Winnipeg Square	ICG Building to Bay Parkade	Convention Centre	Eaton's to Somerset Pl.	Edmonton Court
2:00 PM to 5:00 PM	Portage Place to The Bay	Portage Place to The Bay	Eaton's to Newport Centre	Eaton Place to Library	Centre Court (Eaton Place)
Total Weekday Interviews = 113		Total Weekend Interviews = 80			

To facilitate the survey process, and thus allow the interviewer to conduct a reasonable number of surveys (10-15) within the specified time period, the locations and times selected reflect the circumstances under which walkway usage is heaviest. In addition, it was recognized that the majority of weekday users are downtown employees, while weekend users are predominantly shoppers. To ensure a reasonable cross-section of walkway users, people were interviewed on both the weekdays and weekend.

Since available resources and time restrictions limited the number of interviews in the shopper-intercept phase, a second data collection phase was included to help increase the sample size of the survey. The **second phase** of the survey process involved the

distribution of questionnaires to employees and residents of buildings connected to the walkway system. With the cooperation of the building managers, this was made possible as they accepted responsibility for circulating the questionnaire throughout their respective buildings.¹⁵ The buildings surveyed in this manner are as follows:

Office Buildings:	One Canada Centre	Apartments:	Place Promenade
	ICG Building		Kiwanis Chateau
	400 St. Mary		
	Commodity Exchange Tower		
	Eaton Place		
	Post Office		

Total Questionnaires Distributed = 2050

Total Questionnaires Returned = 453

Response Rate = 22%

The interviews from the shopper-intercept study (193), along with the responses obtained from building surveys (453), form the main data base to be used in the examination of the walkway system in chapter 4. The potential limitations to this survey include its exclusive focus on walkway users, the absence of survey results for seasons other than winter, and the lack of responses from evening hour users.

3.5 Summary

Responding to economic pressures resulting from the formation of nodes of commercial activity in outlying suburban areas, Winnipeg City Council in 1977 adopted a series of programs to strengthen the importance of the downtown as the centre for retail and commercial activities. One such program included the establishment of a weather-protected walkway system as an amenity to encourage revitalization and thus allow the downtown to compete with peripheral shopping centres.

The walkway evolved incrementally from a few utilitarian links into a continuous system of inter-connected skywalks and tunnels. In its present form, the walkway system

¹⁵ The method of circulation was left up to the individual building managers to decide. Questionnaires were generally distributed through a newsletter or deposited in mail slots. The questionnaires were dropped off to the managers during the last week in February and picked up approximately one month later.

provides the pedestrian with an opportunity for movement in a climate-controlled and traffic-free environment along a continuous route from the Westin Hotel to The Bay. As the walkway has grown in size, so too has its importance as a means for downtown pedestrian movement. A number of different user groups - employees, residents, shoppers - have come to rely on the walkway system as an alternative to street level movement. In addition, pedestrian volumes on the walkway are often much greater than those along streets adjacent to the system, seemingly indicating the walkway's popularity during certain times of the year.

However, sheer numbers alone cannot attest to the success of a walkway system. Whether or not the system fulfills the varying **needs** of its users determines, to a certain extent, the value of the walkway for improving the downtown pedestrian environment - this includes such user-related aspects as comfort, convenience, safety, security, etc. Although it is impossible to measure the exact degree of effectiveness the walkway has at satisfying each of these user needs, if the right questions are asked people's perceptions **can** be used as an **indication** of some of the positive and negative attributes of the walkway system. The remainder of this practicum proposes to undertake this task. To obtain the necessary information (i.e., user perceptions) required to carry out this analysis, a questionnaire was first developed addressing a wide range of user-related issues and concerns. A survey of walkway users was then conducted as people's attitudes and opinions were solicited using the following methods: personal interviews with people on the walkway; and, the distribution of questionnaires to employees and residents of buildings connected to the system.

The information gathered from this survey is used in chapter 4 in the analysis of the Winnipeg walkway system. Using the survey data, the walkway is assessed according to a number of pre-determined user-related issues (as determined when developing the questionnaire). The **analysis stage** of this case study now follows.

Chapter 4

THE SURVEY OF WALKWAY USERS - FINDINGS & ANALYSIS

In this chapter the information and data obtained from the survey of walkway users - via the techniques outlined in chapter 3 - is summarized and a question-by-question **analysis** of the results is carried out. The data base used in this analysis not only includes the **findings** from the walkway survey (i.e., user perceptions), but other sources of information are interwoven to give a more in-depth account of the issues and aspects associated with usage. These include:

- * key informant interviews - public officials, building managers, security personnel
- * relevant literature, and
- * personal observations.

These findings and analyses form the basis upon which a final analysis of the walkway system can be made in chapter 5 as the system is evaluated according to what has been learned from this chapter on user perceptions. It should be realized that the findings presented here reflect the views of only a small fraction of the total daily walkway users and that the analysis represents at best a generalized account of people's perceptions - 646 people were interviewed out of a possible 20,000 (estimated) daily users.

4.1 Survey Respondents

TRIP PURPOSE

In order to determine some basic differences between weekday and weekend walkway usage, respondents of the shopper-intercept study were asked to identify their primary purpose for coming downtown.¹ A large percentage of the people (78%) interviewed during **weekdays** indicated their reason for being downtown was work (see **Table 2**). This finding was expected since most of the walkway system links office uses. A smaller percentage of users came downtown for other purposes (12%) - such as business appointments, library or university - while only 9% were downtown specifically to shop.

Of those interviews conducted on the **weekend**, the majority of the respondents said they were downtown to shop (78%) while only 6% were workers - this result is almost the exact opposite to what was found on weekdays. Although significantly smaller, 10% of the weekend users came downtown for eating and entertainment purposes, compared to just 1% for all weekday respondents. Again, this is not surprising since most offices shut down for the weekend and one can expect to find a greater proportion of people downtown for non-working purposes, such as to eat, shop, or for entertainment.

TABLE 2: Shopper-Intercept Study Results

QUESTION 1: What was your reason for coming downtown today?

Trip Purpose	Weekday	Weekend
work	88.....78%	5..... 6%
shop	10.....9%	62.....78%
eat	2.....1%	3..... 4%
entertainment	0..... 0%	5..... 6%
other (apt., library, school)	13.....12%	5..... 6%
----- subtotal = 113		80

total respondents from shopper-intercept study = **193**

¹ This is the only question where the results from the building surveys (453 respondents) were not tabulated with those from the shopper-intercept study. Since it was already pre-determined that the respondents from the building surveys would either be downtown employees or residents, there was no need to include these results as their reason for being downtown is obvious.

RESPONDENT CATEGORIES

After determining the trip purposes of the 193 respondents from the shopper-intercept study, these interviews were then combined with the 493 collected from the building survey phase to form the data base used in this analysis. The 646 total respondents could then be categorized according to one of the three user groups seen in Table 3. The reason for making this distinction is that some of the questions on the survey apply specifically only to one or two of the walkway user groups. However, in most cases the question takes into consideration all respondents as a whole and thus no breakdown is required when analyzing the survey data.

TABLE 3: Respondent Categories

User Group	Frequency
(1) Downtown Employees	444
(2) Downtown Residents	102 (95 seniors)
(3) Shoppers	100
----- TOTAL = 646 -----	

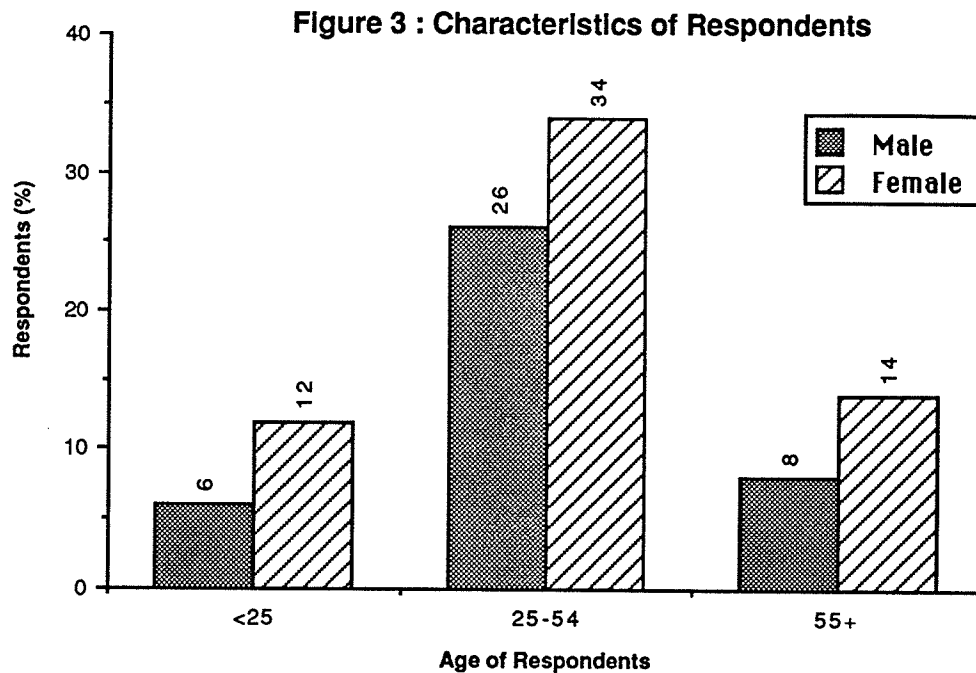
Respondents categorized as downtown employees comprise the largest user group as approximately 70% of the people surveyed work in the downtown while the remaining two groups, downtown residents and shoppers, each account for 15%. This high ratio of employees to residents/shoppers was expected for two reasons: (1) the downtown employs a large number of people, particularly during the typical "9 to 5" weekday period when many of the interviews were conducted; and, (2) most of the buildings surveyed serve some office function and thus are occupied primarily by office workers. It is also important to note that the majority of the downtown residents responding to the survey are seniors.²

CHARACTERISTICS of RESPONDENTS

Figure 3 gives an illustrative breakdown by age and sex of the survey respondents. Although it is not the intention of these findings to provide a profile of the "typical" walkway user, some basic characteristics of the survey respondents can be highlighted.

² This is due to the fact that one of the two apartment complexes surveyed, Kiwanis Chateau, is for seniors only.

The first point that can be made is that 60% of the respondents are female. Secondly, 60% of those people surveyed fall into the 25-54 age category, while 22% are seniors and 18% are under the age of twenty-five.



4.2 Transportation Considerations

Although no specific questions about the walkway system were asked in this section, information obtained from this inquiry allows us to make a few basic assumptions concerning downtown trips and parking habits of walkway users and how this might possibly relate to walkway usage. Since the questions contained in this section are not applicable to downtown residents, only the responses from **employees** and **shoppers** are analyzed.

MODE of TRANSPORTATION

In order to determine the modal split of trips made to the CBD, respondents were asked how they got downtown. As seen in **Table 4**, 53% of the people came downtown by car, while 42% took the bus and 5% walked. This shows that although more people rely on the automobile than transit, both modes of transportation are important to the walkway user.

Therefore, the walkway system should be responsive to the needs of both the transit rider and the motorist by providing the necessary linkages to transit and parking facilities.

TABLE 4: Mode of Transportation to Downtown

QUESTION 2: How did you get downtown today?

Mode	Frequency	Percent
car	285	53
bus	229	42
walk	30	5
	<hr/> 544	<hr/> 100%

PARKING PREFERENCES

Having established that the automobile is the most frequently used mode of transportation for downtown trips, respondents were asked to identify their downtown parking preferences. The majority of people (60%) said they favored parkades, while only 18% preferred off-street parking lots, 9% for street meters and 13% had no preference (see Table 5). This clearly indicates a strong preference for parkade parking among the survey respondents, and is probably due largely to the fact that parkades offer automobile commuters protection from the elements and increased accessibility through direct linkage to various points along the walkway system. As seen in Appendix "E", over 6,000 enclosed parking spaces are directly accessible from the walkway system.

TABLE 5: Downtown Parking Preferences

QUESTION 3: When you drive downtown, where do you normally prefer to park?

Parking Location	Frequency	Percent
parkade	241	60
off-street parking lot	73	18
meter on the street	34	9
no preference	51	13
	<hr/> 399	<hr/> 100%

LOCATION of PARKING SPACE WITH RESPECT to DESTINATION

As a follow up to the previous questions, **motorists** were asked to indicate how far (in terms of city blocks) their parking space is located from their destination. Not surprisingly, the results in **Table 6** show that people tend to park as close as possible to their destination. Eighty percent of the respondents park within one block of their destination, while the remaining 20% park between two to six blocks away. Since such a large percentage of the people (80%) park at locations very near to their destinations, it is reasonable to assume that many of the respondents may find it unnecessary to use the walkway system to travel between their parking space and destination, as other routes may be more direct and convenient.

Furthermore, it is interesting to note that 46% of the people park within the same building as their destination. Again, to reiterate the points made earlier in Question 3, this indicates that parkades are popular among motorists, especially since they often provide greater levels of accessibility and convenience.

TABLE 6: Distance Between Parking Space & Destination
QUESTION 4: If you came downtown by car, how far is your parking space from your place of employment/destination?

Distance	Frequency	Percent
park in same building	131	46
1 block or less	98	34
2 blocks	32	11
3 - 6 blocks	24	9
	285	100%

LOCATION of BUS STOP WITH RESPECT to DESTINATION

Transit commuters were asked a similar question to the one posed to motorists in the previous section - to identify the distance between their bus stop and destination. A significant portion of the people (69%) are able to get off their bus within one block of their destination, while 23% are only two blocks away and 8% must travel a distance of between 3-6 blocks (see **Table 7**). Again, since many of the respondent's bus stops are relatively

close to their destinations, one can assume that the street presents a more direct and convenient route along which to travel to work, shop, etc., as opposed to using the walkway system. This point is examined further in the next section.

