THE REGENERATION OF AN URBAN CORRIDOR:

ENRICHING THE EXPERIENCE OF A HIGHWAY STRIP AT THE CITY'S EDGE

BY

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A PRACTICUM SUBMITTED TO
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>

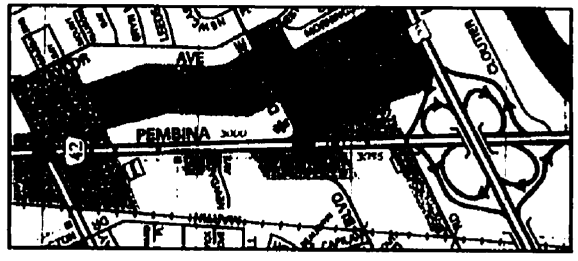
Abstract

In *The Granite Garden*, Anne Spirn envisions a future city where "The paths on which people move into and through the city are designed with care. Every street and highway, and every other transportation corridor, is designed for efficient movement, for pleasure, and as an asset to the neighborhood through which it moves" (Spirn 1984, 270).

This practicum provides an examination of one of those "paths on which people move into and throough the city", a Winnipeg traffic corridor, Pembina Highway, between the Killarney Ave., Kirkbridge Dr. intersection, and the Perimeter Highway. The practicum looks at what traffic corridors are, what factors have contributed to their present structure, appearance, and character, and what can be done to improve the experience both of being in the corridor and of moving through it. The focus of the proposal is on community liveability and the pedestrian environment.

The practicum begins by reviewing various historic and current factors which have influenced the evolution of cities and streets. The corridor, Pembina Highway and its context are analyzed, and factors which affect the use of the site are examined.

The results of a literature review are presented in an overview of current design ideas and issues associated with streets, cities, and neighborhoods. Issues identified by the research are used to generate a functional, cohesive, and aesthetically pleasing design for the site. Plant material, pedestrian walkways, open space, bicycle paths, signage, and lighting are all part of the requirements for an attractive, more human scale street environment that reflects the character and identity of the community, provides opportunities for people to move easily through the area, and is supportive of local businesses. This design presents the Pembina Highway traffic corridor as a meaningful and vital urban placeas well as an important gateway to Winnipeg.



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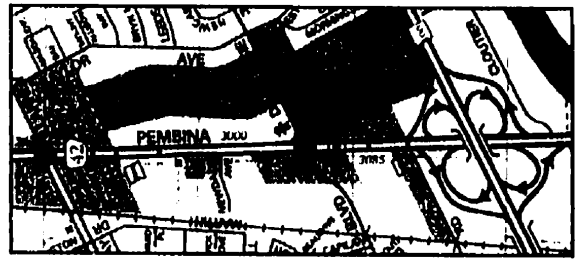

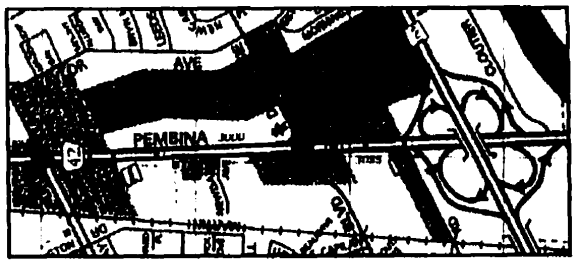

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1-1 Pembina Highway looking north *(photo F. Cholakis)*

1. Introduction

> The city is a vast and complex functioning organism but it has its deepest meaning as a place for intense human interaction, as a medium for creative and dignified living. (Halprin 1966, 279)

In the epilogue to his book *Freeways*, Lawrence Halprin points out a contradiction of city life. Throughout history people have lived in communities because there are many advantages and rewards for doing so, but there are also difficulties and negative aspects to all cities which have always been a part of the experience. Outdoor spaces in European cities have always been greatly admired by North Americans who look to them as models of ideal design. In fact, circumstances vary so much from one city or even one neighborhood to another that what is needed and works well during a certain period in history and in one location can be totally inappropriate or inadequate in another. The uniform treatment of many streets and outdoor spaces in North American cities is one of the things that makes them so uninspiring.

1-2 Westminster Court parking lot *(photo F. Cholakis)*

Possibly the single greatest difficulty in designing streets and their associated outdoor places has been caused by the increase in the speed and volume of vehicular traffic over the past several decades, and the fact that the need to respond to the voracious demands of that element has resulted in other factors being downplayed or overlooked. One of the most important of these is that cities must provide settings for an essential human need, that of social interaction. Kevin Lynch describes the problem, "The traditional street served many functions beyond that of passage. It was market, workroom, and meeting hall. We have shouldered these functions out of the right-of-way, to the advantage of traffic and to society's loss. We improve streets by widening the auto lanes, at the expense of pedestrians, trees and other marginal nuisances" (Lynch and Hack 1984, 202). In the Summer 1997 issue of *Places* , Ken Greenberg describes the street as a "complex urban element that addresses many needs through an intricate layering". He sees those needs as; transportation, services and utilities, subdivision of land, social and political interaction, commerce, and symbolic representation (Greenberg, 1997,8).
The Pembina Highway traffic corridor, like all other sites, is unique. It has its own history, its own strengths and weaknesses, its own constituents, and its own opportunities and constraints. It is an inextricable part of an ever changing, evolving world, and as such will continue to be affected by economic, technological and societal factors.

1- 3 Curb cut at Chimney Ridge Apts. *(photo F. Cholakis)*

This practicum examines some of those factors in an attempt to determine how they may have shaped the site thus far, and how they may be used to its advantage in the future. They include: the automobile, housing, social and political interaction, urban morphology and family and societal values. It also looks at the early history of Winnipeg and of the site, and attempts to interpret the character of the site. It then looks at broad design issues for cities, streets and outdoor spaces and proposes a design which could be inserted into the existing matrix of physical and social factors, acting as a catalyst to foster and promote positive social processes, such as observing, discussing, learning, empathizing and relating, that are essential for a rewarding and fulfilling life in the community.

1-4 Pembina Highway at the Perimeter (photo F. Cholakis)

Practicum Objectives

Highways, freeways, expressways and heavy traffic routes are a fact of modern life. Their numbers appear to be increasing daily, and we all spend what is probably a disproportionate amount of time driving on them. There has been a great deal of legitimate concern about the problems associated with these traffic corridors; air pollution, urban sprawl, and disruption and division of neighborhoods are most frequently cited.

There are many factors which could change traffic corridors dramatically in the future. Environmental concerns will have a greater influence on decisions made by society. An increasingly plausible scenario will be automobiles which are either electric battery powered, or run on alternative non polluting fuels. Another possibility could be that mass transit options will either drastically reduce the use of the automobile or be combined with it into efficient systems which offer the best features of both.

Traffic corridors exist, and will continue to be built and to fill a vital need. They have already sliced through the urban fabric, and in many cities have caused irreparable damage, and that is something we cannot change. This does not mean that we must accept them in their present form. By examining the physical makeup

1-5 Killarney Ave. Pembina Hwy. intersection (photo F. Cholakis)

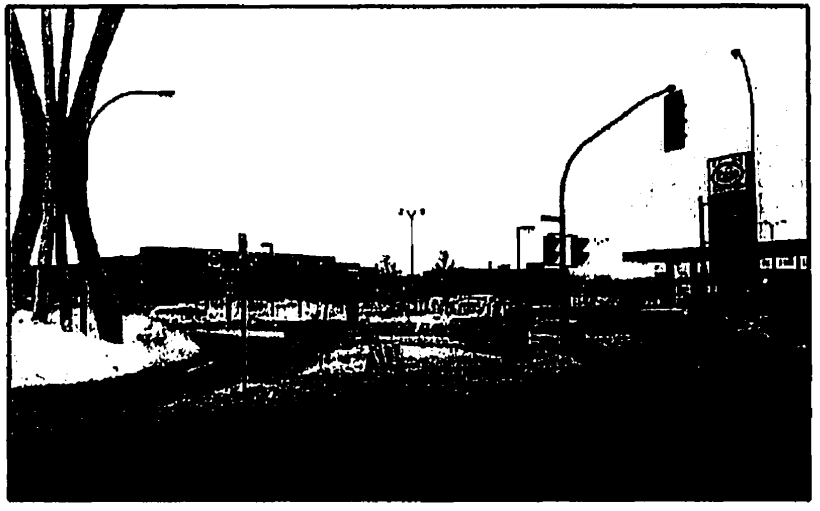
and the history of traffic corridors and their context, I believe that it is possible to identify the factors which contribute to a vital and effective street.

The goal of the practicum is to determine a design strategy which will apply the ideas of community livability and an enhanced pedestrian environment to this site, revealing its potential for regeneration.

The objectives are: 1.) to determine why the regeneration of the corridor is important, 2.) to present historical background to illustrate how traffic corridors have evolved 3.) to examine different elements along Pembina Highway to identify what should be done to improve it, 4.) to describe how ideas for better use of the open space around the retention ponds can be developed, and 5.) to devise a design strategy for the Pembina corridor which will be site specific while having implications for other sites.

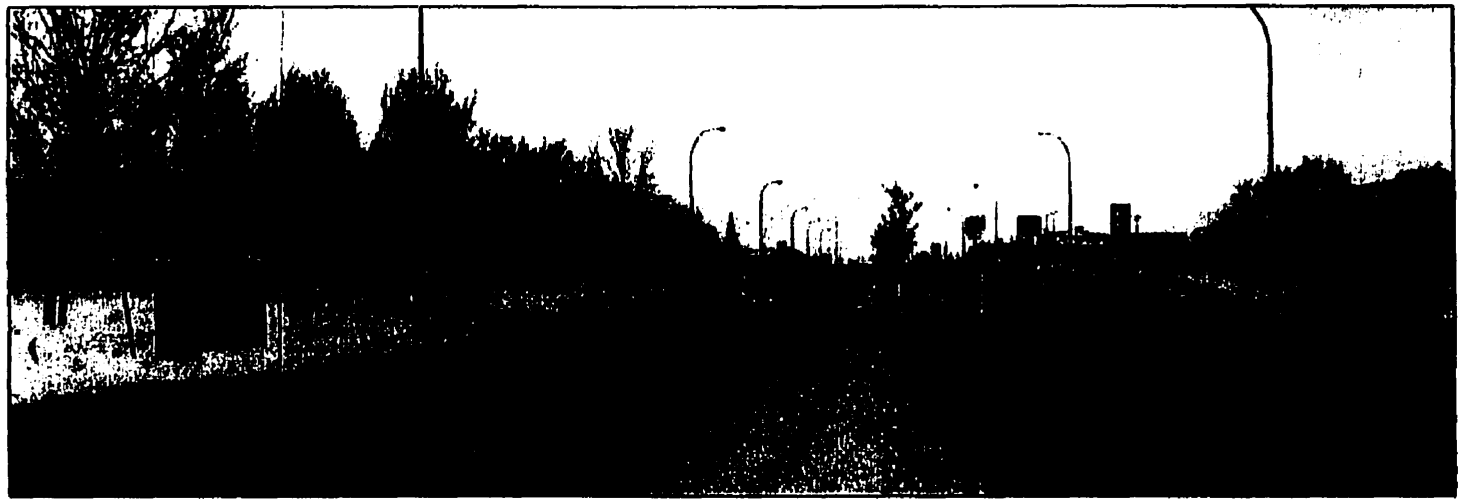
Scope of the study

In the event of future major changes to Winnipeg and to the present automobile culture, I could envision Pembina Highway with a mass transit system running down the center strip, with green corridors on either side.