TABLE 7: Distance Between Bus Stop & Destination
QUESTION 5: If you came downtown by bus, how far is your bus stop from your place of employment/destination?

<u>Distance</u>	<u>Frequency</u>	<u>Percent</u>
bus stops at same building	20	9
1 block or less	138	60
2 blocks	53	23
3 - 6 blocks	18	8
	229	100%

4.3 Walkway Usage by Downtown Employees

Questions six and ten were included in the survey so as to determine a few basic usage habits of **downtown employees** who work in buildings connected to the walkway system. In order to establish these walkway usage patterns, employees were asked to provide information concerning trips made to and from work and during lunchtime.

WALKWAY USAGE by EMPLOYEES on WAY to WORK

Question six of the survey asked employees if they use the walkway to get from their parking spot or bus stop to their place of employment - these results would be interesting to have since **all** of the employee respondents work in buildings connected to the walkway system. As the findings below indicate, only 35% use the walkway as a means of travelling between their bus stop/car and place of work, while most respondents (65%) do not use the system for such trips.

QUESTION 6: If you work in the downtown, do you use the walkway system to get from your bus stop/car to your place of employment?

YES =	146.....	35 %
NO =	274.....	65 %
	420	100%

To get an indication as to why people replied **no** to this question, respondents were asked to give their reason(s) for not using the walkway.³ The main reason given was that there is no need to use the system since work is only a short distance away from their bus stop or parking space - hence, people feel that it is quicker and more direct to use the street. In addition, some motorists also felt it unnecessary to use the walkway because they park in the same building as work. These findings are supported by the results from Questions 4 and 5 (in the previous section) as it was found that the majority of respondents either park or get off the bus very near to their place of work.

The second most popular answer given was that there is simply no walkway connection from the bus stop/parking spot to work. Finally, a number of people said that the system is inaccessible in the early morning since links through the department stores, which don't open till 9:30 a.m., do not allow usage between one's bus stop/parking spot and work. This last comment points out one of the operational problems encountered by walkway users, whereby the lack of systemwide hours hampers access through various areas of the system.

WALKWAY USAGE by EMPLOYEES DURING LUNCHTIME

The first part of Question 10 asked employees if they use the walkway system during lunchtime to get around the downtown. Of all the people responding to this question, only 4% said they never use the walkway at lunchtime, compared to 33% who use it occasionally and 63% frequently (see below). These results clearly indicate that the walkway is well-used by employees during the lunchtime hours, especially since such a large percentage are regular users.

QUESTION 10(a) : At lunchtime, do you use the walkway system to get around the downtown?	frequently	= 276	.....	63 %
	occasionally	= 147	.....	33 %
	never	= 16	.....	4 %
		439		100 %

³ For a listing of respondent's comments from the survey of walkway users, see Appendix "G".

Respondents were subsequently asked to list their reasons for using the walkway during lunchtime. The most common activities for lunchtime users was eating and shopping, both at 72%, while 69% of the employees use the walkway to run errands and 7% for other purposes. Although there is no single dominant purpose for walkway usage at lunchtime, what these results show is that a lot of people have come to rely on the walkway for a variety of **equally** important reasons. Originally it was assumed that trips made for eating purposes would stand out as the primary response.

QUESTION 10(b): If you use the system, for what reasons?

eat = 316	72 %
shop = 315	72 %
run errands = 301	69 %
(exercise, library, visit) other = 32	7 %

It has already been determined that most midday walkway trips are made by employees to eat, shop, and run errands. Thus, one would expect that areas on the walkway system with such facilities would serve as 'hubs' for much of the lunchhour pedestrian activity. As **Table 8** shows, based on the most frequently mentioned destination points for lunchtime trips, respondents identified four activity hubs - Portage Place, The Bay, Winnipeg Square, and Eaton Place/Eaton's. All four locations offer a variety of shops and services, and except for The Bay, provide a selection of eating establishments in designated 'food court' areas.

When taking a closer look at the results in Table 8, a few basic usage patterns can be identified. Not surprisingly, most walkway trips are made to destinations closer to one's origin than to those located further away. For example, most trips originating from the ICG Building, 1 Canada Centre and 400 St. Mary's are made to either Portage Place or The Bay and cover a relatively short distance.⁴ However, very few trips extend beyond these points to Winnipeg Square as it is located a greater distance away at the opposite end of the system. Trips originating from Winnipeg Square tend to display this similar pattern as most

⁴ Refer to Figure 2 in Section 3.1 for the exact location of buildings on the walkway system.

respondents travel only as far as Eaton Place or Eaton's. It can be assumed that distance and time are the limiting factors for these walkway trips as employees usually have only a one hour lunchbreak. Since no data is available for employee lunchhour trips before the walkway was opened, it is difficult to make comparisons and thus one can only presume that the walkway does encourage people to make longer trips because of the increased accessibility provided by the system.

Finally, an analysis of the responses from employees of Eaton Place shows a relatively equal distribution of trips made to the other three walkway hubs. This can be expected since Eaton Place is situated at the centre of the walkway system - whereas the areas mentioned previously are generally located on the periphery of the system.

TABLE 8 : Employee Destinations During Lunchtime (Question 10(c))

Origin	Destination	Frequency
Eaton Place	Winnipeg Square	92
	Portage Place	55
	The Bay	61
	Library	7
Post Office	Eaton Pl./Eaton's	15
	Winnipeg Square	14
	Portage Place	4
	The Bay	3
Winnipeg Square	Eaton Pl./Eaton's	39
	The Bay	10
	Portage Place	5
400 St. Mary	Portage Place	31
	The Bay	22
	Eaton Pl./Eaton's	11
	Winnipeg Square	3
ICG Building	Portage Place	38
	The Bay	22
	Eaton Pl./Eaton's	12
	Winnipeg Square	3
1 Canada Centre	Portage Place	17
	The Bay	14
	Eaton Place/Eaton's	10
	Winnipeg Square	3

4.4 DASH Usage

In order to determine the relationship between transit and the walkway system, respondents were asked a few questions concerning their use of the free Downtown Area Shuttle Service (DASH) run by Winnipeg Transit. The Dash was introduced in 1975 to improve transit service in the CBD and, like the walkway system, to provide a unifying factor which links various areas of the downtown.⁵ Though DASH was in place long before the completion of the walkway, the two systems are seen as being complementary to each other as together they are able to link a significant portion of the downtown - there is some overlap along Graham Avenue.

The first part of Question 7 asks respondents if they use the DASH to get around the downtown. Although only 4% of the people surveyed are frequent DASH users, 38% do use the service occasionally while 58% indicated they never use DASH. Since it was the intention of this question to simply identify DASH users in order to establish a sample size (271) for the remaining related questions, it was felt there was no need to ask people to comment on why they never use DASH. Nevertheless, based on some of the comments which respondents gave voluntarily during the shopper-intercept study, it would appear that people (the non-users) either found it more convenient to use the walkway system or they were unaware of the route and times the service operated.

QUESTION 7(a): Do you use DASH to get around the downtown?

frequently = 24	4 %
occasionally = 247	38 %
never = <u>375</u>	<u>58 %</u>
646	100 %

To get an insight into the types of trip movements of DASH users, respondents were asked to identify their usual downtown destination(s) when taking the DASH. The three most frequently mentioned destinations - Winnipeg Square, The Bay, Eaton Place/Eaton's -

⁵ The DASH is oriented toward the daytime population of the downtown and runs from Monday to Friday between 11 a.m. and 3:15 p.m. Refer to Appendix "H" for the downtown Winnipeg DASH route map. This information was obtained from an interview conducted with William B. Menzies, Superintendent of Transit Planning - City of Winnipeg, on February 20, 1990.

are all located on the walkway system (see **Table 9**). This is not too surprising as these same points are also three of the areas identified in Question 10(c) as being hubs for much of the walkway's lunchhour pedestrian activity. Since DASH operates primarily during the traditional lunchtime period on weekdays, it can be assumed that most of these trips are made by employees either to eat, shop, or run errands. What this shows is DASH, like the walkway, provides an attractive (and sometimes quicker) alternative for downtown movement as people have the added options of using the walkway system or midday DASH service to access various areas of the CBD.

Other destination points identified by DASH users were City Hall, The Forks, and Broadway Avenue. Although the walkway does not extend into these areas, DASH makes it possible for trips to be made to these and other points in the downtown that are inaccessible by walkway - in this respect DASH does complement the walkway system.

TABLE 9 : Destinations of DASH Users

QUESTION 7(b): If you use DASH, to what buildings or points of the downtown do you normally take the DASH?

Destination	Frequency	Percent
Winnipeg Square	108	40
The Bay	103	38
Eaton's/Eaton Place	92	34
City Hall	80	30
The Forks	39	14
Broadway Avenue	30	11

Since the walkway system in its' present form now parallels much of the DASH route, one might expect that some of the trips traditionally made by DASH may have been lost to the walkway. To test this assumption, DASH users were asked if they use the service as much as they did in the past, before the walkway was opened. As the results from Question 7(c) show, 51% of the people still use DASH the same as always, while 48% said they use the service less often. With the recent opening of the walkway system from Portage and Main to Memorial Blvd. (circa 1988), it is apparent that a significant portion of the

DASH ridership has indeed gone to the walkway - although it is not certain just exactly how much.⁶ Respondents were not asked why they use DASH less, but the most likely explanation is that people find the walkway more convenient and practical, especially in the winter months.

QUESTION 7(c): Since the opening of the walkway system, do you use DASH.....?

more = 4	.....	1 %
less = 130	.....	48 %
same = 137	.....	51 %
	271	100 %

4.5 Walkway Usage Under Various Circumstances

This section includes questions that address a number of walkway user habits which occur under various circumstances. Walkway usage according to the time of day and under varying temperature conditions are both examined, along with an analysis of the walkway's ability to facilitate downtown pedestrian movement.

WALKWAY USAGE ACCORDING to TIME of DAY

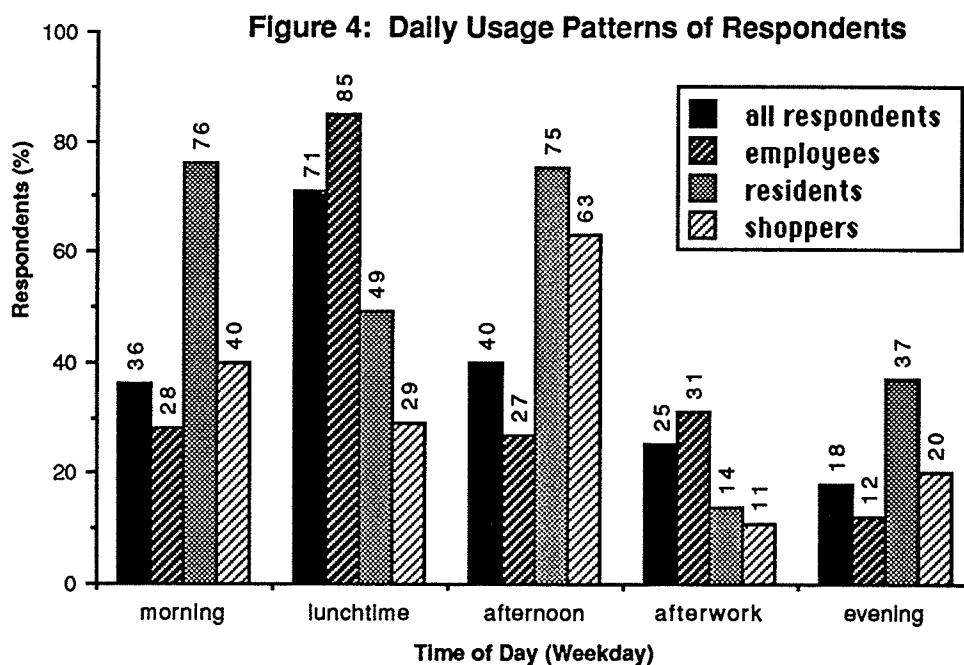
Question 8(a) asks respondents if they normally use the walkway system when they are downtown. While only 8% said they do not use the walkway, the majority (92%) of the people surveyed are regular users. It is understood that since only people **on the system** were interviewed for this study, the results may be somewhat biased. But, it is hard to argue against the fact that such a large percentage are frequent walkway users and hence, is a strong indication of the walkway's popularity.

QUESTION 8(a): Do you normally use the walkway system when you are downtown?

YES = 587	.....	92 %
NO = 52	.....	8 %
	639	100 %

⁶ Over the past year (1988-1989), DASH ridership has dropped 11.5% and is the single largest yearly decrease since its inception in 1975. Refer to the Winnipeg Transit System, *Monthly DASH Report*, Transit Planning Section, 1990.

In Question 8(b), respondents were asked to indicate the time of day (**weekday**) when they use the walkway system. As **Figure 4** shows, the responses were broken down according to the time of day and the three walkway user groups - this was done in order to get an indication of how usage varies among the different users.



For the **morning** period (7 - 11:30 a.m.), it is clear that residents make the best use of the walkway as the majority (76%) of them use the system at this time - this is well above the overall average of 36% for all respondents. An explanation for this high value came up in the comments as many of the residents, most of whom are also seniors, said they preferred to do all their shopping and walking (for daily exercise) in the morning before the walkway gets too busy. The percentage of shoppers (40%) and employees (28%) using the system are both significantly lower.

Lunchtime (11:30 a.m. - 1:30 p.m.) is by far the busiest time of the day on the walkway as 71% of all respondents use the system. The large number of people using the walkway during the midday period is mainly a result of the sudden influx of employees

onto the system as 85% of the workers use the walkway over their lunchbreaks. The percentage of residents (49%) and shoppers (29%) using the system at this time is comparatively lower, probably because of the desire to avoid the lunchtime rush.