1-6 Traffic island Killarny Ave. intersection (photo F. Cholakis)

What was once six lanes of concrete would be densely planted with trees, shrubs, and flowers. Bicycle and pedestrian paths would meander through plantings which would provide wildlife habitat and connect to other green spaces. While an attractive scenario, this conversion from highway to parkway is unlikely to take place for some time. For now, this practicum looks at the interim condition, the urban and suburban typomorphology, the character and identity of the existing traffic corridor and its context, and the many opportunities to regenerate the Pembina Highway corridor in order for it to become a center of the community which has human scale and a sense of meaning. Conditions such as infill development and development in other areas of the city or the province may influence this site in the future but are not addressed here.



2-1 Pembina Highway looking south to overpass *(photo F. Cholakis)*

2. The Evolution of the Urban Traffic Corridor

Urban morphology

In describing how the very first settlements came into being, Sibyl Moholy-Nagy talks about " the formation of spaces, volumes, and lines of communication [which] were responses to often contradictory regional, ethnic, economic, political, and religious developments." (Moholy-Nagy 1968, 81). The "pattern" or form which the settlements took, was the result of "the predominance of one communal concept over other coexisting ones, and it repeated itself wherever similar conditions existed" (Moholy-Nagy 1968, 81). The earliest villages are thought to have existed between 8000 and 4000 B.C., and were based on the need for a defensive position.

Before the Industrial Revolution, cities from different cultures and different time periods had many similarities. They were usually located on a river or harbor which provided an efficient way of transporting goods, and it was necessary to have a defensive wall surrounding the compact settlement which usually included a citadel.

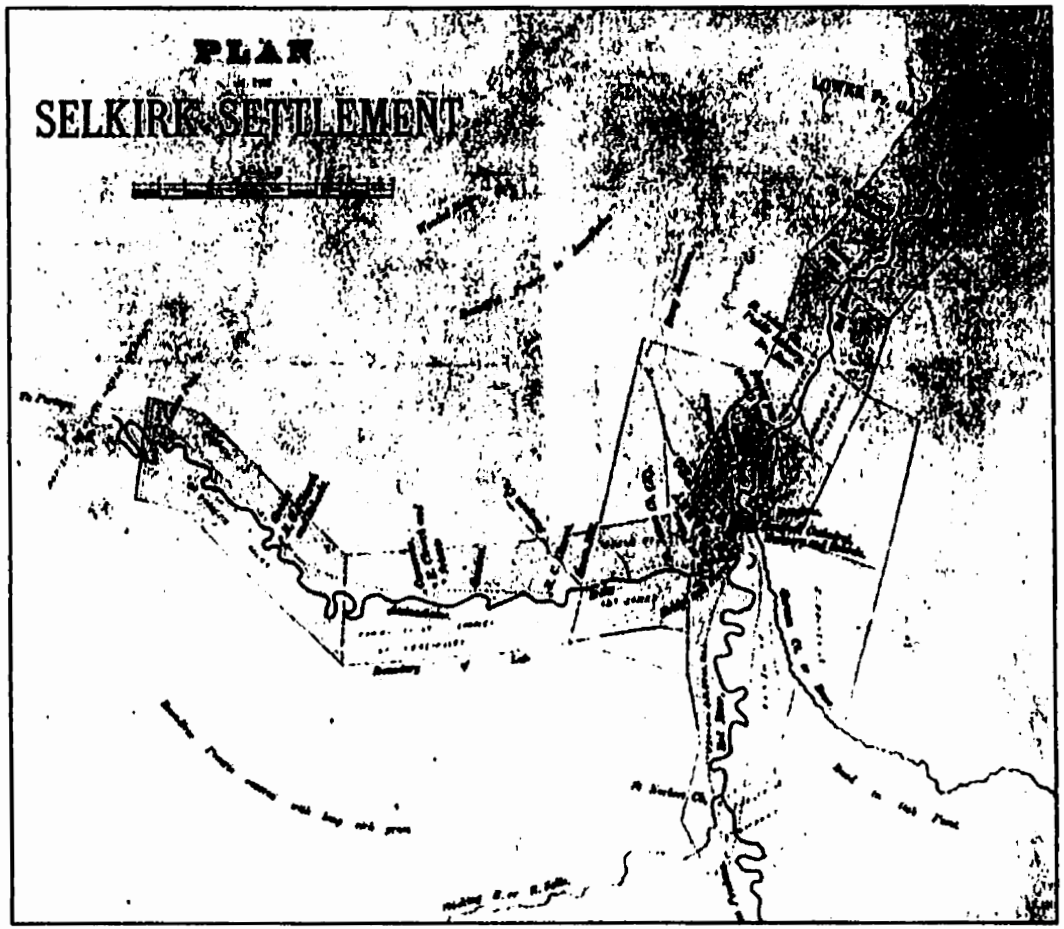
The earliest settlement form was geomorphic, characterized by a strong connection between the landscape and building. Another assumed a concentric form, which symbolized an ideal, and was influenced by religion. Modular plans first seen in Egypt, represented a different system of organization. It imposed upon the community, or building modules, predetermined dimensions, as opposed to a plan generated from within. Examples of the orthogonal grid can be found in ancient India, China, Mexico and Japan. In modern Japan, entire environments are based the modular unit, which was the forerunner of the Bauhaus principle (Moholy-Nagy 1968, 163).

In *City Life*, Witold Rybczynski explains the three historical urban models Kevin Lynch uses to describe the ways cities have been built. The first is a "cosmic" model. "Cities whose spatial layouts symbolically represented specific rituals and beliefs". Some of these beliefs were religious, while others had to do with the calendar, the equinox, or imperial rule. The second model is the "practical" city. This is a city which is governed by and for commerce, and these cities are usually based on an orthogonal grid. "Such cities are pragmatic and functional; they grow according to material needs, as new parts are added and as old parts are altered. Their urban form derives from simply the addition of undifferentiated parts; ...unlike cosmic cities, they are not subject to a single overriding philosophical guiding principle" (Rybczynski 1995, 44). Lynch's third model is the "organic" city. This type of city is seen as a kind of organism, "cohesive, balanced, indivisible. Although they do not utilize visas or axes, and appear confusing, organic cities do have an organized hierarchy of spaces, discernible to those who are accustomed to them. Medieval towns are organic-their layouts look natural rather than man-made" (Rybczynski 1995, 46). To these, Rybczynski adds a fourth, "the automobile city", which suggests the reason for the dramatic changes in cities in the twentieth century.

The modern city is not nearly so reliant on the physical characteristics of a site as the premodern cities were. An article by Martin Woollacott (*The Ottawa Citizen,* 25 October 1996), points out, "Rivers and roads, proximity to raw materials, seat of government or centre of religion, those staples of geography matter less than they did, thanks to revolutions in transport and information."

Paul Spreiregen states that all cities have a general overall shape, and he uses the following classifications to describe their shapes: "*Radiocentric:* ...the most frequently found urban form, *Rectilinear::* ...usually has two corridors of intense development emanating from the center, *Star:* ...a radiocentric form with open spaces between

the outreaching corridors of development, *Ring :* ...a city built around a large open space, *Linear:* ...the linear shape is usually the result of natural topography which restricts growth or the result of a transportation spine. Stalingrad in the Soviet Union was planned as a linear city. *Branch:* ...a linear form with connecting arms, *Sheet:* ...a vast urban area with little or no articulation" (Spreiregen 1965, 53).



2- 2 Settlement pattern along the Red and Assiniboine Rivers (from Winnipeg: An Illustrated History by Allan Artibise)

It is not surprising that the Red River settlement pattern was determined by the Red and the Assiniboine Rivers and the point where they met. Deep, narrow, river lots extending back from the river's edge were based on a system of land division that had been common along the St. Lawrence River, and were a distinguishing feature of the settlement. All subsequent expansion evolved from this pattern, and, as a result, Winnipeg's morphology has, at its core, a distinctive three pronged armature. As the city grew, it remained firmly attached to these three original concentrations, north from the forks, on both sides of the river, becoming Main St. and Henderson Highway, south from the forks, St. Mary's Rd. in St. Boniface, and Pembina Highway in Fort Garry. To the west, along the Assiniboine River, becoming Portage Ave. By the mid 1800's both sides of the Red River were sparsely settled from St. Norbert to the Red River settlement, and between the two colonies the distance was sixteen miles by water or nine miles by trail"(Shipley 1969, 15).

Zoning

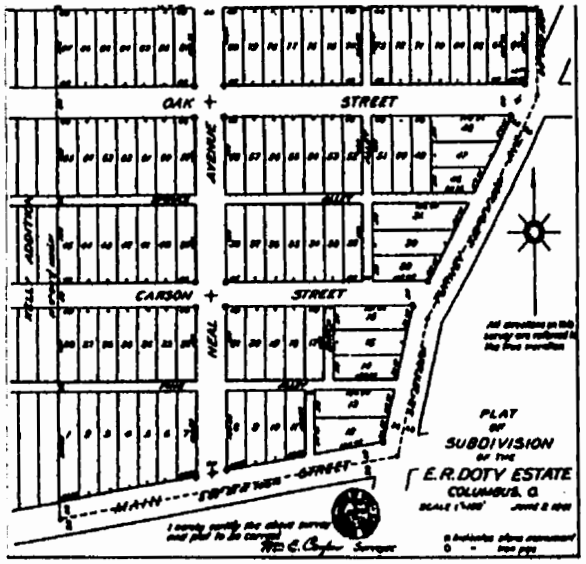
Zoning restrictions are the controls placed on architects and developers governing what they can and can not do. Use-based zoning developed as a reaction to the excesses of the Industrial Revolution. Architects and planners tried to create ideal communities where people could escape from the dirt and confusion of cities. One of their ideas was to bring the fresh air of the country into the polluted cities. Another was to provide blocks of decent housing for workers. It has been suggested that city planning is the most complex of all design and that it should take into account the passage of time. Designers now look at cities as organic entities where change is continuous and a "master plan" cannot provide a perfect solution. Because circumstances and needs change, objectives must also change, and planning must be an open ended process (Middleton 1987, 117).

Before the beginning of the nineteenth century, there were no restrictions on the actual use of land. As cities developed it became apparent that the distinction between the public and the private domain were very important. There was a need for services such as street maintenance, the operation of police and fire departments, a water supply, and sewage disposal to be managed by government. By the middle of the nineteenth century many public regulatory measures were established. Many laws were the result of increased crowding and

unsafe conditions in cities. For example, laws governing fireproofing buildings and laws governing potable water sources.