In the **afternoon** (1:30 - 4:00 p.m.), employee usage drops off to 27% since most people are back at work. However, walkway usage by residents (75%) and shoppers (63%) picks up again, and in fact reach their highest levels for the entire day. The afternoon period is the second busiest time of the day for walkway usage, due in a large part to people using the system for shopping-related purposes.

Walkway usage tends to decline towards the late afternoon as only 25% of the people use the system **after work** (4:00 - 5:30 p.m.). The only significant response comes from the employees as 31% use the walkway, presumably to get from work to their car or bus stop. In the **evening** (5:30 - 11:30 p.m.), there are even fewer users (18%) as most employees and shoppers have gone home for the night. It is important to note, however, that 20% of the shoppers and 37% of the residents still make use of the walkway at night - likely reasons for usage include late night shopping, dining out, and entertainment purposes.

WALKWAY USAGE ACCORDING to TEMPERATURE CONDITIONS

One important usage issue concerns the extent to which people use the walkway based on varying weather conditions. People on the system were asked whether they would be more likely to use the inside walkway or the outside sidewalk (or both equally) based on the temperature outside. As can be seen in **Table 10**, for a cold day of -30 degrees Celcius, a high majority of the people (94%) said they would prefer to use the walkway rather than be out on the sidewalk (2%) - not surprising given the severity of Winnipeg's winters. On an average spring or fall day of 10 degrees, respondents showed no real preference towards either the walkway (32%) or the sidewalk (35%) as both are equally used.

Finally, on a warm day of 25 degrees, most people (65%) preferred to go outside as opposed to using the walkway (18%). Since Winnipeg experiences such long cold winters, one would expect people to welcome the opportunity to walk outdoors during warm weather. Obviously, Winnipeegers are not about to waste their precious few warm days inside a skywalk if avoidable.

TABLE 10: Walkway Usage According to Temperature Conditions

QUESTION 9: Which would you be more likely to use under the following temperature conditions:

	Inside Walkway	Outside Sidewalk	Both Equally
(a) cold day (-30 C)	94%	2%	4%
(b) average day (10 C)	32%	35%	33%
(c) warm day (25 C)	18%	65%	17%

Since it was expected that most people, given the option, would choose to remain indoors on a cold day and use the walkway, respondents were asked if they were **willing** to travel outside and for how far under these same conditions if the need arose. Although 30% indicated that they would go outside (covering an average distance of 3.5 blocks) to eat, shop, etc., on a cold day of -30 degrees, 70% of the people still were not willing to travel anywhere by foot when it got that cold. This shows the value of a walkway system because many of these same people would probably avoid walking around downtown altogether if their only option was the outside sidewalk. Thus, the walkway increases pedestrian mobility in the downtown as the system makes travel more convenient, especially during inclement weather.

QUESTION 9(d): On a cold day of -30 degrees Celcius, are you willing to go outside to shop, eat, etc.?

YES = 193	30%
NO = 442	70%
635	100%

QUESTION 9(e): If yes, how far are you willing to travel by foot?

Average Number of Blocks = 3.5

DOWNTOWN PEDESTRIAN MOVEMENT

In Question 15, people were asked if they use the walkway system to get from one section of the downtown to another even though their destination is not connected to the walkway. Most respondents (78%) said they do use the walkway for such trips. This indicates that the system is not only used for trips between inter-connecting points on the walkway, but many people also use it to travel to areas located off the system. In this respect, the walkway facilitates movement between the internal and external pedestrian environment.

Those people who said that they did not use the walkway (22%) were then asked if they found it more convenient to use DASH. Only 47 people - representing 8% of all the respondents - said they found it more convenient to use the DASH than the walkway when travelling to points in the downtown not connected to the system. The remaining 14% use neither the walkway nor DASH for such trips; one can assume these people prefer to walk the entire distance outside or use their car.

QUESTION 15(a): Do you use the walkway system to get from one section of the downtown to another even though your destination is not connected to the walkway system?

YES = 480 78 %
 NO = 139 22 %
 619 100 %

QUESTION 15(b): If no, is it because you find it more convenient to use DASH?

YES = 47 8 %
 NO = 92 14 %
 139 22 %

4.6 User Orientation

One of the more important walkway issues from a user's perspective concerns the pedestrian's ease and ability to negotiate the walkway system once they have entered it. Only 12% of the respondents indicated they had difficulties finding their way around on the system while the remaining 88% had no problems with orientation (see results below).

QUESTION 11(a): Is it hard to find your way around on the walkway system?

YES = 75 12 %
 NO = 571 88 %
 646 100 %

Although the results show that few people have any troubles finding their way around on the walkway, these findings proved somewhat misleading because of the comments given in Question 11(b) - respondents were asked to comment on why they had problems with orientation.⁷ Surprisingly, many of the comments came from the 571 respondents who said they had no difficulty getting around on the system. These people indicated that although the walkway is easy to use now that they are familiar with it, they did find the system **confusing at first**. It can be assumed, therefore, that most of these 571 users fell into at least one of the following categories: (1) long-time users of the system, or (2) frequent users of a portion of the system.

From the responses it would appear that most problems associated with orientation is due to system unfamiliarity - such is the case for visitors, tourists, and first time users. An important orientation aspect that many people picked up on is the lack of clear and consistent directional signage. Some felt that a systemwide signage program of maps and signs would be beneficial to all walkway users, especially to those unfamiliar with the system or who are not frequent users.⁸ Still others pointed out that signs were needed along the walkway and at street level to indicate access between the street and the system - people had difficulty locating walkway exits and entrances. Also, a few respondents found the Portage and Main Concourse confusing since it has no windows and there is a tendency for people to lose their sense of direction easier being underground. Finally, some people felt that the Winnipeg Square area should have signs indicating the change in grade as users make the transition from the underground to the street and skywalk levels.

⁷ See user comments in Appendix "G".

⁸ Many of the building managers felt strongly about the need for a uniform and systemwide signage program.

4.7 Personal Safety/Security

The extent to which the public will use walkways is often dependent on how safe and secure people feel. Keeping in mind that this sense of security is usually based more on perceived safety than on documented crime statistics, respondents were asked if they felt safe using the walkway based on the time of day. Overall, as can be seen in **Table 11(a)**, the majority of people (95%) felt safe on the walkway in the daytime. If the data is broken down according to gender, little variation exists between male (97%) and female (94%) responses as a high percentage of each group feel safe using the system during the day.

TABLE 11: Personal Safety/Security
QUESTION 12: Do you feel safe on the walkway system....?

(a) During the day:

	YES	NO
Female	94%	6
Male	97%	3
All Respondents	95%	5

(b) After hours:

	YES	NO	N/A
Female	28%	30	42
Male	42%	16	42
All Respondents	33%	25	42

While only 5% of all respondents did not feel safe on the walkway system during the day, these results rose significantly for nighttime usage as 25% felt unsafe after hours (see **Table 11(b)**). Though many of the male respondents (42%) felt safe at night on the walkway, still a large portion (16%) indicated they felt insecure. Female users showed an even higher degree of insecurity as more felt unsafe (30%) than safe (28%) when using the system after hours. It should be noted that 42% of all respondents had no opinion since they do not use the walkway in the evening.

In Question 11(c), respondents were asked to identify the areas on the walkway that they perceived to be unsafe and why. It would appear that by the types of comments given by many of the walkway users, feelings of security are based more on the potential threat of a crime occurring rather than on reports of actual incidents.⁹ As expected, few

⁹ Refer to Appendix "G" for a listing of respondent's comments concerning security on the walkway system.

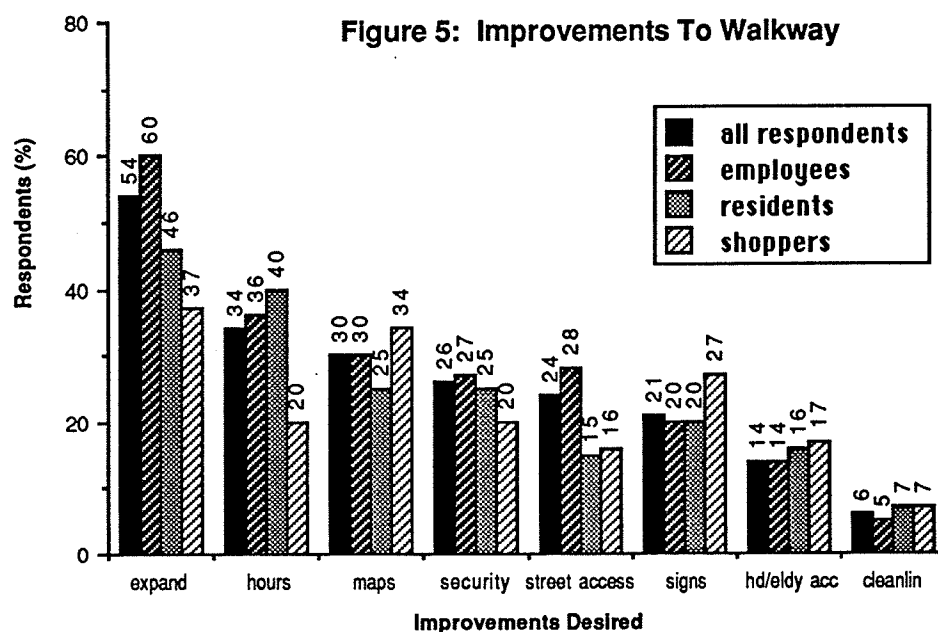
responses were geared towards daytime use as most walkway security concerns centred around nighttime use (after 5 p.m.). Since there are considerably fewer people using the system after hours, many of the respondents feel less secure on the walkway in the evening - hence, one can experience a greater sense of **isolation and vulnerability**, particularly on underfrequented outer linkages. For example, evening users of the Place Promenade corridor commented on this sense of isolation as the area is usually deserted at night and there is no one around should anything happen. Users of Winnipeg Square expressed similar views as people felt vulnerable during the evening since there are less people on the system and stores are closed.

Another safety concern of respondents was that the system lacked an overall **presence** of security personnel - this is especially noticable at night. Although there are numerous surveillance cameras monitoring the system, many still felt that walkway security could be enhanced with the addition of more security guards to patrol the entire system.¹⁰ Finally, some users said they felt intimidated by the types of people - teenagers, transients, undesirables - loitering around various parts of the system after hours (especially on the lower level of Portage Place near Edmonton Court). Since much of the system consists generally of public or semi-public space, these people have just as much right to be there as anyone else. Many of these same respondents also indicated that they try to avoid these areas if at all possible. It should be noted that, from personal observations, the crowd does change quite dramatically after 5 p.m. as most of the daytime users (office workers) leave for home - these people are not truly replaced by other users, however, as the number of "undesirables" becomes proportionally larger and are therefore only more noticable.

¹⁰ A few of the security guards on the system expressed similar views saying that some of the areas they were assigned to cover were just too large and that more personnel were needed to do an adequate job of patrolling their entire areas. The guards also indicated that they have come across very few acts of crime while working on the system - except for the occasional drug deal in a back stairway or minor property damage.

4.8 Walkway Improvements

Question 14 of the survey deals with user satisfaction. Respondents were asked to indicate what aspects of the walkway system they felt needed improvement. As **Figure 5** shows, the eight user-related aspects were first ranked from most desirable to least desirable walkway improvement, and then each was broken down according to user group for further analysis. It is important to note that only 10% of the 646 respondents gave no answer, many of them adding that they were satisfied with the way things are and that no improvements were necessary.



The most frequently requested walkway improvement was the **expansion of the system** as 54% said they would like to see more of the downtown connected by skywalks and tunnels. The biggest advocates of system expansion were employees as 60% favored more connections. Many of the workers from the ICG Building and 400 St. Mary's voiced their dissatisfaction over the fact that they felt somewhat isolated since they can only use the walkway in one direction - north to The Bay. In their opinion, the system should be extended from 400 St. Mary's to the Convention Centre and then through Royal Trust over to Eaton Place; this would make it much easier for people working on the system's

western periphery to travel by skywalk to Eaton Place and to other points located east.¹¹ Others indicated they would favor expansion to the Concert Hall/City Hall area - most people, however, did not give specific responses.

Another improvement which 34% of the respondents would especially like to see is the establishment of **uniform hours of operation** throughout the system. Both employees and residents are particularly concerned with this aspect because the store hours of the two department stores on the system (Eaton's and The Bay) creates accessibility problems for early morning and evening users.¹² For example, many of the employees indicated that because they have to be at work by 8:30 a.m., they are unable to use the walkway to get from their bus or car to work since their route is interrupted by one of the department stores (which doesn't open till 9:30). Residents of apartment buildings connected to the walkway commented that store hours also limits access in the evening to entertainment and eating establishments located on the system. In addition, office employees who have to work late experience similar difficulties getting back to their parking space as some links on the system close as early as 6 p.m. These problems may partially be responsible for the low frequency of walkway use during the evening as non-uniform hours and limited accessibility discourages nighttime use (see Section 4.5 - "Walkway Usage According to Time of Day").¹³

Improved **signage** was the next greatest concern as 30% of the respondents said that maps along the system would be beneficial for orientation purposes while 21% felt more signs were needed. No further analysis pertaining to the issue of user orientation is necessary at this time since people's comments and perceptions concerning this matter was

¹¹ Refer to Appendix "G" for a listing of the respondent's comments.

¹² All of the building managers interviewed said one of their main concerns was the lack of a uniform set of operating hours for the entire walkway system. Refer to Appendix "E" for the current operating hours.