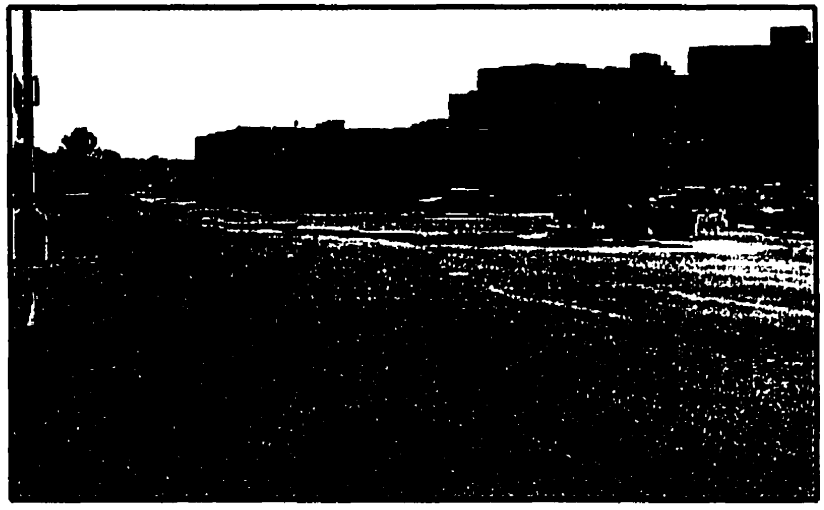
Housing codes, forerunners of zoning were adopted as a result of crowding and slum conditions in cities. The adoption of a zoning ordinance in 1916, in New York City, was the result of a threat to property values posed by the unregulated erection of tall buildings. It was argued that the construction of the forty-story Equitable Building cut off light and air from its neighbors, depressing their value. The public adopted zoning ordinances because it was in the public interest to safeguard adequate light and air. By the end of the 1920's zoning had become generally accepted as a basis for regulations protecting public health and welfare (Sprieregen 1965, 175).

Current urban regulations include the official city plat, and the zoning ordinance. The official city plat is a legal document which shows all public streets and private lands, as well as easements on private land. It also designates land for parks, hospitals, schools, police stations, and libraries. Official city plats are the basis for taxation, and are very difficult to change once they are filed. According to Paul Sprieregen, "The major difficulty with plats is that anyone can file, even very poor ones, and once filed, they become indelibly stamped on the land. Their street patterns may run counter to topography, the block size and shape may be ridiculous, but those streets and blocks have legal status" (Sprieregen 1965, 177).



2-3 Example of a city plat (from Engineering Drawing by Thomas E. French and Charles J. Vierck, 590)

How a city grows, how it is laid out and what its tangible



2-4 Fort Richmond Plaza parking lot *(photo F. Cholakis)*

physical makeup consists of, affect its residents in innumerable ways. Not only in our safety and general living conditions but other more subtle ways. It has been suggested that we not only learn from our environment but that our behavior is influenced and affected by it. According to Kenneth Jackson, in his book *Crabgrass Frontier: The Suburbanization of the United States,* "the space around us - the physical organization of neighborhoods, roads, yards, houses, and apartments - sets up living patterns that condition our behavior"(Jackson 1985, 3).

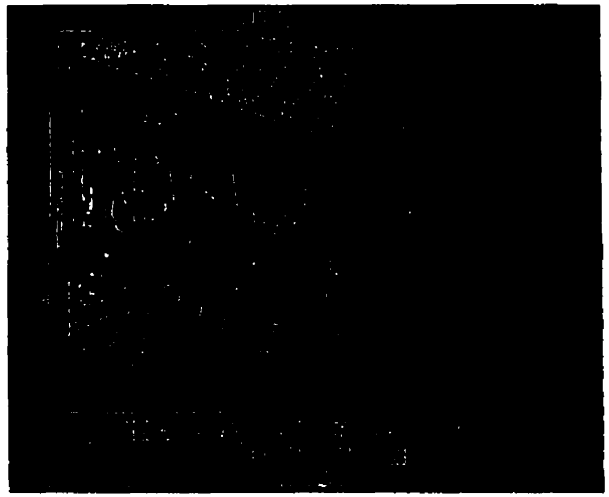
Many people remember with nostalgia growing up in communities where, as children, they could easily walk to stores close to where they lived. Small grocery stores, bakeries, movie theatres, restaurants, pharmacies, and in some cases even the workplace, were easily accessible either walking or riding a bicycle. What Philip Langdon refers to as, "the community layout and the pattern of daily life it fostered", may or may not have shaped the behavior of its inhabitants, but there is no doubt that it provided the beginning of a child's experience, not only of his or her neighborhood, but of the world (Langdon 1994, *x*).

2-5 Richmond West Mall (photo F. Cholakis)

The suburbs

The urban traffic corridor is inextricably tied to the evolution of the modern American suburb. The terms "suburb" or "suburbia", technically refer to any kind of settlement beyond the city itself. In modern times it has come to mean a low density residential community made up primarily of single family houses, beyond the core of a large city. Although separate, it is economically and culturally dependent on the city itself, and in most instances is within the political jurisdiction of the city.

In *Crabgrass Frontier: the Suburbanization of the United States,* Kenneth Jackson states, "suburbia has become the quintessential physical achievement of the United States; it is perhaps more representative of its culture than big cars, tall buildings, or professional football. Suburbia symbolizes the fullest most unadulterated embodiment of contemporary culture; as conspicuous consumption, a reliance upon the private automobile, upward mobility, the separation of the family into nuclear units, the widening division between work and leisure, and a tendency toward racial and economic exclusiveness" (Jackson 1985, 4).



2- 6 After World War I new underground railways linked London suburbs with the city. (from London: The Biography of a City by Christopher Hibbert, 237)

History of the suburbs

It is usual to identify the word *suburb* with the classic North American model which seemed to appear so suddenly and proliferate so rapidly between 1945 and 1973. In fact, the middle class residential suburb was a product of the eighteenth century, and reflected conditions peculiar to its place of origin, London. Robert Fishman explains that suburbia was much more than "a collection of residential buildings," it was an expression of the values of the society that created it, and was based on the principle of exclusion. "Work was excluded from the family residence; middle-class villas were segregated from working-class housing; the greenery of suburbia stood in contrast to a gray, polluted urban environment. Middle class women were especially affected by the new suburban dichotomy of work and family life. The new environment supposedly exalted their role in the family, but it also segregated them from the world of power and productivity" (Fishman 1987,4).

The idea of people wanting to live on the outskirts or peripheral zone of a city is the antithesis of what was considered desirable in the premodern city. In London, until the middle of the eighteenth century, all wealth and

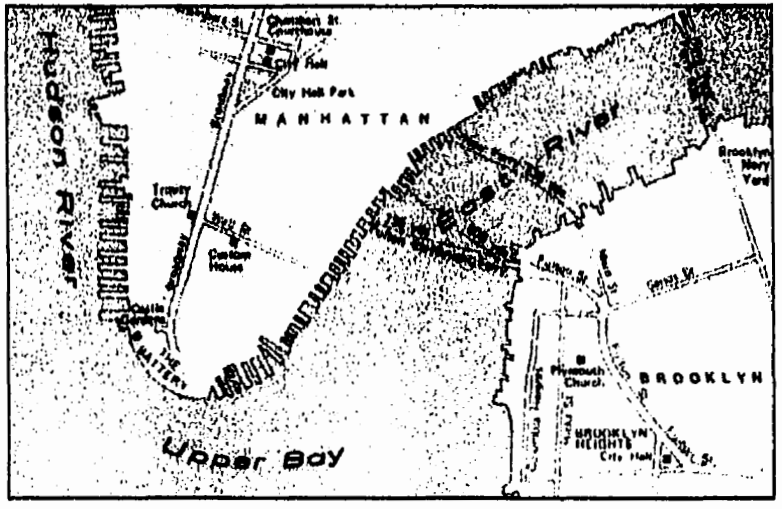
power was concentrated in the heart of the city. As one moved away from the center, social standing and income diminished. Work and residence were combined in the same house, and apprentices as well as families were housed and fed there. The choice of an area in which to live depended upon which district was best for business, and districts were not segregated.

Suburbanization was a result both of cities growing larger, and also of a widespread trend away from rural living, to living in cities and towns, what Fishman calls "a wider process of metropolitan growth and consolidation that was draining the rural areas and small towns of their population and consolidating them in ... cities" (Fishman 1987,10). The British population had grown dramatically in the eighteenth century and continued to do so in the nineteenth century. At the same time there was explosive growth in cities such as London and Manchester which had become powerful economic centers. At the beginning of the nineteenth century in England, only 17% of the population lived in settlements larger than 20,000 people. By 1890, partly as a result of the industrial revolution, 72% lived in urban areas. In the United States, less than 4% of the population lived in cities of 10,000 or more in 1800, but by 1890 it had jumped to 28% (Fishman 1987 11). As we approach the end of the twentieth century, more than 100 million people live in suburbs in the United States, a higher proportion of people than in central cities or rural areas. (Jackson 1985, 4).

As it became necessary for cities to expand, the form which that expansion would take had to be determined. The traditional manner would have been to have those with wealth and power congregated at the center, while the poor were pushed further away to the outskirts. Most European and Latin American countries followed this pattern. In England and in North America, the pattern was toward middle-class suburbanization (Fishman 1987, 11). In the 1840's, the northern industrial city of Manchester established an enduring model for England and America but it was never adopted in Paris, where government intervention set urban design on a very different path.

By the 1870's the growth of the suburbs had shifted to North America, driven by the force of rapidly expanding cities. From this point on the American suburbs became the standard, based on traditional structure as well as some innovations. Their form was shaped by the classic elements: they were separate from the city center, yet were accessible by streetcar or steam railroad, their residents were a combination of the old business elite and a new middle class, and houses were set on large lots, where there was an emphasis on family life and the enjoyment of nature.

In New York, where the population was over one million by 1860, Washington Square and Gramercy Park



2-7 Proximity to Manhattan made Brooklyn Heights a popular suburb in the early 1900's.
(from Crabgrass Frontier by Kenneth T. Jackson, 26)

were at the city's edge, and Brooklyn Heights across from lower Manhattan was ideally located for access to the city. In Boston, people moved to Beacon Hill and in Philadelphia, to Germantown.

Although there were many changes in American cities during the latter half of the nineteenth century, including extensive growth and transportation innovations, these were not the primary reason for the demand for suburban housing. According to Kenneth T. Jackson, the rampant growth in cities brought about cultural changes in attitudes toward family values. The value of domesticity was strongly associated with moral superiority. "As more people crowded together in public spaces, families sought to protect home life by building private spaces" (Jackson 1985,47). The single family dwelling was the epitome of this dream.

As well as cultural motives, there were economic motives for the move to suburbanization. In both England and the United States, builders and investors recognized the investment potential of turning agricultural land beyond the city limits into building lots.

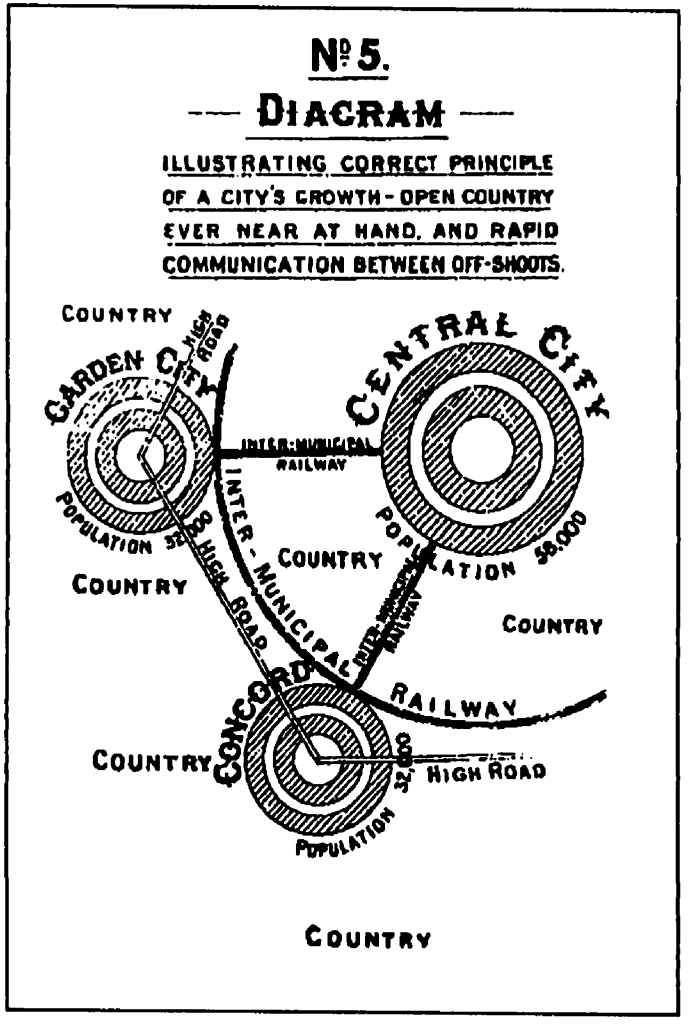
The world's first picturesque suburb was Llewellyn Park in New Jersey, thirteen rail miles from Manhattan. Llewellyn S. Haskell collaborated with Alexander Jackson Davis on setting out the four hundred acre community plan which placed the theme of natural beauty at the forefront. Llewellyn Park featured two innovative design features, a curvilinear road and open space at the centre, and a serene, private setting for those privileged enough to live there. It was the beginning of the carefully planned suburbs that would eventually become a part of American life (Jackson 1985, 78).

Of the many designs for American suburban developments three stand out as being particularly significant. They are: Riverside, Illinois designed by Frederick Law Olmsted and Calvert Vaux in 1869; Radburn, New Jersey by Clarence Stein and Henry Wright in 1929, and Broadacre City by Frank Lloyd Wright in 1935. Of the three, only Riverside was substantially completed, and Broadacre City was never built. All three designs reflected a new philosophical outlook toward habitation and changed urban morphology. In each, there was the combination of a desire for a serene, pastoral lifestyle in the country while acknowledging advances in technology found in transportation, electricity, and communications (Girling and Helphand 1994,48).

In the generation after the Civil War, Fredrick Law Olmsted had became the best known landscape architect in America. Olmstead and his partner Calvert Vaux, achieved wide recognition as a result of having designed

Central Park. Olmstead was a strong proponent of suburbs, and believed they should be a synthesis of town and wilderness. (Jackson 1985,79). Along with his partner Vaux, Olmstead laid out sixteen suburbs, including Brookline, and Chestnut Hill in Massachusetts, Sudbrook and Roland Park in Maryland, and Yonkers and Tarrytown Heights in new York, but his best known and most influential was Riverside, outside Chicago.

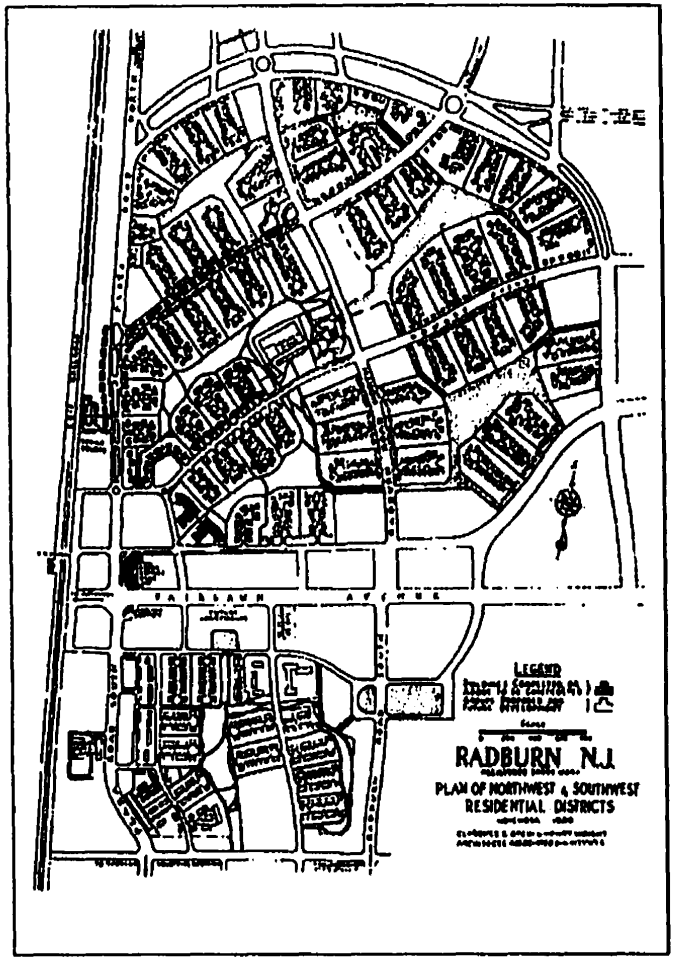
Riverside was designed to promote "rural attractiveness", and achieved this by a variety of means, most notably, graceful curving streets, and interconnected open space systems. From the railway station at the center of the community, curved parkways led to tree lined streets. The streets widened at intersections into small open areas, softening the distinction between roadway and park. "There was a systematic hierarchy of open space types from the private realm of home, to the local realm of the street, to the community with its shopping center and train station, to connections to the metropolitan region" (Girling and Helphand 1994, 53).



2-8 Garden City plan (from Yard Street Park, by Cynthia Girling and Kenneth Helphand, 41)

Clarence Stein and Henry Wright were part of a group called the Regional Plan Association of America, who were highly influenced by the ideas of Ebenezer Howard who championed the garden city movement which originated in Britain in the early part of the century. The garden city movement was an effort to describe not only the physical characteristics of an ideal urban form, but also to define an economic, political, and philosophical basis for modern life. The form taken by Howard's new town proposal was diagrammed as a circle with agricultural green belts around it and a rail connection to other new towns (Van der Ryn and Calthorpe 1986, 195).

It was hoped that Radburn would be an American garden city, with an additional component included, the automobile. It was this recognition of the impact of the automobile that was unique, and had an important part in the development of the design. As a result of the stock market crash of 1929, Radburn was scaled back drastically and was never completed. In spite of this, design components formulated by Stein in the development of Radburn had a substantial impact on subsequent suburban design. There



2-9 Radburn morphology (from Yard Street Park by Cynthia L. Girling and Kenneth I. Helphand, 43)

were five main components, 1.) the superblock, 2.) specialized roads built for one use instead of all uses, 3.) complete separation of pedestrian and automobile, 4.) houses turned around, and 5.) park as backbone. The components were interconnected and part of an overall plan (Girling and Helphand 1994, 60).

Broadacre City was also designed for the automobile, but Wright's vision was quite different from that of his contemporaries. In 1932 Wright published *The Disappearing City*, which detailed his plans. More than just a city of the future built around the automobile, it represented an ideology which placed the self reliant individual at the center of a democratic and equitable society. The proposal was for an extremely low density development in which the individual would be closely connected to the land, not in the sense of park like surroundings, but rather as an agriculture landscape. During the Depression people were distrustful of industry and a back to-the-land-ethic was very appealing. According to Wright, the plan for Broadacre City was based on modern technological changes; electrification, the automobile, and mass production, all of which contributed to the opportunity for decentralization, which was at the core of his proposal.

The form Broadacre was to take suggests integration at every level. It has no center, no hierarchy and no zoning. The architecture was to be what he called "organic architecture", rational, mass produced and efficient. The street grid was used as an organizing device and as a way of interacting with the land toward a unity of landscape and architecture.

The enthusiasm for a new urban form and the building boom which ensued in the 1920's was stopped short by the Depression and World War II, but during the 1930's other factors appeared which, combined with the pent up demand for housing, led to the great American postwar housing boom. One of the most important factors was government involvement. In 1931, the President's national Conference on Home Building and Home Ownership made four federal housing policy recommendations. They were: 1.) The creation of long term, amortized mortgage rates, 2.) the encouragement of low interest rates, 3.) the institution of government aid to private efforts to house low income families, and 4.) the reduction of home construction costs. In 1934, the National Housing Act established the Federal Housing Administration (FHA), which was designed to help restore the country's building industry. Previously, builders had been forced to operate on a thin margin of credit. Under a new plan, they could draw on Federal Housing Administration mortgage guarantees to get working capital to complete their

projects, and developers had an assured supply of capital to undertake work (Fishman 1987, 175). The impact of the Federal government 's housing policies was enormous, although it has been suggested that in some ways the effect on cities was negative, contributing to the prosperity of the suburbs to the detriment of the central city (Jackson 1985, 194).

From 1945 on, downtowns began to decline while growth was directed almost entirely to the suburbs. Between 1950 and 1970, American central cities grew by 10 million people, their suburbs by 85 million. By 1970 the percentage of Americans living in suburbs was almost exactly double what it had been in 1940 (Fishman 1987, 182).

New subdivisions built between 1945 and 1973 shared a number of common characteristics. The first is that they were located on the periphery of the city. Americans moved to the suburbs in droves. In 1954 it was estimated that 9 million people had moved to the suburbs in the previous decade. Although there were vacant lots available in the cities, they were not suitable for the kind of homes people wanted. In 1946 the only area where city construction was greater than that in the suburbs was in New York city.

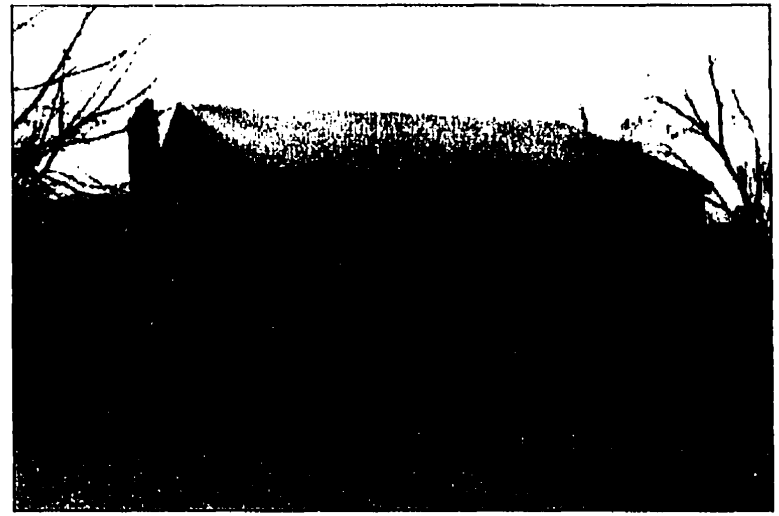
A second characteristic typical of the subdivisions was their low density. New houses were completely

2-10 Suburban housing Winnipeg (photo F. Cholakis)

detached, placed on lots which averaged between 80 x100 feet, and 40 x100 feet. There was also a much greater proportion of land area allocated to streets. In addition to consuming large quantities of land, low density development means heavy reliance on the private automobile. As a result, North American cities began to develop in a way which could accommodate increasingly heavy traffic moving to and from the suburbs.