¹³ Although access on the walkway is rather limited on weekends, very few people commented on this as being a problem.

previously examined in Section 4.6. It is interesting to note, however, that signage is more of a concern for shoppers than any other user group - it can be assumed that shoppers use the walkway less frequently than employees and residents and are therefore less familiar with the system.

Improvements in walkway **security** was mentioned by 26% of the respondents. As previously discussed in Section 4.7, walkway safety is mainly a concern for nighttime users as many felt that security could be enhanced with the addition of more security personnel to give users a greater feeling of protection.

Twenty-four percent of the respondents said that better accessibility is needed between the street and walkway. **Street level accessibility** is closely related to user orientation as signage - located at all grades along the system - is crucial for relaying directional information to the user about walkway exits and entrances. Since many of the walkway entrances are found within the interior of buildings, and are therefore not detectable from the outside, street level signage (both inside and outside) would be of assistance to people entering the system for locating stairs, elevators, and escalators. Likewise, the same can be said about signage along the walkway as some of the respondents indicated they had trouble locating the right exit to street level - especially below grade at Winnipeg Square and the Concourse where there are no windows. Besides better signage, accessibility can also be improved in cases where skywalks are linked directly to the sidewalk by external stairways and escalators and thus enhance the system's visibility. Even though the Winnipeg system does not have these external connections, none of the respondents suggested this type of improvement as most comments focused on the lack of signage as the major problem concerning street level accessibility.

Only 14% of the people surveyed said that the walkway should be more **accessible for handicapped and elderly users**. Although this percentage is relatively low compared to other suggested improvements, this number is somewhat deceiving since 46% indicated they had never previously given the matter any thought and therefore could not

comment. The one area that most people did notice as being inaccessible, however, was the stairway leading from the skywalk at 200 Graham Avenue to the underground level at Winnipeg Square. This change in elevation presents a major obstacle for the handicapped person as access can only be gained through a steep and narrow stairway (this area is not accessible by wheelchair).¹⁴ In fact, some respondents said that the design of this passageway even made access difficult for able-bodied people because the space is so confining and not conducive to two-way traffic. The multitude of interior doors along the walkway also proved inconvenient for the mobility-impaired. Many of the elderly and handicapped users had difficulty opening doors if they were by themselves and quite often had to seek assistance from other users. Some suggested that automatic push-button doors be installed to improve access.

The majority of respondents were satisfied with the overall **cleanliness** of the walkway; only 6% felt maintenance needed to be improved. A few people commented on the presence of cigarette butts in the skywalks, but most users were generally pleased with the system's up-keep.

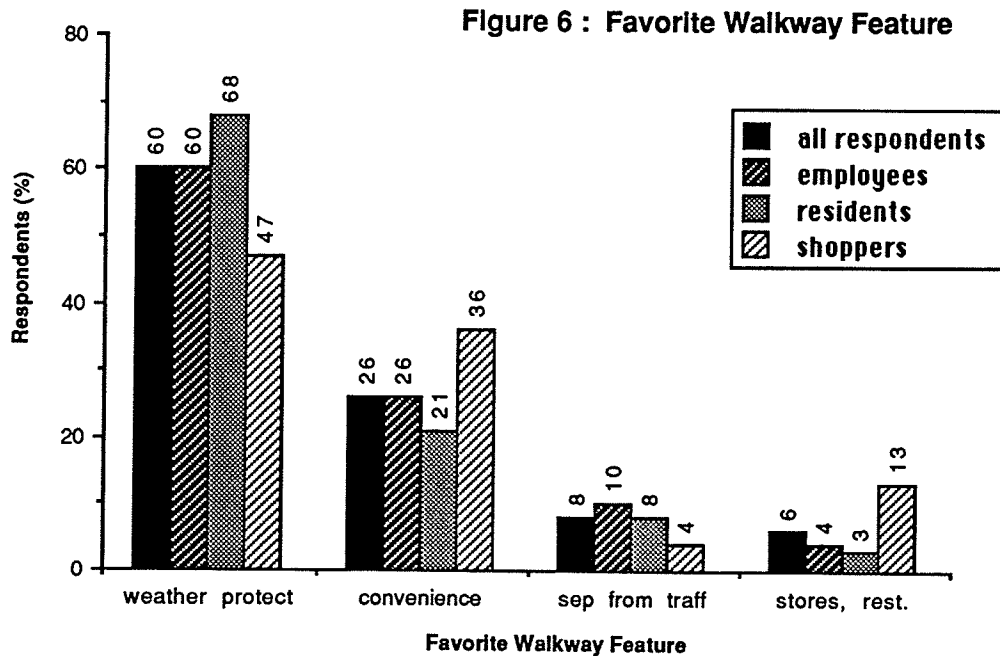
Finally, an improvement not listed as a possible answer on the survey was recommended by a number of the employee respondents. Employees of the ICG Building and 400 St. Mary's suggested that an enclosed pedestrian route be installed through the **Bay Parkade**. Users of this area felt that this enclosed connection should be made for one of two reasons:

- (1) the parkade is not climate-controlled and offers little protection from the elements (people must wear protective clothing during the winter months when using this connection); and
- (2) parkade traffic often poses a risk for pedestrian traffic.

¹⁴ The only other area on the walkway not accessible by wheelchair is the entrance leading from The Bay into the Bay Parkade (skywalk level). This was not mentioned by any of the respondents, even those in wheelchairs.

4.9 Favorite Walkway Feature

In Question 13 of the survey, people were asked to indicate what they liked most about the walkway system - respondents were instructed to give one answer only. As Figure 6 shows, weather protection was stated as the most desirable feature of the walkway system by 60% of the users - this can be expected considering the severity of Winnipeg's winters. Convenience was the second most desirable walkway feature as chosen by 26% of the survey respondents. It is not surprising that weather protection and convenience combined account for 86% of all answers since one of the primary objectives for creating the system (back in 1977) was to improve the downtown pedestrian environment by emphasising pedestrian comfort and convenience. Separation from traffic and attractions such as stores and restaurants ranked significantly lower at 8% and 6% respectively. Obviously, being separated from traffic isn't quite as important to people than comfort and convenience, while it would appear that the types of stores and restaurants found on the walkway are only slightly more important to shoppers (13%).



Comments made by respondents concerning their favorite walkway feature were categorized according to the three walkway user groups (see Appendix "G"). From the types of responses given by **downtown employees**, it is apparent that the ability to save time is an important factor for usage as many of the workers felt that the walkway made pedestrian movement quicker and more convenient. This is especially true during lunchtime and coffee breaks as more of the downtown becomes accessible when using the walkway since less time is wasted waiting for traffic lights or putting on winter clothing; thus, people are encouraged to travel further.

For people **residing** in buildings connected to the system, the walkway fosters a renewed sense of freedom. This applies particularly to many of the seniors living on the system as it allows them to become more independent in their use of downtown space. The walkway not only makes it easier for these people to get around, but also provides greater recreational and social opportunities. For example, many of them indicated that since they have to exercise (walk) daily, the walkway is good for their health as they can remain active year-round (i.e., by avoiding icy sidewalks and inclement weather). Also, because of increased mobility and a greater sense of safety/security, residents are also encouraged to walk further distances and to do more, such as dine out at night or attend movies. Some respondents even indicated the walkway was responsible for their decision to move downtown saying they were proponents of the whole walkway concept.

Many of the **shoppers** feel the walkway is a definite asset for downtown since people can eat, shop, and run errands without having to leave the weather protected environment of the walkway system. Respondents also indicated that the system is a recognition of the extreme temperatures in Winnipeg and that people are more willing to come downtown to shop if they can do so in comfort. Still, others felt that the great value of the walkway as an amenity for downtown shopping is its convenience as people can get their shopping done without any hassles - no need for bulky clothing in the winter, and can avoid traffic and lights when crossing the street.

4.10 Summary

This survey of walkway users revealed some basic information about the characteristics of users, their usage patterns and, more importantly, their perceptions on the walkway system concerning a variety of user-related issues and aspects. Since the explicit nature of the questions elicited many comments pertaining to a wide array of user-related concerns, the survey findings - along with interviews, reference materials, and personal observations - allowed for a more in-depth analysis to be made of the Winnipeg walkway system.

Based on the analysis of the survey results, it would appear that **problems** associated with walkway usage tend to focus on concerns of orientation and access. The lack of a systemwide signage program, as well as non-uniform operating hours makes walkway access difficult and unclear at times. Street level accessibility, handicapped access, and nighttime security were also concerns of the walkway user. In terms of **benefits**, users identified weather protection, convenience, and improved pedestrian safety and mobility as positive aspects of the walkway system. A number of **usage patterns** were also identified as walkway use varied according to conditions of temperature and time of day.

These specific findings and analyses now form the basis upon which a final analysis on the state of the walkway system can be carried out in chapter 5 as the system is evaluated according to what has been learned from this chapter on user perception and behavior.

Chapter 5

THE WINNIPEG WALKWAY SYSTEM- EVALUATION & RECOMMENDATIONS

In chapter 4, it was determined how people perceive the various user-related aspects of the walkway system, including how each adds to (benefit) or detracts from (problem) the walkway experience. This chapter evaluates the Winnipeg walkway system and makes recommendations on the basis of these findings by examining the following user issues: access and orientation, comfort and convenience, safety and security, social concerns, and system usage. Each is dealt with separately in some detail in order to determine whether an issue is a problem, benefit, or an identifiable usage pattern and behavior. Concluding remarks on the state of the walkway system are made as follows:

- (1) issues identified as **benefits** are listed as such (no recommendations are necessary),
- (2) issues identified as **problems** are addressed and **recommendations** towards their solutions are proposed, and
- (3) any general usage patterns and behaviors of system users are noted.

5.1 Access & Orientation

User-related issues concerning walkway access and orientation can be broken down into three areas: hours of operation, signage and street level accessibility, and mobility needs of the elderly and handicapped.

5.1.1 Hours of Operation

An operational problem inherent to most walkway systems concerns the establishment of a continuous system open to the public during uniform hours. Multiple ownership of walkway connections makes it difficult to achieve an overall consistency and often results

in varying hours of operation. In Winnipeg, where walkways are both publicly and privately owned and operated, city officials face a similar dilemma as public access must be negotiated block by block with each new adjoining building owner. Although most connections are generally open between 7 a.m. and 10 p.m., uniform operating hours for the entire system has yet to be established.¹

The biggest concern for users regarding hours of operation centres around department store hours, especially those at Eaton's because of its central location on the system. Department store bridges are open only during store hours (9:30 a.m. - 6 or 9:30 p.m.), which effectively shuts off major segments of the system to downtown office workers coming to work early in the morning and those leaving later at night. Likewise, many of the respondents felt access to stores, restaurants, and theaters is hampered in the evening since some connections (particularly Eaton's) close too early to permit access by skywalk back to their apartment or parking spot. To a certain extent, non-uniform hours and limited accessibility discourages or prevents early morning and nighttime use.

PROBLEMS: The resulting problems for users are: (1) confusion about the availability of the whole network due to the lack of uniform operating hours, and (2) access is limited or prevented through various portions of the system when walkway connections and buildings are closed.

RECOMMENDATION: 1. The systemwide establishment of uniform hours of operation. To allow the public 24 hour access would be impractical considering the additional security costs this would incur and the fact that usage is nominal during the off-hours. However, uniform hours of operation should be established to alleviate some of the problems encountered by early morning and evening users - Monday to Saturday hours should be extended systemwide from 7 a.m. to 11 p.m. This also includes the renovation of Eaton's department store as a passageway should be secured within the building to allow people access when the store is closed.

¹ Refer to Appendix "E" for the current operating hours.

5.1.2 Signage & Street Level Accessibility

Another important operational aspect of walkway systems is appropriate **signage**. While many North American pedway systems have some sort of interior signage, often there is no family of signs to guide the downtown traveller through the entire system. Orientation on Winnipeg walkways is a major problem because of the lack of directional signs and maps and because of the inconsistency of what few signs exist.² Although frequent users find it relatively easy to use the walkway, people unfamiliar with the system experience the greatest difficulties with orientation. Users have troubles particularly in the underground portion of the system - Winnipeg Square and the Concourse - and in locating stairways, elevators, and escalators between the various walkway levels.

An aspect closely related to orientation is **street level accessibility** as signage is crucial for relaying directional information to users about walkway exits and entrances. Although the walkway components (overhead bridges) are quite visible from the outside, street level access is problematic since there are no external signs indicating the location of walkway entrances - this problem is compounded by the fact that most stairways, elevators, and escalators leading to the walkway are located internally within buildings. Likewise, many of the walkway exits to street level are not properly marked.

PROBLEMS: People unfamiliar with the system have a difficult time using the walkway to its full potential because of orientation problems caused by the lack of clear and consistent signage. In addition, poorly marked walkway exits and entrances creates accessibility problems between the three walkway levels, including access to and from the street.

RECOMMENDATION: 2. **The implementation of a systemwide signage program.** To improve street level accessibility and facilitate clear user orientation, the following signage program is proposed:

² It should be noted that the City of Winnipeg is most aware of this orientation problem and is in the process of developing a systemwide signage program consisting of a series of directional signs and maps. However, it is uncertain when this program will be ready for installation.