The situation was very different in areas of Europe where widespread destruction during the war drove the need for immediate housing, and apartment buildings provided the solution. In areas that had not suffered damage, there was neither the land, the money, or the tradition, for single family housing.

The trait of the post war suburbs which has been criticized most frequently, is their architectural similarity. With a few exceptions, by far the most popular and accessible type of dwelling was the tract house. In order to save themselves design fees, most developers offered no more than a half dozen different house plans. The result was a high degree of repetition and monotony. This sameness extended across the country as well. Historically, different regions of the country had developed indigenous architectural styles suited to their particular needs and requirements. This tradition began to erode after World War I, and later disappeared completely as various styles would become popular, then give way to the next fad. As a result, by the 1960's, the same styles were used all



2-11 Suburban housing Winnipeg *(photo F. Cholakis)*

over the country. Today, you will find a ranch bungalow in Los Angeles or in Boston. A split level or a colonial style house might be in Winnipeg or in any other city in North America.

Another feature of almost all subdivisions was the fact that the builders made it very easy to buy, and as a result housing was no longer the status symbol it had once been. Prior to the 1940's, buying a house required a large financial commitment which, for many people, was not an option. Because of government financing, mass production, high wages and low interest rates, in many cases it was cheaper to buy a house in the suburbs than to pay rent in the city.

The final characteristic which almost all suburbs shared was their racial and economic homogeneity. Although the post World War suburbs, provided affordable, good quality housing and an opportunity for a secure lifestyle for millions of families, they also had qualities which were less desirable, such as the fact that they were blatantly discriminatory. Discrimination on the basis of color or income had always existed, but it was exacerbated by the automobile. Jews and Catholics as well as blacks had been excluded from certain neighborhoods for a long time, but after the war it became public and official, sellers simply would not deal with minorities (Jackson 1985, 241).

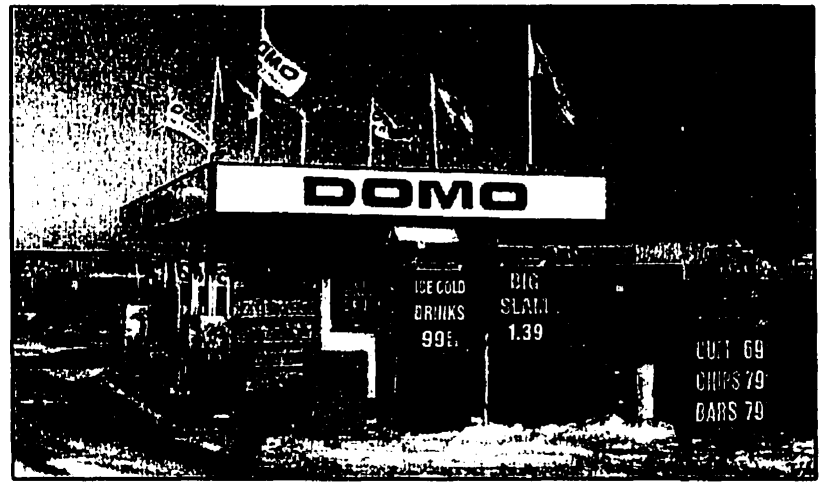
Another criticism of suburbs was that by allowing young families to have homes of their own they weakened their ties with extended families. Women were isolated from work and from contact with employed adults, and most residents were in a similar income or social group. As an article in the New York Times warned, "Mass produced, standardized housing breeds standardized individuals too, especially among youngsters" (Jackson 1985, 244).

Suburban morphology

The expansion of suburbs and the shaping of the twentieth century city has been strongly influenced by advances in technology and transportation. Following World War II the impact of the automobile and trucking industries were particularly evident in the United States. In addition to making it possible for suburbanites to commute to the city, interstate highways and ring roads made it feasible for industries to locate on the periphery. This allowed suburbs to evolve into more than the "dormitory towns" they were when the railway was the primary mode of transportation. Suburbs in the United States today have become more like cities. They have their own downtowns and employment bases (Lang 1994, 39).

The character of a fringe environment such as Fort Richmond, is greatly affected by, if not determined by, what sort of form it took as it grew. The difference between a sudden, large scale, all-at-once growth pattern, and a slow, incremental, very small scale growth pattern, is very marked. The former results in a monotonous, rigid, uninspiring urban fabric. The latter is likely to be more interesting and hospitable, with greater diversity and character.

Although we tend to think of all suburbs as similar in many ways, if not identical, they have evolved in diverse ways and have taken different forms, which has had important implications for their character and for the way they function. Different street patterns create very different communities. The traditional gridiron has been criticized for being insensitive to topography and environmental features, but it produced a fine grained, well connected urban fabric. More recent suburban streets have less street frontage and fewer intersections and neighborhood access points. Traffic is channelled to arterials, and the pattern is not conducive to walking or riding a bicycle.

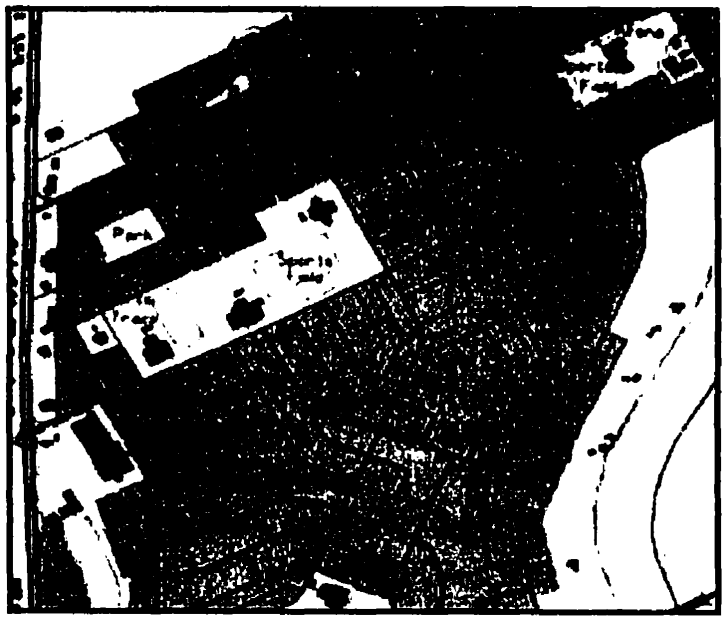


2 -12 Gas bar at Fort Richmond Plaza *(photo F. Cholakis)*

A paper published by Michael Southworth and Peter M. Owens in the Journal of the American Planning Association, "examines the expanding metropolitan fringe in urban design terms and identifies some of its organizing principles and spatial typologies...the paper also makes observations about emerging patterns and the ability of these places to adapt to new conditions" (Southworth and Owens 1993, 272).

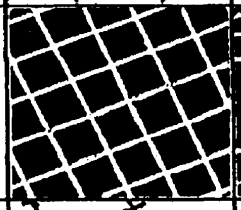
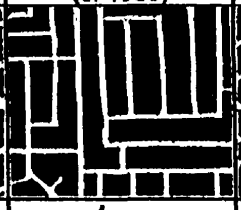
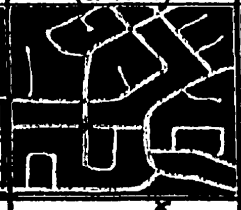
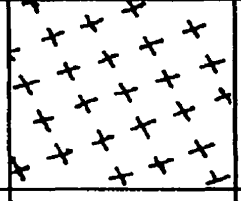
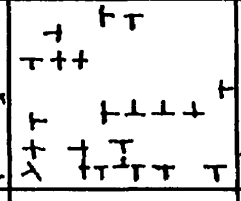
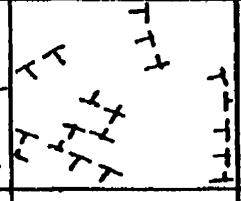
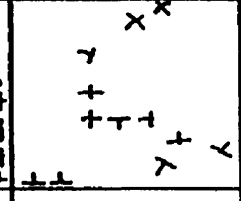
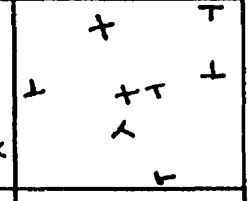
The authors look at eight communities in the San Francisco Bay area and identify five distinct patterns of community growth at the urban edge. They described them as: 1.) *Speculative gridiron.* This was the most common form prior to World War II. It uses existing rural roads as starting points then builds large interconnected gridirons on to them. This pattern maximized the amount of street frontage that could be sold, and provided easy access to other parts of the community. Another important attribute was the fact that it was infinitely expandible. 2.) *Interrupted parallels.* This system also used rural roads for a framework, but in this case, rather than streets acting to establish a pattern of interconnection between developments, subdivisions became internally focused and disconnected. Blocks were stretched into long rectangles, and streets began to curve, rather than connect through to other developments. These suburbs are characterized by homogeneous character and physical form. 3.) *Incremental infill.* This example indicated that rather than conversion of large tracts of land to

suburban lots, there was an intermediate stage in which land was subdivided into large parcels of five to forty five acres. When the area was eventually developed into large scale subdivisions the fragmented pattern of land ownership and street pattern dictated a more haphazard infill. The result was a greater variety of housing types and a finer grain. 4.) *Loops and lollipops*: This type is typical of the subdivisions of the 1960's and 1970's. In this, the developers took the elements of the interrupted parallels pattern to the next level. The move away from the gridiron was complete. The strong directional level of the gridiron, which is still residual in the interrupted parallels, becomes twisted and non directional. The subdivision streets are almost all curving loops or cul-de-sacs, which are inwardly focused. They are quiet, but provide little or no connection to adjacent subdivisions. Their strongest connections are typically to arterial streets or regional highways. This pattern was designed to emphasize uniformity and stability rather than richness or variety. 5.) *Hybrid of Gridiron, Interrupted Parallels, and Cul-de-Sacs*:..In this example the grid pattern of a 19th century town was enveloped by expansion during which each type of pattern appeared. This pattern represents the increasingly complex nature of the urban edge as individual centers are joined into multicentered regions (Southworth and Owens 1993, 272).



2-13 Fort Richmond street patterns
(from Manitoba Department of Natural Resources map)

Although the study deals with a small sample in the San Francisco Bay area, because the development industry works at a national level, similar patterns and conditions can be found all over the United States and Canada. Both Fort Richmond and Richmond West are typical of the *Loops and Lollipops* pattern. If the two areas are recognized as essentially one neighborhood divided by an arterial, the description is entirely accurate.

	Gridiron (c. 1900)	Fragmented Parallel (c. 1950)	Warped Parallel (c. 1960)	Loops and Lollipops (c. 1970)	Lollipops on a Stick (c. 1980)
Street Patterns					
Intersections					
Lineal Feet of Streets	20,800	19,000	16,500	15,300	15,600
# of Blocks	28	19	14	12	8
# of Intersections	26	22	14	12	8
# of Access Points	19	10	7	6	4
# of Loops & Cul-de- Sacs	0	1	2	8	24

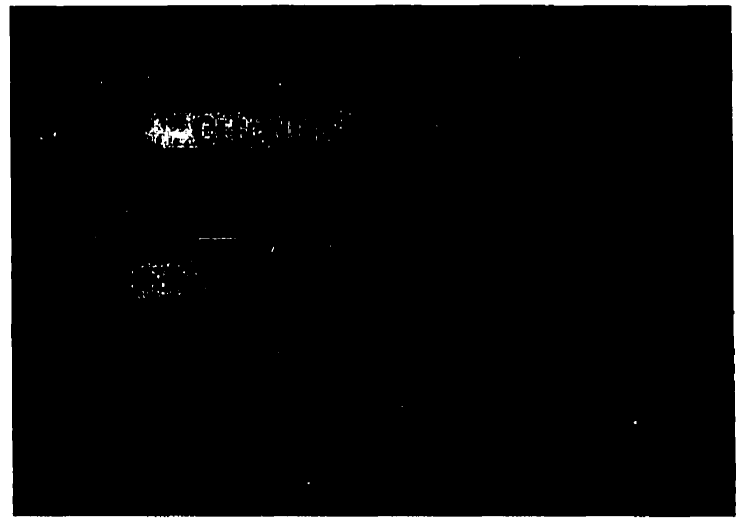
2- 14 Street pattern typologies (from The Evolving Metropolis: Studies of the Community, Neighborhood, and Sreet Form at the urban Edge by Michael Southworth and Peter M. Owen, Journal of the American Planning Association)

The different street layouts identified suggest at least three different types of growth patterns at the urban edge. They are 1.) *concentric growth:* which is the classic pattern of urban expansion, in which an identifiable center expands in concentric rings outward. Examples of this can be found in cases where a small town is swallowed by an expanding metropolis. The increment of growth was the individual lot and building. 2.) *instant growth*: in this instance the development creates an all-at-once transformation. (Fort Richmond and Richmond West are examples of this type of growth). In some cases large areas of street grids were built but the housing did not go in until much later, and 3.) *Scattered growth:* increased mobility and an expanded freeway system eliminated the need for housing to stay close to the city center, a factor which had kept the city form compact throughout the nineteenth century (Southworth and Owens 1993, 277).

The paper also examines community land use patterns. The authors looked at two older suburbs, which both had continuous neighborhoods of residential streets located between linear bands of commercial streets. The older of the two had a more coherent community center and a finer network of commercial streets defining the neighborhood which was also sprinkled with small parks and schools. The other, a postwar suburb, had fewer and larger schools and parks and showed a tendency for commercial development to begin to concentrate in shopping centers. In two newer suburbs, commercial areas are consolidated into a single main zone and a few minor zones. They have become self-contained islands weakly connected to surrounding neighborhoods. Park and civic uses which were an important part of older gridiron neighborhoods have all but disappeared. The pattern produces a "pro automobile and anti pedestrian environment" (Southworth and Owens 1993, 279).

The automobile

Despite the fact that the first prototype for the automobile had been developed much earlier, at the turn of the century there were only eight thousand automobiles in the United States. Kenneth Jackson describes their reception in *Crabgrass Frontier.* "On the theory that lumbering automobiles frightened horses and raised dust,

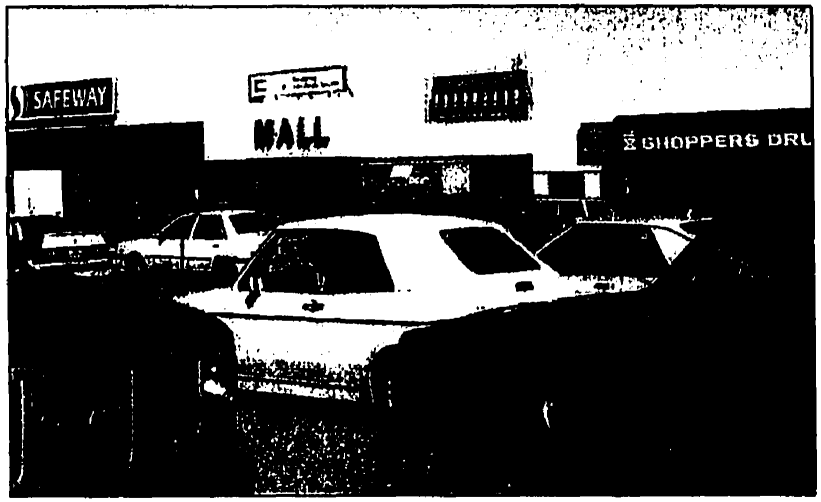


2-15 Fort Richmond West Mall *(photo F. Cholakis)*

many states followed British precedent and passed laws limiting self-propelled vehicles to four miles an hour and required that each be preceded by a man on foot carrying a red flag" (Jackson 1985,158).

The name most closely associated with the automobile in America is Henry Ford. Henry Ford did not invent the gas powered engine nor was he the first to recognize that there would be a huge market for an economical car accessible to the average man. Ford became a legend as a result of developing the Model T, the extremely popular best seller, which was "easy to operate, simple to repair, and dependable, even under trying conditions" (Jackson 1985, 160). Ford was able to reduce the cost of his popular car while increasing employee wages when he initiating the moving assembly line, what Jackson calls "perhaps the most important contribution to manufacturing technology since the introduction of the principle of interchangeable parts in the eighteenth century" (Jackson 1985, 160).

By 1923, there were ten million automobiles registered in America and the private car was no longer a luxury but a necessity. While the automobile had initially been regarded as a novelty, partly because of its unreliability and a lack of related facilities, such as well built roads with effective signage, there were many who realized that a transportation revolution was taking place, and that America was leading the world in automobile



2-16 Fort Richmond Plaza *(photo F. Cholakis)*

technology. The implications of America's wholehearted embrace of this new mode of transportation were unimaginable. It brought about changes in current transportation, notably the retirement of the electric trolley and horse drawn vehicles. It brought about a revolution in the construction of streets and highways, and continues to be the single most influential factor in the design of towns and cities. Mass production of the automobile also had a major effect on the American psyche. Jackson comments, "The rapid rise in motor-vehicle registrations created a booming optimism, a national faith in technological progress" (Jackson 1985,162).

When oil shortages in the 1970's caused an increase of approximately 60% in gasoline prices, one would have expected that people would reassess their need to drive so much, but in fact, auto travel per capita decreased by only 5% (Van der Ryn and Calthorpe 1986, 170).

Automobiles give us the freedom and convenience to travel whenever and wherever we wish. We drive to work, to shop, to visit family or friends. The automobile has been a blessing and a curse. On one hand we have an ease and comfort of mobility our ancestors could never have imagined. On the other hand, we are isolated by our automobiles. People in cars are encapsulated, cocooned within a hard shell and cut off from the real world with its constantly changing, ever surprising and stimulating mix of sights, sounds, tactile and sensory experi-

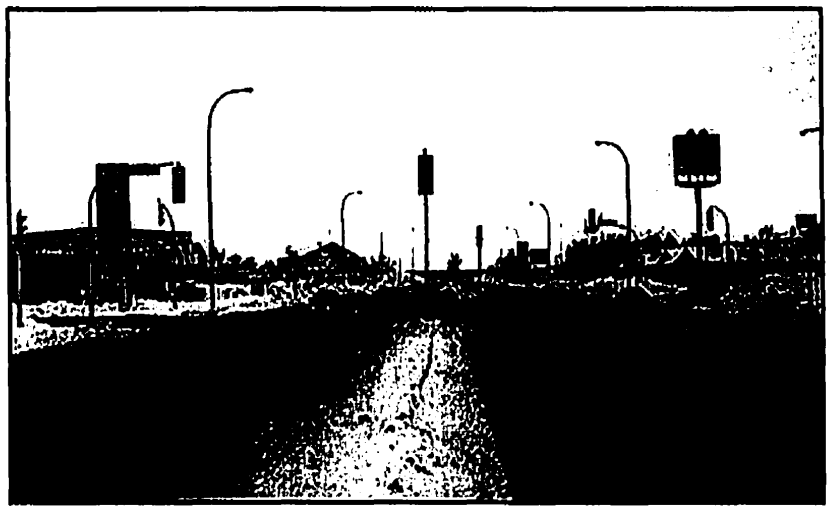
2-17 Bairdmore Pembina intersection *(photo F. Cholakis)*

ences. This isolation can have an unpleasant effect. "The fact of being contained, disjointed and somehow imprisoned leads drivers to a state of estrangement that blunts their capacity of criticism and pushes them to elementary and stereotyped reactions" (De Carlo 1990, 82).

Recent newspaper articles have referred to what is called "road rage", the unreasonable, uncontrolled anger which some people experience while driving in stressful situations. There have been many confrontations where rudeness or a lack of civility have escalated to violence.

Driving down a street and walking down a street are completely different experiences. Travelling by car is fast, direct, usually in a straight line. It avoids encounters with other cars, It never stops unless it has mechanical failures or obstacles barring its way, and it is totally indifferent to its environment. In contrast, human motion is slow and erratic. It can follow winding paths. It seeks encounters that, once found, can make it change its route and even go back (De Carlo 1990, 81).

> We complain that the streets of urban peripheries are boring, that they do not offer the same opportunities for encounter, exchange, curiosity and attention that are offered by the streets of the historic centers.



2-18 Looking south on Pembina *(photo F. Cholakis)*

> It is not surprising, as the streets of the historic centers were made for the motion of human beings whereas the streets of the periphery have been made for the motion of automobiles (De Carlo 1990, 80).

Ideally, streets and corridors within a city should be a means of facilitating human interaction. Excessive reliance on automobile travel has, to a large extend, had the opposite effect, placing a barrier around people, cutting them off from one another and reducing opportunities for chance encounters.

Streets and traffic

Pathways have existed as long as settlements themselves, as circulation was an important and integral part of the earliest settlements. Even in the most rudimentary ones it was necessary for people to move back and forth between places. As the settlements became more complex so to did the routes. There is a huge difference between those early routes, and present day streets and highways, and that difference is the means of travel. For pedestrians or someone on horseback or even in a horse drawn vehicle, being on the street was a highly evocative experience. Even those contemporary streets which are varied and interesting cannot be appreciated while sitting

in an automobile travelling 60 kph.

Much of the character of a community is determined by the way its streets are designed. Long, straight, major thoroughfares, what we refer to as arterials, have their origin in ancient history. In larger cities in Mesopotamia there were "broad ways" leading to the king's palace or to the most often visited temples. In Egyptian cities, broad processional boulevards were the principle line of extraterrestrial communication for the man-god pharaohs. These "ceremonial causeways", were "astronomical radius vectors joining the sun to the earth as the center of the universe" (Molohly-Nagy 1968,85).

A dominant feature of Roman cities was a centralized network of wide, straight roads. They were built primarily for military purposes, but they were also very beneficial to commerce. Both Roman cities and Roman military encampments "were based on the same model; a square or rectangular area divided into four parts by two main streets intersecting at right angles, and leading to four gates in the city wall" (Miller 1988,5).