Part A - Signs

- uniform design and systemwide
- contain a universal symbol that is easily recognizable
- information on signs must be clear and easy to read
- the walkway symbol should mark entryways from street level, exits from the walkway levels, and changes in grade
- internally located stairs, escalators, and elevators connected to the system should be appropriately marked
- overhead signs in each skywalk indicating street below

Part B - Maps

- uniform design and systemwide - each building should have at least one system map, preferably in the lobby and/or at the walkway level
- maps should be displayed in a consistent manner - i.e., location, lighting, height
- should be at a location and height accessible to wheelchair users

Part C - Brochures

- pocket size and easy to read - should not be cluttered up with detail
- should include pertinent walkway data (such as wheelchair accessibility, street entrances, hours) and be available throughout the entire downtown

5.1.3 Mobility Needs of the Elderly & Handicapped

Accessibility needs of the elderly and the mobility-impaired constitutes yet another user concern. While the Winnipeg walkway is **almost** completely handicapped-accessible, there still remains two areas on the system not accessible by wheelchair: (1) the second level entrance connecting The Bay to the Bay Parkade, and (2) the stairway leading from the skywalk at 200 Graham Avenue to Winnipeg Square. The latter appears to give users the most trouble as this area is not only inaccessible by wheelchair, but many able-bodied people complained that the stairway was too steep, too narrow, and not conducive to two-way pedestrian traffic. Interior doors along the walkway also proved inconvenient for the mobility-impaired as many of the elderly and handicapped users had difficulty opening doors if they were alone.

PROBLEMS: The walkway connections at The Bay and Winnipeg Square creates accessibility problems for wheelchair users while interior doors along the system impedes movement for both the elderly and the mobility-impaired. The stairwell at Winnipeg Square is particularly troublesome for all users because of the passageway's narrow design.

RECOMMENDATION: 3. The provision of barrier-free access for all users of the walkway system. To facilitate easier walkway accessibility, especially for the mobility-impaired, the following improvements are recommended:

- (1) the installation of elevator lifts at both The Bay and Winnipeg Square locations;
- (2) that the city review the design of the Winnipeg Square stairway and to consider renovations that will make the passageway more conducive to two-way pedestrian movement; and,
- (3) that interior doors along the walkway route be supplemented with automatic push-button controls or that an agreement be reached with building owners ensuring that doors remain in the open position during periods of heaviest walkway usage (8 a.m. - 6 p.m.).

5.2 Comfort & Convenience

Comfort and convenience issues of walkway systems are examined under the headings of weather protection, system continuity, amenities, and transportation considerations.

5.2.1 Weather Protection

BENEFIT: One of the primary objectives that underscores walkway development in many North American cities is the creation of a pleasant pedestrian environment. Creating favorable conditions for pedestrian activity is often largely a matter of weather protection and climate control of temperature extremes. Considering the temperature extremes of Winnipeg's climate, perhaps the **greatest benefit** of the walkway is the year-round weather protection and climate control that the system provides downtown pedestrians - weather protection is the most desirable walkway feature for the majority of survey respondents. Given the severity of our winters, the walkway becomes an especially attractive and viable alternative for pedestrian movement as Winnipeggers are able to travel in climate-controlled comfort throughout a good portion of the downtown - again, this was reinforced by the survey results as most people (94%) favor the walkway over the sidewalk during cold weather.

PROBLEM: The only drawback concerning weather protection is that the entire walkway route is not climate controlled. The Bay Parkade is the only connection that does not offer complete protection as users are relatively exposed to extreme cold and wind in the winter.

RECOMMENDATION: 4. The installation of an enclosed pedestrian route through the Bay Parkade (second level). This is recommended for the following two reasons: (1) the parkade is not climate-controlled and offers little protection from the elements; and, (2) parkade traffic poses a risk for pedestrians.

5.2.2 System Continuity

BENEFIT: The integration of buildings and activities vis-à-vis walkway connections enables pedestrian movement through the downtown without the negative gaps (barriers, blockages) that often disrupt spatial flow. However, a series of walkway linkages can only truly become a system once the walkway connections are integrated into a sequential, unified space or continuous network. This is one of the positive features of Winnipeg's walkway as a continuous system of elevated bridges and underground tunnels allows the user to travel an uninterrupted (from vehicular traffic and street lights) and climate-controlled route extending from The Bay to the Westin Hotel. System continuity encourages people to use more of the downtown as the walkway makes pedestrian movement more convenient and efficient to those areas linked to the network.

RECOMMENDATION: 5. In terms of system expansion, priority should be given to the completion of the southern portion of the "loop" whereby the Convention Centre and Holiday Inn are tied into the system via connections at 400 St. Mary's, Royal Trust, and Eaton Place. It is up to the city to ensure that any future walkway development links directly into the remainder of the system, thereby maintaining a continuous, noninterrupted grade separated network. The planning department should also investigate the feasibility of extending the underground walkway from the Richardson Building northward to the Concert Hall/City Hall complex.

5.2.3 Amenities

Amenities deal with comfort, convenience, and the delight of the pedestrian. Besides offering the basic advantages of weather protection and climate control, it is important that the walkway provide other human amenities that make the walkway environment an attractive one.

BENEFIT: Probably one of the best developed walkway features concerning amenities is the multitude of sitting opportunities the system affords the user. Benches are located along most of the walkway route, while designated "food court" areas not only provide an assortment of eating selections, but also serve as potential meeting or resting places (i.e., coffee break, reading paper). Portage Place - a focal point for pedestrian activity - has trees, plants, a fountain and clock for focus, and a variety of different seating arrangements (benches, steps, planters). Although some people may perceive this area - Edmonton Court - to be nothing more than a "hang-out for undesirables", in reality the place has a sense of "freshness" and urban vitality to it. In terms of up-keep, the majority of the respondents felt the system was well-maintained, while many replied favorably to the city's new ordinance which prohibits smoking in skywalks.

PROBLEM: The problem concerning walkway amenities is not a matter of quantity, but rather a problem of location. Some amenities are located in out-of-the-way places and coupled with the lack of adequate signage, such facilities are hard to find - this particularly applies to public restrooms and telephones. For example, the restrooms in Portage Place are situated at the back of long hallways, while second level telephones above Edmonton Court are located within a dark alcove. These amenities are not only hard to find, but because of their isolated positions users are at risk to possible criminal-related activities.

RECOMMENDATION: 6. That extra security precautions be taken to ensure the safety of people using walkway amenities located in isolated places. Surveillance cameras to monitor these areas would suffice. Also, better directional signage is needed to indicate the whereabouts of such amenities.

5.2.4 Transportation Considerations

An important consideration of pedestrian circulation and convenience is the degree to which the walkway connects to other movement systems within the downtown. Winnipeg's walkway is well coordinated with **private transportation** as over 6,000 enclosed parking spaces are directly accessible from the walkway system. Parkades, both public and private, allow commuters to park in one of several locations along the walkway route and utilize it to reach their final destination. The results from the survey clearly indicate a strong preference for parkade parking among respondents, and is due largely to the fact that parkades offer automobile commuters both weather protection and increased accessibility through virtue of their direct linkage into the walkway.

The walkway is also well-integrated with **public transportation** as it merges with both local and suburban transit.³ Located at street level interfaces along most of the walkway route are such transit components as bus stops, transfer points, and pedestrian shelters. Most of the transit users arriving downtown from the suburbs indicated they are able to get off the bus within one block of their destination - the terminus for the majority of these trips were walkway-connected buildings. In some cases, however, minor operational problems prevent easy transferability between the transit and pedestrian modes. Inconsistent operating hours sometimes hampers walkway access between one's bus stop or parking space and place of work, while street level accessibility is a problem because of the lack of proper signage.

Another aspect of public transportation concerns local transit service within the downtown. In its commitment to ensure convenient downtown movement by means other than the private automobile, the city provides an additional system, the DASH bus shuttle service, which connects the major activity nodes to supplement the walkway system. Whereas the walkway facilitates movement between activity nodes in close proximity to one another, the DASH bus serves people moving greater distances. Since there is

³ Two of the busiest downtown transit corridors, Portage Avenue and Graham Avenue, run parallel to the walkway and intersect the system at a number of points.

considerable overlap of both systems, many people now find it more convenient to use the walkway - as a result, DASH usage has decreased significantly in the last couple of years. Nevertheless, the service definitely complements the walkway as people have the option of using either system for downtown movement.

RECOMMENDATION: 7. That accessibility between the street and walkway system be improved in order to facilitate clearer and easier transferability between the different modes of movement. Also, a transit-pedestrian mall has been proposed for Graham Avenue for 1993. Given this opportunity, it is hopeful that such an undertaking will not only improve the environment for transit users and pedestrians, but efforts must also be made to ensure that the mall is functionally integrated with the walkway.

5.3 Safety & Security

The extent to which the public will use an urban setting is often dependent on how safe and secure people feel. For the pedestrian, feelings of safety and security is partly contingent on protection from danger and physical harm, primarily protection from insecurity due to fear of vehicular traffic and criminality.⁴

5.3.1 Safety

BENEFIT: Since walkways offer complete separation of pedestrian and vehicular activities, one of the principal benefits of the Winnipeg system is that it provides an opportunity for most pedestrian movement to be made in an auto free area. This removal of the pedestrian-vehicle conflict eliminates the accident risk and increases both the actual and perceived safety of the walkway user. In addition, the walkway provides for safer winter walking conditions as users can avoid the hazards of icy sidewalks - this is especially beneficial to the elderly and handicapped.

⁴ Jan Gehl, *Life Between Buildings*, Van Nostrand Reinhold Co., New York, 1987, p. 173.

5.3.2 Security

An important lesson learned from other cities regarding walkway planning, design, and implementation is that walkway systems require special security measures. During the day walkways are essentially self-policing through virtue of high pedestrian volumes. However, portions of the system that remain open in the evening require special security precautions since many of these areas become more remote and isolated after hours.

This scenario is reflective of the Winnipeg situation as evident from the results of the user survey. People's perceptions concerning walkway security varies considerably according to daytime and nighttime use. During the **day**, most people feel safe using the walkway as high pedestrian volumes act as "natural surveillance" along the system giving the user a greater sense of security and protection - the old adage "safety in numbers" comes to mind.

PROBLEM: At night, however, there is a perceived danger on the part of users. Since there are considerably fewer people (users, merchants) on the walkway after hours, users naturally feel less secure as one can experience a greater sense of isolation and vulnerability - particularly on underfrequented areas where usage is low. An important concern related to these feelings is the fact that many of the nighttime users felt the walkway lacked an overall presence of security personnel and that more guards were needed to patrol the entire system. Part of the fear is also created by the types of people (the "undesirables") that "hang-around" the system after hours; some users felt intimidated by these people. By the types of security-related concerns expressed by most respondents, it would appear that feelings of insecurity are based more on the potential threat of a crime occurring rather than on reports of actual incidents.⁵ In actuality, the perceived problem of walkway security is greater than the real problem.

⁵ As reported by a number of building managers and security personnel when questioned about walkway security, the occurrence of crime-related incidents on the system are minimal.

RECOMMENDATION: 8. The improvement of walkway security through operational and design techniques. Presently, each individual building is responsible for providing their own security measures. This generally includes security personnel and surveillance cameras to monitor and patrol the walkway components of each building. Although most buildings provide an adequate level of protection, the presence of security personnel could be improved considering some areas on the system are only monitored by surveillance cameras and not patrolled regularly (if at all) by guards - the lack of a regular patrol is especially noticeable at night. In addition, at the time of the user survey (February), Winnipeg city police were not responsible for patrolling the walkway system. However, as of July of this year, the city now provides a two man patrol whereby uniformed police officers are required to make the walkway a regular part of their beat (everyday between 8 a.m. and 12 p.m.). This will definitely enhance walkway security and should have a positive effect on user's perceptions towards walkway safety.

Besides the addition of more security personnel to patrol the entire system, it is also recommended that future walkway connections be required to provide the following security measures:

- (1) that design techniques be employed in an attempt to avoid desolate and dark corridors, blind corners, and other places that provide hiding-places for would-be criminals;
- (2) that all portions of the system open to the public after 5 p.m. be under remote television monitoring and to assign public police to the system corridors;
- (3) high levels of walkway lighting; and,
- (4) skywalk bridges should be designed with large transparent areas to allow clear observation (by other pedestrians, motorists, police) from the street below.

5.4 Social Issues

When dealing with social issues related to walkway systems, much of the planning literature tends to focus on the concern that walkways cause social stratification. The location of walkway entrances, together with the fact that the majority of structures linked by the systems are "up-scale" shops, hotels, condominiums and office buildings, prompts

some critics to charge that walkways are elitist. This tendency for walkways to separate people according to economic class is a problem in many American cities.

On the surface, it would appear that Winnipeg could quite possibly have the beginnings of a dual level downtown society since the walkway exhibits some of these same characteristics - such as poor street level accessibility and connections to many "up-scale" buildings. To some degree this is true. Many of the "9 to 5" walkway users are typically office workers and businessmen, while most of the retail outlets on the second level of Portage Place are expensive stores and boutiques. When compared to situations in other cities, however, the extent to which social stratification is problematic on the Winnipeg walkway system is minimal. Personally, one does not get the feeling that a social problem exists as the walkway seems quite receptive and open to all classes of society. Although initially users may feel somewhat intimidated or alienated by the walkway, once people become familiar with the system they realize that walkways can provide new social opportunities as the system is able to penetrate the private realm and encourage the lowering of traditional territorial barriers. It should be mentioned that the socio-economic profile of respondents was not surveyed - future studies would do well to incorporate this as a possible basis for monitoring social stratification of the downtown pedestrian environment.

SOCIAL BENEFITS: The most significant social benefit of the Winnipeg walkway is the increased social connection fostered by bridging. For people residing in buildings connected to the system, the walkway promotes a renewed sense of freedom. This particularly applies to the many seniors living on the system as the walkway allows them to become more independent in their use of downtown space. The walkway not only makes it easier for these people to get around, but also provides greater recreational and social opportunities. For example, because of increased mobility and a greater sense of safety/security, residents are encouraged to walk further distances and to do more, such as dine out at night or attend a play or movie.

5.5 System Usage

By facilitating access to grades other than at street level, walkways offer pedestrians a new alternative to downtown movement. People now have the choice of either using the sidewalks or following the walkway network in climate-controlled comfort. It is largely because of this option that downtown pedestrian movement has been affected in the manner it has - walkways can cause major changes in where and how people eat, shop, entertain, and conduct business.