At the end of the eighteenth century, Eugène-Georges Haussmann was appointed the prefect of Paris, and given extraordinary powers by Napoleon III, who wished to transform the city into an imperial capital. Haussmann's plan "was to cut wide straight boulevards through the maze of narrow streets, buying up and demolishing any buildings that stood in the way."(Fishman 1987, 112). The population of Paris had doubled in the previous fifty years, and the boulevards were intended to be a means of restoring communication and circulation that would unite Paris into a great city. The avenues were designed to lead from each of the new railway stations, and in addition allowed barricades to be set up and troops brought into the city should it be necessary (Miller 1989, 13). Haussmann went on to line the boulevards with elegant, monumental apartment houses. The construction of the boulevards resulted in the opening up of prime sites in the center of the city. Financing was also controlled by the government, allowing them to carry out a massive reconstruction of Paris, which had an economic, cultural and social impact on the city. "The great Parisian boulevards lined with rows of apartment houses expressed the union of middle class values with authoritarian planning" (Fishman 1987, 116). As a result of this massive renewal of the center of the city, Paris did not have the same exodus to the outer fringes that took place in other cities.

By the nineteenth and twentieth century the boulevard was in general use as a high volume traffic carrier,

2-19 Broadway Winnipeg *(photo F. Cholakis)*

usually leading into the core of the city. One type of boulevard called for traffic to be channeled down the center with strips of planting on either side, and local streets next to these. The Champs Élysée in Paris, and the Park Presidio Boulevard in San Francisco are examples of this type. The other type consisted of a wide, green, park like center strip down the middle with the traffic streets on both sides. There are numerous examples of this type of boulevard in North America, including Commonwealth Avenue in Boston (Halprin 1966, 60). In Winnipeg, Broadway and Provencher Blvd. are typical of this type of boulevard.

Most suburbs built in the last four decades in North America are planned according to the same principle. "Big, theoretically fast, roads deliver their traffic onto moderately large roads, which distribute their traffic onto still-smaller streets, which ultimately lead to the minor streets. Every time a person wants to go somewhere, he or she must travel up or down the hierarchy" (Langdon 1994, 29). Prior to World War II, traditional neighborhood design used a system of interconnected streets which offered users many choices of how to get from one place to another. The hierarchy system, sometimes referred to as a *sparse hierarchy*, was thought to be more efficient because it limits the number of through routes. Major arterials such as Pembina Highway, are "built for heavy traffic flow, with intersections at longer intervals, intensive fronting uses, and access controlled but not excluded"

2-20 Pembina Highway and Kirkbridge Drive intersectin (photo F. Cholakis)

(Lynch, 1984, 199).

Traffic signals are warranted when traffic volume is above 750 cars per hour, and are designed to reduce traffic conflicts. Signals may have a simple two-phase cycle or a more elaborate system of four or more. Cycles are usually from 35 to 50 seconds long. Generally 300 to 600 vehicles per lane per hour pass through the green phase. Channelization, or the use of islands and meridians to separate lanes is used to reduce traffic conflicts. The cloverleaf is a form of grade separation used when there is a high volume of traffic on the major channel, or if there are high turning volumes (Lynch 1984).

One of the least attractive things about busy arterials is that they carry too much traffic which is moving too fast, which is precisely what they were designed for. Countless strips of asphalt and concrete offer us the opportunity to travel anywhere. They are engineered with extra wide lanes, excessive lateral clearance, large corner radii, and gently rolling horizontal and vertical curves (Jacobson n.d. 1). An article on suburban street standards comments, "Particularly troublesome are standards for streets that virtually dictate a dispersed, disconnected community pattern providing automobile access at the expense of other modes" (Southworth and Ben-Joseph 1995, 65). In addition to causing noise, pollution, and congestion, these wide streets become barriers

2-21 Fort Richmond Plaza parking lot (photo F. Cholakis)

which divide communities and are difficult for pedestrians to bridge. As a result, pedestrian are less likely to walk even short distances if it entails having to cross the street. They are further deterred when they must cross large parking lots to reach buildings.

The Pedestrian Environment

Historically, the earliest towns were built to accommodate people moving about on foot, and not much thought was given to their comfort or safety. It was necessary to be within walking distance of the work place, the waterfront, markets and churches. Generally there was no overall plan for the settlements, and the unplanned streets and buildings formed maze- like labyrinths. The unpaved streets were usually narrow, lined with shops, often with housing above them, and bordered by additional housing. Most were not wide enough to accommodate a cart. Mixed use and high density caused congestion and extremely unsanitary conditions, but it also supported the diverse activities that are the basis of urban life. It was natural to meet others on the streets, and become acquainted. This familiarity with ones neighbors eventually led to a sense of community.

2-22 *Sidewalk in front of Richmond West Mall* *(photo F. Cholakis)*

In ancient Greece where most travel was by sea, streets were 12 or 13 feet wide; in Alexandria this was increased to 100 feet. In Greek myth, roads were considered sacred and as a result, anyone travelling along roads in ancient Greece was protected by this belief. The road shoulder was also considered sacred, and was often used as a burial site (Miller 1988, 5).

One of the most advanced features of the Roman Empire was its road system. Roads were built according to specific categories which determined how wide they would be, and different roads were used for different vehicles. Because cities could not extend beyond walking distance, cities built into the streets rather than out. The longest diameter of ancient Rome was three miles.

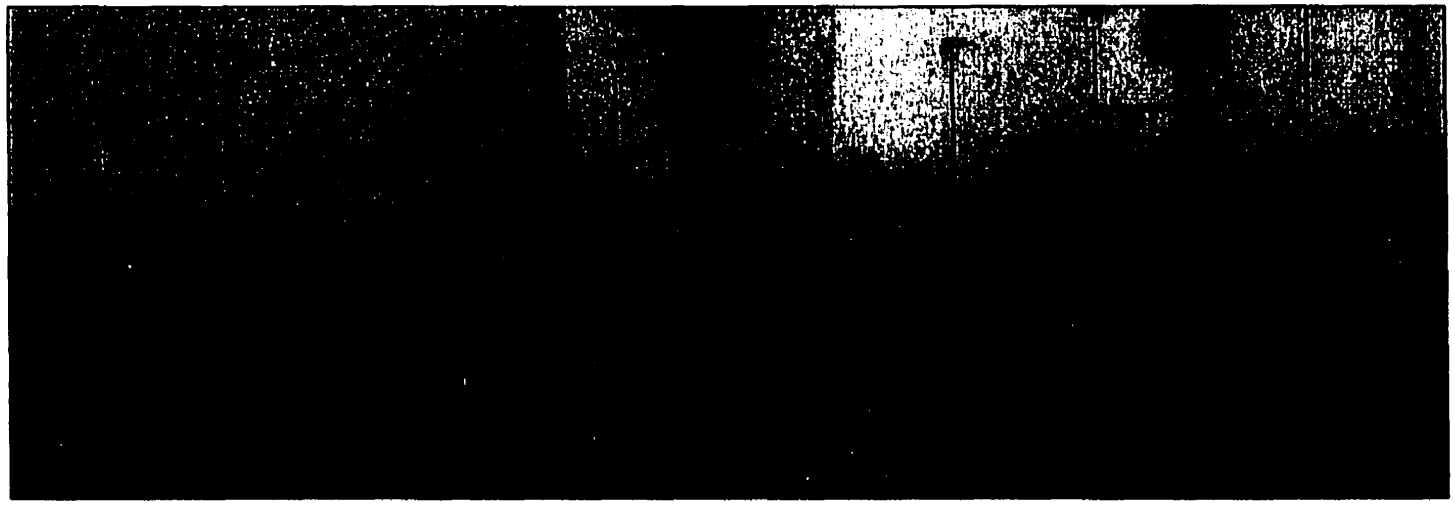
In Pompeii, streets had wide sidewalks and durable paving stones. "Pedestrians stayed dry by using the stepping-stones placed at frequent intervals with enough room between them for the chariot wheels to pass through"(Miller 1988,5). The city also had raised pedestrian safety islands, and, in an attempt to curb congestion, a network of one way streets.

In the 15th century, Leonardo da Vinci recognized that the congestion of the walled cities created conditions conducive to the spread of plagues. He devised a system of bilevel streets to separate vehicles from pedestri-

ans, and a third, lower level for carts to gain access to the lower level of buildings, enabling them to remove refuse without causing further pollution. Leonardo was ahead of his time, and his plan was not implemented (Miller 1988, 8).

When Baron Haussmann redeveloped Paris in the 1860's, he applied the concepts of formal French gardens and English squares to the broad avenues he created. They were lined with wide sidewalks, and long rows of trees, and were defined and terminated by monuments and buildings. Hausmann also differentiated between areas for pedestrians and areas for faster moving traffic. The street began to evolve as a "cultural institution". This idea of both parklike spaces where people could interact on a pedestrian, human scale, and streets that could accommodate the moving vehicles became especially important in the next century with the invention of the automobile"(Miller 1988, 14).

Although many European cities today have thriving pedestrian only centers and markets, these work best when they contain a variety of activities and attractions. In North America, streets in downtown areas which were made into pedestrian only malls have not always been as successful, and some have been reopened to cars. An alternative has been to use various means to slow down or restrict car traffic, referred to as "traffic calming". Pedestrians can be accommodated by widening sidewalks, slowing down traffic, and ensuring that traffic lights are timed to give pedestrians sufficient time to cross the street.



3-1 Pembina looking south from Winnipeg Honda *(photo F. Cholakis)*

3. Site Inventory and Analysis

History

The significance and unique identity of Pembina Highway is a result of its importance in the early history of the City of Winnipeg. Land adjacent to both the Red and Assiniboine Rivers was first surveyed in 1857 and divided into a series of narrow farm lots extending for a distance of two miles from the river. The river was the primary means of transportation but overland trails were also formed, connecting the settlement. What is now Pembina Highway was originally the Pembina Trail, a strategically situated transportation route between the Red River settlement and Pembina, which at that time was a part of Rubert's Land. Later, the trail was to become an important trade link to St. Cloud and St. Paul, Minnesota.

The intensification of the use of the Pembina Trail resulted from the development of the Red River Cart. Prior to the arrival of the Selkirk Settlers at Red River in 1812, the area in the vicinity of Pembina was settled by the Métis. There was also an important Métis community centered at St. Norbert. Many of the Métis were former

3-2 " The Forks", by W. Frank Lynn, (from the cover of The Red River Settlement, Manitoba Culture, Heritage and Citizenship, publishers)

employees of the Hudson's Bay Company who had been discharged after the merger with the North West Company. They were called freemen, and as the settlement grew, many of them worked as freighters. The Métis choose the St. Norbert site because it lay on a trail leading to the buffalo hunting grounds on the Grand Côteau du Missouri, and also because it was on the Pembina Trail which linked Fort Garry to the head of the Mississippi River at St. Paul (Kalman 1994, 331).