It is rather difficult to measure the degree to which the walkway has influenced behavior and movement patterns in downtown Winnipeg since statistics for street level pedestrian volumes before and after walkway construction are not available. However, to some extent variations in walkway usage and pedestrian behavior can be determined based on varying conditions of temperature and time of day.

5.5.1 Effects of Temperature on Walkway Use

The extent to which people use the walkway based on varying temperature conditions is as follows:

- (1) Given the severity of Winnipeg's winters, it is not surprising that a high majority of people (94%) prefer the walkway to the sidewalk (2%) during the winter months.
- (2) On an average spring or fall day, respondents showed no real preference towards either the walkway or the sidewalk as both are equally used.
- (3) For warm summer days, most people prefer to walk outside (65%) as opposed to using the walkway (18%) - since Winnipeg experiences such long cold winters, one might expect people to welcome the opportunity to walk outdoors during warm weather.

Viewing walkway usage from a seasonal perspective, it can be concluded that walkways are just as or more popular than sidewalks about seven months out of the year (October through April) in those blocks where walkways were provided as the alternative. These results clearly indicate that the walkway system has indeed affected pedestrian movement in the downtown, especially to the extent where most winter pedestrian activity occurs along the walkway route.

5.5.2 Hourly Variation of Use

Another walkway usage pattern to consider is hourly trip distribution. Results from the survey reveals the following characteristics about user trips:

- (1) On a typical winter weekday, the walkways in Winnipeg receive their heaviest use during the midday period (11:30 a.m. - 1:30 p.m.).
- (2) The majority of these midday trips are made by employees for eating and shopping purposes. Users identified four "activity hubs" as destination points for most of these walkway trips - The Bay, Portage Place, Eaton Place, and Winnipeg Square.
- (3) Walkway usage remains reasonably constant during the morning and afternoon. Trips made at these times are predominantly shopping-related.
- (4) Finally, usage begins to decline towards the end of the workday (around 4 p.m.), reaching its lowest level come evening. The majority of nighttime users are either shoppers or downtown residents. It can be assumed that most evening usage is for shopping and entertainment purposes.

5.6 Summary

As proposed at the beginning of this practicum, the primary objective was to examine the Winnipeg walkway system from a user's perspective in an effort to **assess the various user-related attributes of the existing system**. Of course, the key to fulfilling this original objective is the views and perceptions of the walkway user, for without them, any conclusions or recommendations would not be truly reflective of the existing situation or of user needs.

The attainment of these perceptions involved a carefully devised strategy whereby a questionnaire was developed and subsequently followed by a survey of walkway users. Preliminary analyses of the findings revealed some basic information about the characteristics of users, their usage patterns and, more importantly, their perceptions on the walkway system concerning a variety of user-related issues and aspects. Using this insight gained from the analysis stage, a number of benefits and problems related to walkway usage were identified.

In terms of **benefits**, since pedestrians are separated from vehicular traffic, improved pedestrian safety is accommodated. Walkways also facilitate pedestrian mobility, allowing most trips to be made in less time and in more comfort, especially in bad weather. Besides the obvious benefits of year-round protection and increased safety, the walkway affords new social and recreational opportunities for many of the downtown residents of buildings connected to the system.

On the downside, however, **problems** associated with walkway usage tend to focus on concerns of access and orientation. The lack of proper signage causes difficulties for people unfamiliar with the system and creates accessibility problems between the street and walkway levels. In addition, non-uniform operating hours makes walkway access difficult or unclear at times, and problems concerning handicapped access still remain. Finally, while crime on the walkway is not a serious problem, many perceive the system to be unsafe at night because of the lack of security personnel.

While the Winnipeg walkway system continues to evolve and expand, it is hopeful that a study of this type proves useful for guiding future walkway development. While it is strongly recommended that many of the suggested improvements be taken into consideration, it is also recommended that follow-up studies be carried out by the City. It is important to remember that this evaluation represents only a "snap shot" in time of the total walkway picture. Time and resource restrictions permitted only a limited number of interviews with people on the system over one seasonal period. Follow-up studies should be conducted during the summer season as well, while the perceptions of nighttime users and other downtown pedestrians must also be considered - such as those outside at street level or employees of buildings not connected to the system (i.e., City Hall, Air Canada Building). Issues related to other aspects of the walkway system should also be examined, including skywalk design, aesthetics, economic activities, and social stratification (such as the socio-economic profile of walkway users).

CONCLUSION

There is no doubt that walkways have become an integral part of our downtowns as they have proven to be very popular with both the general public and private investors -- they are definitely here to stay. Thus, in re-defining civic policies, the question is not whether we should have walkways, but rather a question of how they can serve us better. It would seem the pedestrian's interests are best met by the pursuit and support of a balanced strategy, whereby both above and below grade walkways functionally interrelate and complement other downtown movement systems. This requires the commitment and foresight of city officials to ensure that **pedestrian needs** are not only met over the short term, but over the long term as well as walkways continue to evolve and expand.

But what are these needs of the walkway user and what can be done to ensure an effective walkway setting for the fulfillment of such needs? Now that walkway networks have evolved into a substantial new form of urban development in many North American cities (including Winnipeg), a number of important user-related **lessons** regarding the planning, design, and implementation of walkway systems have been learned. These lessons, along with insights gained from user perceptions, allows us to plan for a more "user-friendly" walkway environment. If walkways are to provide safe, easy, efficient and comfortable pedestrian movement for **all** members of society, consideration must be given to the following basic principles of walkway development:

- (1) Signing is extremely important for pedestrian orientation and street level accessibility.
- (2) Control of walkway access is an important design goal.
- (3) Walkways require special security measures, especially for nighttime use.
- (4) Climate control is a very essential design feature.
- (5) Mechanically-assisted vertical connections - elevators and escalators - are imperative system elements.
- (6) Above-grade, at-grade, and below-grade components should be considered compatible elements in the overall pedestrian network.
- (7) System continuity and barrier-free access for the mobility-impaired are both desirable.

While cities would do well to adopt this set of principles for any planned or existing walkway project, experience has shown that the achievement of such ends is not automatic as system evolution is often a series of "trial and error" -- whereby mistakes are corrected and obstacles overcome. In Winnipeg, the Downtown Walkway System has undergone a similar transformation as the walkway has slowly evolved from a few unrelated utilitarian links into a continuous system of overhead bridges and underground tunnels. Along the way, city officials have realized a number of goals as set forth in the original walkway development plan, such as the creation of a unifying factor which links various components of the downtown, and the improvement of the pedestrian environment through climate control and weather protection. Although users have derived many benefits from the walkway system, a number of unresolved problems still remain. As the walkway continues to be improved, current issues such as disorientation, accessibility for the handicapped, and hours should become of less concern through better planning, design, and system coordination. Future walkway development in downtown Winnipeg is recommended, and expansion to the Convention Centre and Holiday Inn would certainly appear to be the next logical step since this would make the system more complete and continuous. Before the system can be allowed to expand, however, the existing user-related problems must first be overcome. It is also important that we examine the impact that future walkway development will have on street life as expansion to other downtown areas, such as City Hall or Broadway Avenue, must be sensitive to street-level pedestrian activities.

Assuming issues associated with walkway usage will be alleviated, certain fundamental questions remain unanswered. To what extent, for example, does the design of urban spaces such as walkways control our environment and the manner in which we live? Even if we invite walkway use to protect us from the natural elements, do we mind if they also control where and when we walk, what types of behavior we may participate in, who will be walking along side us, and what types of establishments are immediately available to us? Related to this question of control is the increase in the privatization of "public" space. As a

space becomes more private, real or perceived, it becomes more restricted as individuals are able to exert less control over their actions, behavior, and environment.

Other important issues reveal problematic dilemmas as the use of walkways spreads. Before they become widely promoted and accepted as a downtown redevelopment tool, their impact on areas of the downtown not connected should be studied - such as their effect on the merchants of South Portage. Is the reported growth experienced by walkways truly growth, or is it redistribution at the expense of other districts? A much clearer understanding of the long-term effects on streetlife created by the development of grade-separated systems must also be obtained. In terms of economics, aesthetics, and human activity, the elimination of the street level for all but vehicular functions is a very real scenario.

In conclusion, the practicum proposes the following **recommendations** for improving Winnipeg's Downtown Walkway System:

- (1) The systemwide establishment of uniform hours of operation.
- (2) The implementation of a systemwide signage program.
- (3) The provision of barrier-free access for all users of the walkway system.
- (4) The installation of an enclosed pedestrian route through the Bay Parkade (second level).
- (5) In terms of system expansion, priority should be given to the completion of the southern portion of the "loop" whereby the Convention Centre and Holiday Inn are tied into the system via connections at 400 St Mary's, Royal Trust, and Eaton Place.
- (6) That extra security precautions be taken to ensure the safety of people using walkway amenities located in isolated places.
- (7) That accessibility between the street and walkway system be improved in order to facilitate clearer and easier transferability between the different modes of movement.
- (8) The improvement of walkway security through operational and design techniques.

GLOSSARY OF TERMS

Pedestrian district - an area reserved for pedestrians, all vehicles being excluded; also called pedestrian precincts

Pedestrian mall - a street for pedestrian use only which formerly contained unsegregated traffic flow, with no implication as to grade, surface, covering

Pedestrian system - a series of connected walkways with no implication as to grade, surface, covering

Skywalk - an elevated bridge (or walkway) serving as a pedestrian connector between buildings; also known as skyways

Skywalk system - a network of elevated interconnecting skywalks; the network consists of skywalks over streets, second-story corridors within buildings, and various activity hubs

Transitway - pedestrian precinct that restricts, but does not totally ban vehicles; private cars are usually prohibited, but buses, taxis, and emergency vehicles are often allowed; involves narrowing of street carriageway, repaving and widening of sidewalks

APPENDIX "A"**Grade-Separated Pedestrian Networks in North American Cities¹**

	Number of Blocks	Number of Bridges	Number of Tunnels	Year Begun	Most Recent Connection ²	Ownership
Calgary	42	41	0	1970	3/85	Public
Cedar Rapids	10	12	0	1978	10/85	Joint
Cincinnati	15	18	0	1970	11/84	Joint
Dallas	36	15	26	1965	1/86	Joint
Des Moines	21	27	0	1982	6/86	Joint
Duluth	13	17	0	1974	12/85	Public
Edmonton	24	9	16	1970	3/84	Joint
Fargo	7	7	1	—	11/85	Public
Ft. Worth	31	16	10	1968	1/78	Private
Houston	60	21	51	1947	1/85	Private
Lexington	6	6	0	—	7/86	Private
Milwaukee	13	11	0	1961	3/86	Joint
Minneapolis	32	34	2	1962	5/86	Private
Montreal	32	1	3	1962	1/83	Joint
Rochester (New York)	18	6	1	1972	5/85	Joint
Rome (New York)	8	2	0	1977	1/77	Public
St. John (New Brunswick)	3	2	0	1983	12/83	Joint
St. Paul	33	39	1	1956	4/86	Public
Sioux City	11	13	0	1975	5/86	Joint
Spokane	13	16	0	1961	2/85	Private
Syracuse	8	6	1	1966	1/81	Joint
Toronto	20	3	13	1890	5/86	Private
Waterloo (Iowa)	4	3	0	1983	8/85	Public
Winnipeg	25	19	8	1977	3/89	Joint

¹The city of St. Paul surveyed 28 cities in June 1986; 24 responded, and four known to have grade-separated pedestrian systems—Atlanta, Buffalo, Omaha, and Rochester (Minnesota)—did not.

²As of summer 1986.

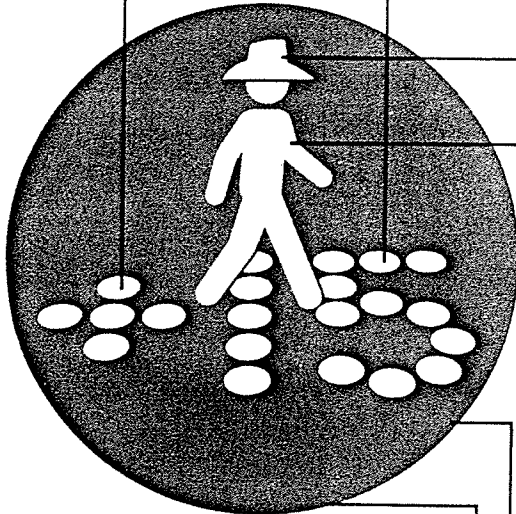
³12 kilometers.

Source: St. Paul Department of Planning and Economic Development,
*A Survey of Downtown Grade-Separated Pedestrian
Circulation Systems in North America*, December 1986.

Calgary's +15 Signage Program

'PLUS 15' WALKWAY SYMBOL

+15 Symbol combines historic and contemporary images



Stairs leading off the +15 are marked by pictographs designed to be compatible with the +15 symbol.



The name +15, indicates that the bridges are 15 feet or more above street level. Coined by City Planning prior to Canada converting to the metric system, the unique +15 is now a part of Calgary history.

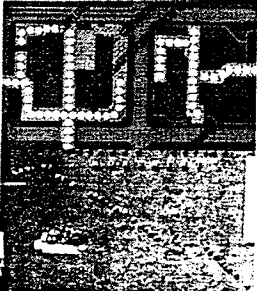


The Blackfoot were early settlers in the Calgary area.

The Blackfoot use circles to represent stars. Formations of star-circles typically adorn the tops of their teepees. The +15 formation in the symbol is based on the Blackfoot star-circle concept.



As suggested in the symbol circle patterns will be used on +15 floors to help as a guide through open spaces and intricate corridors.



The entire route of the +15 is indicated with circles on the map.

Repetitive elements were commonly used by the Blackfoot to indicate direction and to record historical events as shown here in one of their stone maps.



The white stetson which has been symbolic of Calgary for the past 35 years, conveys a warm welcome to use the +15 system.



The blue and white colours represent a clear sky with friendly clouds, the weather inside the +15 no matter what the weather is outside.



The +15 symbol marks entryways from street level to the elevated bridges and walkways.

APPENDIX "C"

The History of Walkway Policy & Development in Winnipeg

<u>DATE</u>	<u>ACTION</u>
Sept. 1957	The City and Eaton's enter into an agreement to construct Winnipeg's first pedestrian overpass linking Eaton's Dpt. Store with the Eaton's parkade. However, this link is not officially part of the walkway system.
Sept. 1974	The overpass linking the Convention Centre to the Holiday Inn is completed. This skywalk is to be the first link on the yet to be approved mandatory right-of-way (R.O.W.).
Dec. 20, 1976	The City enters into agreements with the building owners at the corner of Portage and Main to build an underground concourse on the site. Construction begins in 1977.
Oct. 19, 1977	City Council adopts "Downtown Alternatives Report" and thereby approves the designation of a mandatory R.O.W. for a weather-protected pedestrian system in downtown Winnipeg. The system is created with three objectives in mind: <ol style="list-style-type: none"> (1) to provide a unifying factor which links the retail focus with other elements in the downtown, (2) to improve the downtown pedestrian environment by emphasising pedestrian comfort and convenience, and (3) to provide an attractive climate-controlled and weather protected pedestrian environment to compete with suburban malls.
1979	Construction of the underground concourse at Portage and Main is completed and opened to the public.
July 1980	City Council adopts "Plan Winnipeg" as a guide for future development in Winnipeg. The document re-affirms the City's commitment to the walkway system as it is recommended that the walkway continue to be supported and developed. Policy: The city shall facilitate pedestrian movement between major activity nodes through the provision of a grade-separated pedestrian walkway system.
July 1980 (cont.)	Objectives: <ol style="list-style-type: none"> (1) To make the movement of both pedestrians & vehicles as convenient as possible within the downtown. (2) To provide climate-controlled pedestrian systems between the major activity nodes in the downtown.

- Oct. 1987 The downtown shopping complex Portage Place opens, linking The Bay to Newport Centre and Eaton's.
- Nov. 1988 The second level connection through the Post Office opens, making it possible to travel along the walkway in climate-controlled comfort from the Portage and Main concourse to The Bay.
- Dec. 1, 1988 Major Bill Norrie officially opens Winnipeg's downtown walkway system.
- Mar. 1989 The latest skywalk on the system opens, connecting 400 St. Mary to the ICG Building.
- Sept. 13, 1989 City Council recommends that the walkway system be named the Downtown Walkway System.
- 1977-1993 Since approval of the system in 1977, City Council has committed \$2,000,000 towards the construction of the walkway system. From 1989 to 1993 Council has allocated \$300,000 per year for further development of the walkway.

Sources: Ad Hoc Committee on Downtown Alternatives, *Downtown Revitalization*, City of Winnipeg Department of Environmental Planning, District Plans Branch, June 1977.

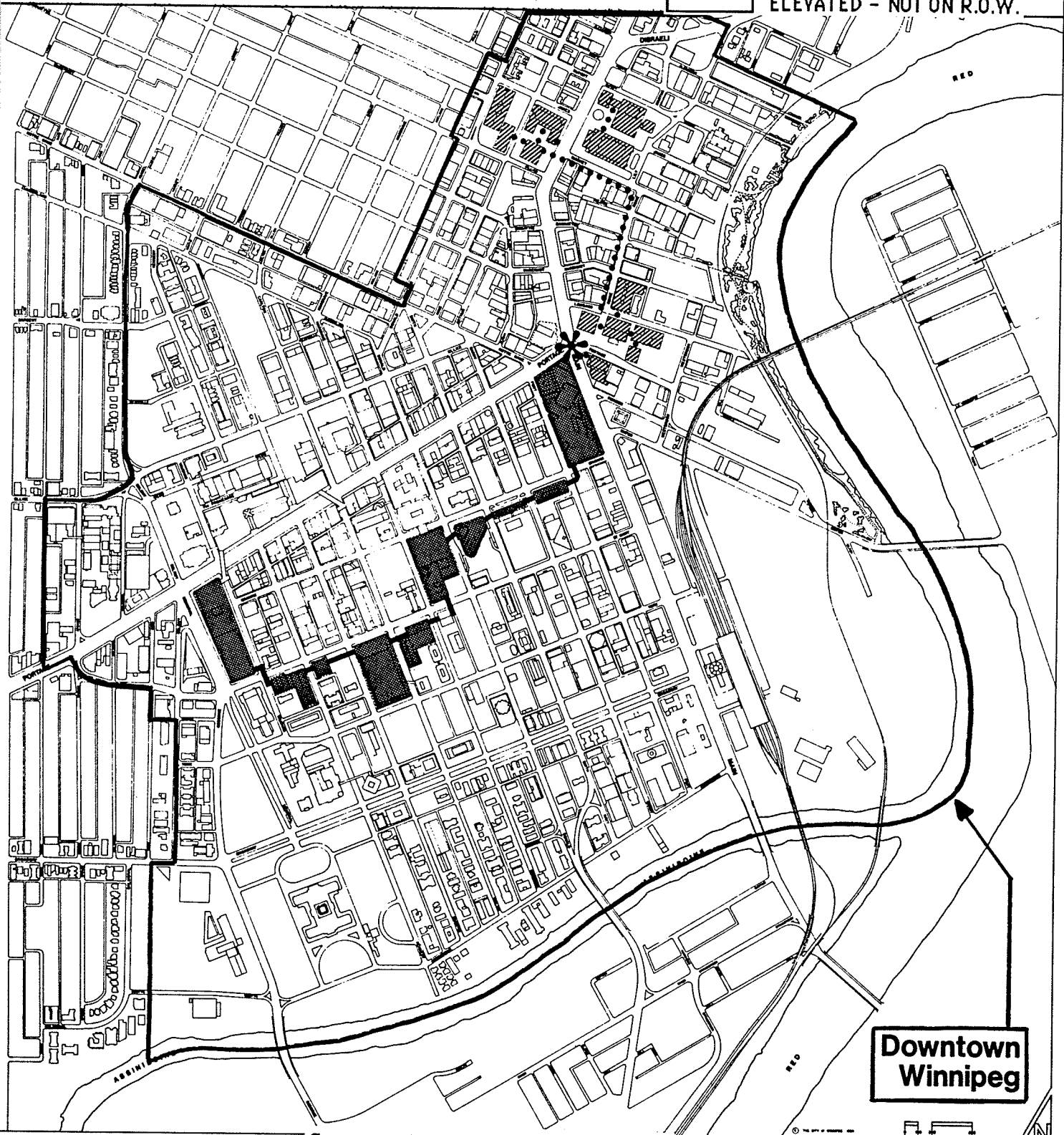
Plan Winnipeg: Summary and Recommendations of the Study Team, Department of Environmental Planning, Winnipeg, July 1980.

WEATHER PROTECTED PEDESTRIAN SYSTEM

RECOMMENDED MANDATORY RIGHT-OF-WAY

- ELEVATED WALKWAY R.O.W.
- UNDERGROUND WALKWAY R.O.W.
- * PORTAGE AND MAIN CONCOURSE

- SERVICED BUILDINGS
- ELEVATED
 - ▨ UNDERGROUND
 - ELEVATED - NOT ON R.O.W.



Source: The City of Winnipeg, 1989.

APPENDIX "E"**Downtown Pedestrian Walkway Facts**

BUILDING	Total Building Floor Area	Personal Service Outlets	Retail Outlets	Restaurants and Food Outlets	Financial Services	Company Offices	Structured Parking Spaces	Dwelling Units	Employees
400 St. Mary	155,920	3			1	5	95		400
ICG Building	282,422	5	1	3	2	29	476		900
The Bay	631,596			4			800		1,000
The Power Building	62,480	20	2			15			125
One Canada Centre	266,860	1	2		2	5	162		1,100
Portage Place	469,280	10	102	23	2	5	1,069		950
Village at Portage Place	374,907		15				492	376	50
Kiwanis Chateau	190,211						105	122	
Fred Douglas Place	170,000						48	120	
Portage Place (Southside)	49,420	2	6	3					50
NewPort Centre	178,358		4		1	14			750
Eatons	769,780			5			606		2,000
Somerset Place	159,615	7	2	1		46			475
The Delta Winnipeg	214,966		1	4			313		150
Eaton Place	819,722	16	65	19	4	26	350		2,600
Centennial Library	130,162						499		161
Post Office	671,397			1			13		800
Cargill Building	227,798	5			1	18			600
200 Graham	167,581					2	114		250
Shops of Winnipeg Square	146,304	13	18	17	1				350
Commodity Exchange Tower	629,883	1			1	106	986		2,150
Royal Bank	216,936				1	35			405
Scotia Bank	99,410				1				205
Toronto Dominion Bank	78,868				1				150
Bank of Montreal	244,908				1				800
Richardson Building	561,560				1	64			980
Lombard Concourse	41,529	10	14	3	1				70
Westin Hotel	300,433		1	5			560		350
Bank of Canada	94,477				1	3			110
Grain Exchange Building	366,253	3	1	1		120			800
TOTALS	8,773,036	96	234	89	22	493	6,688	618	18,731

Source: The City of Winnipeg, Dpt. of Environmental Planning, May 1990.

DAYS AND HOURS INDIVIDUAL PEDESTRIAN CONNECTIONS ARE OPEN TO THE PUBLIC

<u>PEDESTRIAN WALKWAY</u>	<u>MONDAY TO FRIDAY</u>	<u>SATURDAY</u>	<u>SUNDAY</u>
1. ICG Building - Bay Parkade	6:30 a.m.-6:00 p.m.	Closed	Closed
2. Bay - Portage Place	7:00 a.m.-Midnight	7:00 a.m.-Midnight	7:00 a.m.-Midnight
3. Portage Place - One Canada Centre	7:00 a.m.-6:00 p.m.	Closed	Closed
4. Portage Place - Place Promenade	7:00 a.m.-Midnight	7:00 a.m.-Midnight	7:00 a.m.-Midnight
5. Portage Place - Holt Renfrew Building	7:00 a.m.-Midnight	7:00 a.m.-Midnight	7:00 a.m.-Midnight
	<u>MONDAY TO TUESDAY</u>	<u>WEDNESDAY TO FRIDAY</u>	
6. Newport Center - Eaton's	9:30 a.m.-6:00 p.m.	9:30 a.m.-9:30 p.m.	9:30 a.m.-6:00 p.m. Closed
7. Eaton Place	7:00 a.m.-10:00 p.m.		7:00 a.m.-10:00 p.m. Closed
8. Eaton Place - Library	7:00 a.m.-10:00 p.m.		7:00 a.m.-10:00 p.m. Closed
9. Library - Post Office	7:00 a.m.-10:00 p.m.		7:00 a.m.-10:00 p.m. Closed
10. Post Office - Cargill Building	7:00 a.m.-10:00 p.m.		7:00 a.m.-10:00 p.m. Closed
11. Cargill Building - Winnipeg Square	7:00 a.m.-10:00 p.m.		7:00 a.m.-10:00 p.m. Closed
12. Winnipeg Square - Concourse	24-hour access at Commodity Exchange Tower entrance off Main Street and between Royal Bank and Scotia Bank off of Portage Avenue		
13. Concourse	24 hours		24 hours
14. Concourse - Bank of Montreal	6:30 a.m.-6:30 p.m.	Closed	Closed
15. Concourse - Lombard Square	6:00 a.m.-11:00 p.m.		6:00 a.m.-11:00 p.m. Closed
16. Lombard Square - Grain Exchange Building	6:00 a.m.-6:00 p.m.	Closed	Closed
17. Convention Centre - Holiday Inn	6:30 a.m.-1:30 a.m.		6:30 a.m.-1:30 a.m.
18. Civic Centre - Centennial Concert Hall	7:00 a.m.-11:00 p.m.	10:00 a.m.-11:00 p.m.	10:00 a.m.-11:00 p.m.

Source: The City of Winnipeg, Dpt. of Environmental Planning, April 1989.

APPENDIX "F"University of Manitoba - Survey of Pedestrians in the Downtown

This survey is being conducted by the University of Manitoba in an effort to examine the effectiveness of Winnipeg's **Downtown Walkway System**. Since the success of this study depends on your co-operation, please take the time to fill out this questionnaire and return it to _____.

1. What was your reason for coming downtown today?
- | | |
|---------------|-------|
| work | ___ |
| shop | ___ |
| eat | ___ |
| entertainment | ___ |
| other | _____ |
2. How did you get downtown today? car ___ bus ___ walk ___ other _____
3. When you drive downtown, where do you normally prefer to park?
- | | |
|------------------------------|-----|
| at a meter on the street | ___ |
| in an off-street parking lot | ___ |
| in a parkade | ___ |
| don't have a preference | ___ |
4. If you came downtown by car, how far is your parking space from your place of employment/destination? _____ blocks or parking space in same building ___
5. If you came downtown by bus, how far is your bus stop from your place of employment/destination? _____ blocks
6. If you work in the downtown, do you use the walkway system to get from your bus stop/car to your place of employment? yes ___ no ___
(If no): Why? _____
7. Do you use D.A.S.H. to get around the downtown?
frequently ___ occasionally ___ never ___
- If you use the D.A.S.H., to what buildings or points of the downtown do you normally take the D.A.S.H.? Destination(s): _____
- Since the opening of the walkway/skywalk system, do you use D.A.S.H....?
more ___ less ___ same ___
8. Do you normally use the walkway system when you are downtown? yes ___ no ___
- On a typical weekday, what hours of the day do you use the walkway system?
- | | | | | |
|-------------|----------------|---------------|---------------|----------------|
| morning ___ | lunchtime ___ | afternoon ___ | afterwork ___ | evening ___ |
| (7 - 11:30) | (11:30 - 1:30) | (1:30 - 4) | (4 - 5:30) | (5:30 - 11:30) |

9. Which would you be more likely to use under the following temperature conditions:

	inside walkway	outside sidewalk	both equally	
(a) cold day (-30 C)	_____	_____	_____	(check one)
(b) average day(10 C)	_____	_____	_____	(check one)
(c) warm day (25 C)	_____	_____	_____	(check one)

On a **cold day (-30 C)**, are you willing to go outside to shop, eat, etc.? yes ___ no ___
 (If yes): How far are you willing to travel by foot? _____ blocks

10. At **lunchtime**, do you use the walkway system to get around the downtown?

frequently ___ occasionally ___ never ___

(If you use the system): For what reasons?

to eat _____
 shop _____
 run errands _____
 other _____

Between what buildings? From _____ To _____

11. Is it hard to find your way around on the walkway system? yes ___ no ___

(If yes): Could you tell me why? _____

Could you tell me where? _____

12. Do you feel safe on the walkway system?

during the day yes ___ no ___

after hours yes ___ no ___ n/a ___

(If no): Could you tell me why? _____

What area(s) of the system feel unsafe? _____

13. What do you like most about the walkway system? (please check one answer only)

weather protection _____
 convenience _____
 separation from traffic _____
 stores, restaurants _____
 other _____

COMMENTS: _____

14. What improvements would you like to see on the walkway system? (check 1 or more)

- more skywalks/tunnels (expand system) _____
- more signs to help orient users _____
- maps along the system for orientation _____
- better accessibility to street _____
- better accessibility for handicapped/elderly _____
- uniform hours throughout system _____
- better security _____
- cleanliness _____
- other _____

COMMENTS: _____

15. Do you use the walkway system to get from one section of the downtown to another even though your place of destination is not connected to the walkway system?

yes ___ no ___

If no, is it because you find it more convenient to use the D.A.S.H.? yes ___ no ___

Characteristics of respondent:

Your sex? male ___ female ___

Your age? _____

General comments on walkway system:

Thank you for your co-operation!

APPENDIX "G"

User Comments from the Walkway Survey

Question 6(b) Reasons why respondents do not use the walkway system to get from their bus stop/car to their place of work.

- (1) No need to use walkway as bus stop/parking spot only a short distance from work. Parkade located in same building as work.
Quicker and more direct by way of the street.
- (2) No walkway connection from bus stop/parking spot to place of work.
- (3) Walkway system inaccessible in early morning as some of the links are not yet open (i.e., through Eaton's or The Bay). However, use the system after work to get to bus or car.

Question 11(b) Locations and reasons why respondents find it difficult to find their way around on the walkway system.

Entire System (in general)

- (1) It takes some time to learn where everything is - this could be a problem for first time and tourists/visitors.
- (2) Maps & signs throughout the system would be beneficial to those who are not frequent users or unfamiliar with the system.
- (3) Found system **confusing at first**, but now fairly easy to use since I am now familiar with the system.
- (4) For strangers, the system is poorly marked. Someone not familiar with system could have quite a time using the walkway to its fullest.
- (5) Need signs indicating street level access to the system.

Library to Winnipeg Square

- (1) At first, had difficulty finding the exits to get down to street level. This usually resulted in taking a wrong turn & ending up on the wrong street.
- (2) It is hard to locate exits and entrances between the street and skywalk level -especially in the Library and Post Office.
- (3) Should be signs indicating change in grade between Winnipeg Square and the skywalk level.

Portage & Main Concourse

- (1) Never really sure where to exit as I often end up on the wrong street.
- (2) Found this area disorienting at first since I've got a poor sense of direction when there are few windows or I'm underground. Easy to lose your sense of direction underground.

Question 12(c) Locations on the walkway system where people feel unsafe and why.

Entire System (in general)

- (1) Feels too deserted at night. System not utilized by the public as much in the evening hours.
- (2) Feel much safer in areas that are crowded with lots of people and activities.
- (3) System attracts an unsavory clientele in the evening - especially during bad weather. Security should do a better job at getting rid of loiters.
- (4) More security needed to patrol entire system. Security should have a better presence.
- (5) I rarely see any security people **in the skywalks**.
- (6) Security should be enhanced with more guards. A lot of surveillance cameras, but but they can't help someone who is already in trouble.

Portage Place

- (1) After hours, the type of people in the mall is intimidating. The crowd changes quite dramatically after 5 pm.
- (2) Too many teenagers/transients/undesirables hanging around in the evening - especially on the lower level in and around Edmonton Court and the food court areas.

Promenade Place Market hallway

- (1) Now that the grocery store is closed, the place is deserted at night.
- (2) Lack of shops and stores along the hallway makes the place feel deserted and unsafe.
- (3) No visible security personnel at any times - feels unsafe, especially in the evening.

Winnipeg Square

- (1) Seems to be more vagrants at night and in the early morning begging for money.
- (2) Fewer people at night - too quiet. Feel unsafe being underground.
- (3) In the evening, the place feels too isolated. You never know what you might run into or what might happen.

Winnipeg Square to Library

- (1) Not enough visible security in the evening. Should be patrolled more by security people.
- (2) At night, you feel more alone and there are hardly any security if anything should happen.

Question 14 Desired walkway improvements.

Expansion of System

- (1) System should be expanded from **400 St. Mary to Eaton Place**. System is inconvenient to use if you work in 400 St. Mary/ICG and want to go by skywalk to Eaton's. From 400 St. Mary it is only 2-3 blocks to Eaton's, but if you use the skywalk it is 7-8 blocks.
- (2) The walkway should be a complete circle or loop. We should be able to walk from ICG to Eaton Place directly. To stay inside you'd have to walk through Portage Place which is silly if you are on a 1 hour lunch break.
- (3) The system goes to some places in a roundabout way, so it takes longer. (i.e., ICG Building to Eaton Place)
- (4) System should expand to the **Convention Centre**.
- (5) System should expand north to include the **Concert Hall and City Hall**.

Hours of Operation

- (1) Due to Eaton's and The Bay not opening doors before 9:30 AM, system cannot be used properly by downtown residents and employees - this presents an obstacle prior to normal store hours.
- (2) For employees who start work before 9:30 AM, it would be convenient if Eaton's opened earlier so we could use system to get to work.
- (3) Eaton's opens late and closes early - this limits access to the rest of the system.
- (4) Some evenings the system closes too early and you can get stuck in the cold without a proper coat.
- (5) Some walkways close too early. If I work late I can't use the system and thus have to go outside to get to parkade.
- (6) The skywalks should be separated from the department stores so the walkway can be used at all hours.
- (7) Eaton's cuts the walkway system in half when they are closed - the whole system is rendered ineffective whenever Eaton's feels like closing. There should be an alley running through the store so the walkway can be open at all hours.

Handicapped/Elderly Access

- (1) No handicapped access from skywalk to Winnipeg Square. An elevator lift should be put in.
- (2) Stairway from skywalk to Winnipeg Square not conducive to 2-way traffic - too steep, narrow, and confining. This makes access awkward for all users.
- (3) Doors along the system are hard to open if you are by yourself. Automatic doors would improve access for the elderly and handicapped.

Question 13 Favorite walkway feature.Downtown Employees

- (1) In the winter, the walkway has greatly improved pedestrian flow, especially during periods when there is little time to spare (i.e., at lunch and breaks).
- (2) When you are in a rush, time is saved as you don't have to wait for traffic or lights cross the street.
- (3) In winter, you don't have to put on winter clothing to get around - this saves time and is more comfortable.
- (4) More variety to what and where you can eat at lunchtime.
- (5) Walkway is ideal for Winnipeg's unpredictable weather.

Downtown Residents

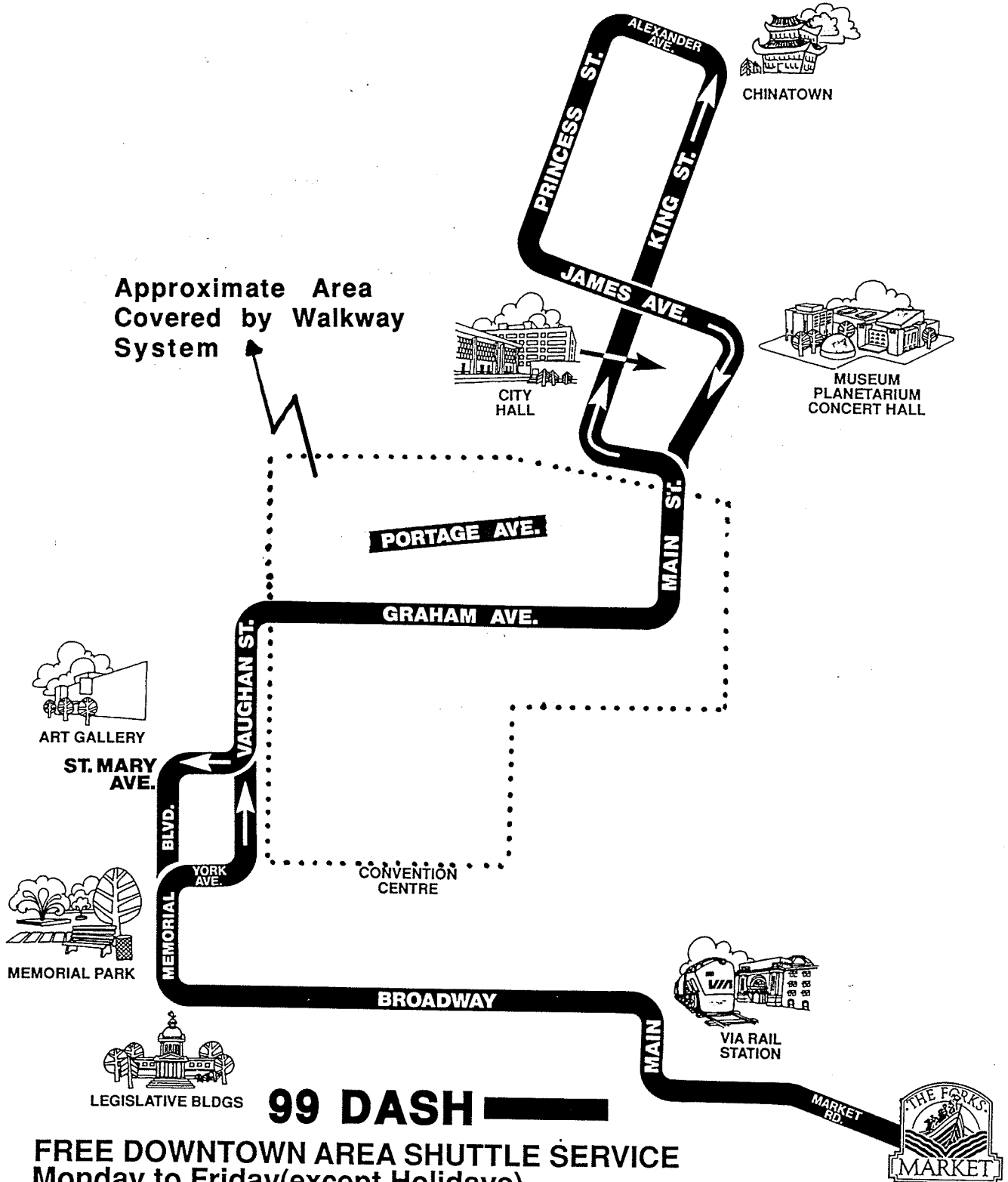
- (1) Gives more freedom to seniors like myself to get about the downtown.
- (2) The walkways allow us to exercise (walk) everyday of the year - therefore it is good for our health and there is no fear of slipping on icy sidewalks.
- (3) A godsend for older people who want to remain active. Feel much safer on the system than on the street.
- (4) I walk a great deal more since moving downtown - churches, movie theatres and bus stops are so handy.
- (5) As more people become aware of this system (especially older people) they will be more encouraged to live downtown. I am certainly happy that I sold my home and moved downtown. The skywalk was totally responsible for this decision - without it, I'd be in B.C. by now.

- (6) I enjoy the whole concept and moved to the downtown because of the walkway system. I hope more people can be sold on downtown living.
- (7) I think it is great with it's many excellent features: (1) the ability to navigate safely in the winter by avoiding the risk of slipping on ice; (2) easy access to entertainment and places to dine; and (3) the vast variety of shops.

Shoppers

- (1) So convenient in winter to get shopping done without any hassle - no need for bulky clothing and can avoid traffic and icy sidewalks.
- (2) Can do most errands without leaving the indoors. This is beneficial especially during periods of extreme heat or cold.
- (3) I think the system is great. It is a recognition of the extreme temperatures in our city and that people are more willing to shop and access businesses if they can do it in comfort.
- (4) The walkway system is a terrific asset to downtown, not only for connections but weather protection.
- (5) I think the system is a great amenity for downtown shopping.

Downtown Winnipeg DASH Route Map



99 DASH

FREE DOWNTOWN AREA SHUTTLE SERVICE
Monday to Friday(except Holidays)
11:00 a.m.-3:15 p.m.(approx)

DASH is the perfect answer for downtown shopping, appointment hopping, or touring the many sites in the heart of Winnipeg, including "THE FORKS".

It's fast and free! Just look for the DASH route map and schedule times posted at the special "blue" bus stop signs along the route. And DASH around downtown-free!



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