It was the Métis who developed the Red River Cart, a modification of iron and wood carts common to Quebec. The design of the cart evolved to a point where it could be used to "carry a load of five hundred pounds, and, when pulled by a horse, travel fifty miles a day. If pulled by an ox, one thousand pounds could be carried for a distance of twenty miles a day" (Sealy and Lussier 1975, 20). Along with developments in the fur trade was the development of a greater need for land transportation. A system was devised which linked together as many

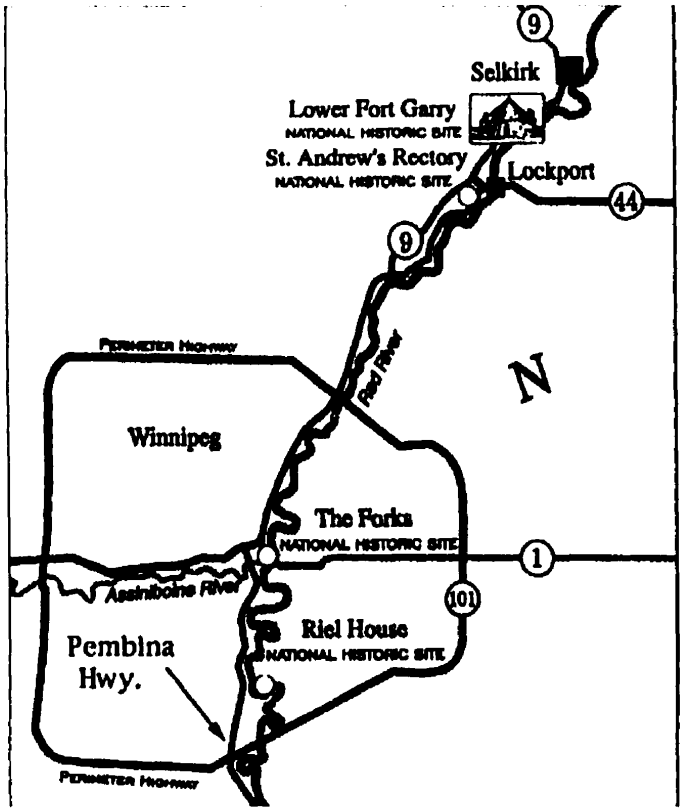
as five carts under the control of one driver. A driver would ride or walk beside the first cart which would have the second cart attached to the right hand rear of it. Other carts would be attached in the same way so that there were a number of ruts cut into the ground rather than just one, making it less likely that they would get mired down, and if one did, the others could pull it out (Sealy and Lussier 1975, 21). The group of four or five carts was a brigade, and as many as two hundred carts would make up a train, led by an experienced guide on horseback (Shipley 1969, 13).

By the mid 1840's, the business of freighting furs from Red River to St. Paul was flourishing. There were two round trips each summer, and the carts returned to the settlement loaded with dry goods, tea, tobacco, clothing and other articles needed by the settlers (Shipley 1969,12). By the 1850's settlement was taking place in Minnesota and even greater quantities of goods were being purchased by the Americans from the Red River Settlement. "Even the Hudson's Bay Company which for years had exported tons of furs and imported all supplies through Hudson Bay by way of the Nelson River and Lake Winnipeg, now found it more profitable to abandon their York boats and use oxcarts on the Pembina Trail"(Shipley 1969, 15).

Regional context

Pembina Highway is also known as Winnipeg City Route 42. Route 42 runs adjacent to the Red River, north from the Perimeter Highway past Bishop Grandin Boulevard and McGillivray Boulevard to the junction of Osborne and Corydon. It continues north on Smith St., and after a slight jog east, it moves north as Henderson Highway, still following close to the Red River but now on the east side. It continues until it again meets the Perimeter and beyond that becomes Provincial Road 204.

An important feature of the identity of the Pembina Highway traffic corridor is its location at the southern edge of Winnipeg. Like many Canadian cities which are close to the United States border, Winnipeg has a geographic and topographic connection with that country which is closer than its connection with some other parts of Canada. There is a strong similarity in land form, climate, and geological make up. The Canada U.S. border is just 96 kilometres from Winnipeg, where Provincial Trunk Highway 75, becomes Highway 29, a major Interstate



3-3 Map showing the proximity of the site to historic sites (from National parks and Historic Sites Manitoba Canadian Heritage Parks Canada, publishers, 8)

highway and trucking route. Grand Forks, North Dakota is just 233 kilometres from Winnipeg. Fargo, North Dakota is 256 kilometres away, and Minneapolis, Minnesota is 698 kilometres. Many people from these centers visit Winnipeg as well as others from smaller towns and villages all over North and South Dakota, Minnesota and other northern and central states. The site is also connected to the east west traffic routes by virtue of the Perimeter Highway which is part of the Trans Canada Highway.

Although there has been a trade route from Winnipeg to the U.S. since the days of the fur trade, with the advent of the North American Free Trade Agreement, the mechanism was put in place for substantially increased trade opportunities between Canada, Mexico and the United States. Existing and new trade links or "corridors" are being developed throughout the U.S. and Canada. Winnipeg is currently part of the Red River Trade Corridor which is a regional trade effort between Manitoba, North Dakota and Minnesota, and is working toward the designation of a "Mid-Continent Trade Corridor", which could result if US Interstate 29 and US Interstate 35 are formally designated as High Priority Corridors by the US federal government.

3-4 Baldry Creek Park retention pond *(photo F. Cholakis)*

Community context

With a few exceptions, the Pembina corridor is surrounded by the single detached houses that make up two large subdivisions. Fort Richmond is the area on the east side of Pembina, Richmond West on the west. Fort Richmond extends north to the University of Manitoba property line, and Richmond West goes to approximately the same point but on the west side. Both neighborhoods extend south to the perimeter, the boundary for development in Winnipeg. Immediately south of the Perimeter Highway is the town of St. Norbert, site of a thriving farmers market in the summer, and the historic St. Norbert Arts and Cultural Centre. To the west of the corridor and running parallel to it, are two parks surrounding retention ponds, Alex Bridge Park, between the Perimeter and Dalhousie Drive, and Baldry Creek Park, which extends from Dalhousie Drive to the Fort Richmond Shopping Center. Alex Bridge Park and Baldry Creek Park are very large open spaces, about 100 meters wide and combined, 900 meters long, where hundreds of geese congregate during spring and fall migration .

The storm water retention ponds in Alex Bridge Park and Baldry Creek Park provide intermediate storage areas for heavy rainfall which cannot be absorbed immediately by the sewer system. They also improve water

quality by acting as settlement ponds, settling out pollutants from storm water runoff before it goes into the river (Hough 1984, 96).

One of the most influential factors in the vicinity of the site is the 274 hectare University of Manitoba campus. During the 1996/1997 academic year, there were approximately 21 000 students enrolled at the university. There were approximately 2287 members of the teaching staff, as well as approximately 2509 support staff. Many of these people live in the area and use Pembina Highway regularly.

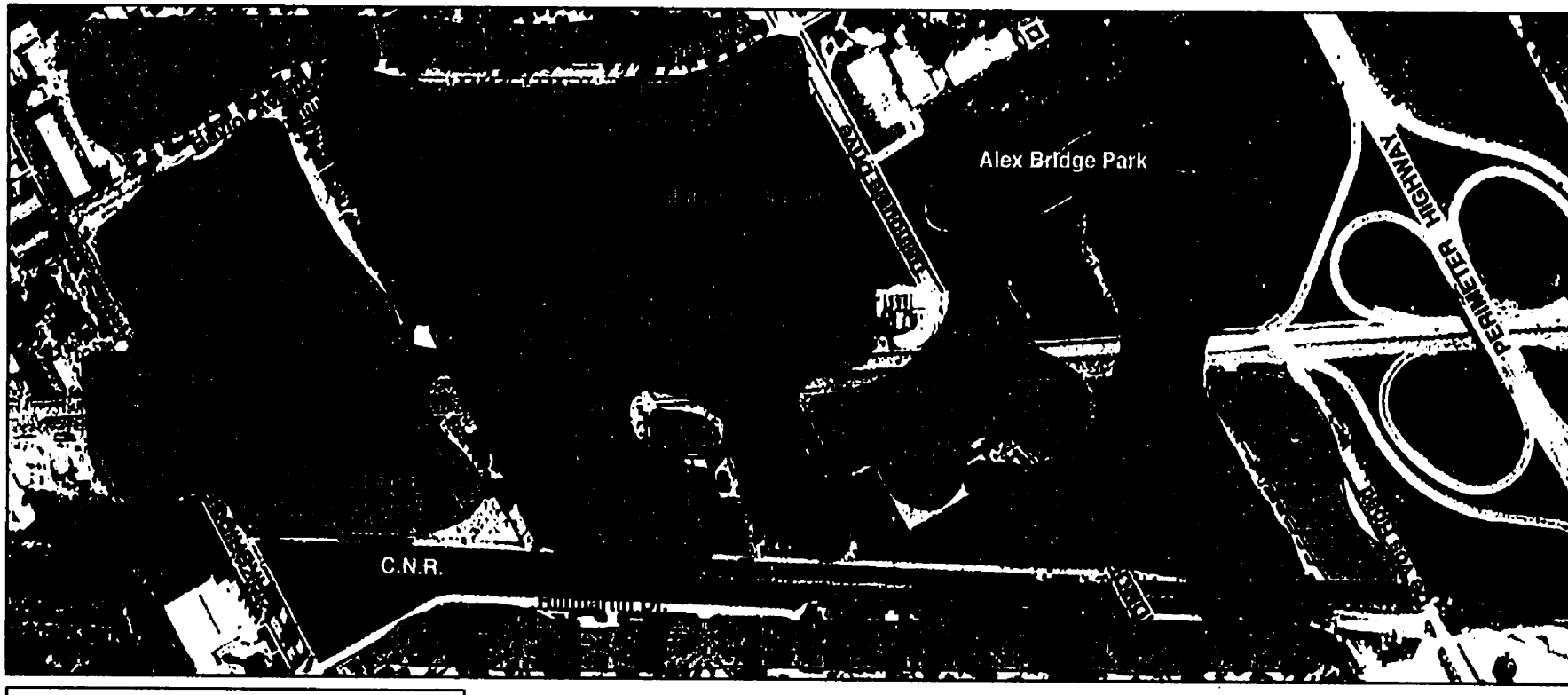
Land use

Zoning categories in the corridor includes Commercial C2, C4, Multiple family, RM1, RM2, RM3, RM6, and Parks and Recreation PR1. Although there is a mix of zoning and uses, which generally contributes to the vitality of an area, in this situation it has not had the desired effect. In part, this is a result of the fact that there is a lack of public space designed to facilitate social interaction, and a lack of pedestrian scale and amenities within the corridor.

The first impression of the Pembina strip is that it is entirely made up of commercial buildings. This may true of other segments of Pembina Highway but the blocks between Killarney and the Perimeter are quite different. There is a wide variety of land uses along this portion of the corridor and adjacent to it. There are apartment blocks, condominiums, town houses, a fire hall, and two hotels. Commercial establishments include banks, retail stores, grocery stores, video rental stores, restaurants, and six gas stations. (Two of them gas bars). Just behind the corridor, on De Vos Road there is a mini storage business, (Sentinel Storage), a transport company, (Harris Transport), and a UGG grain elevator. A church, elementary schools and a high school are nearby.

The Margaret Grant Pool is a major recreational facility on Dalhousie Drive just east of the corridor , which attracts people from all over Winnipeg. There are also baseball diamonds, athletic fields, playgrounds, tennis courts, and, in the winter, tobogganing in Alex Bridge Park.

3-5 Land Use: Generalized land use zones



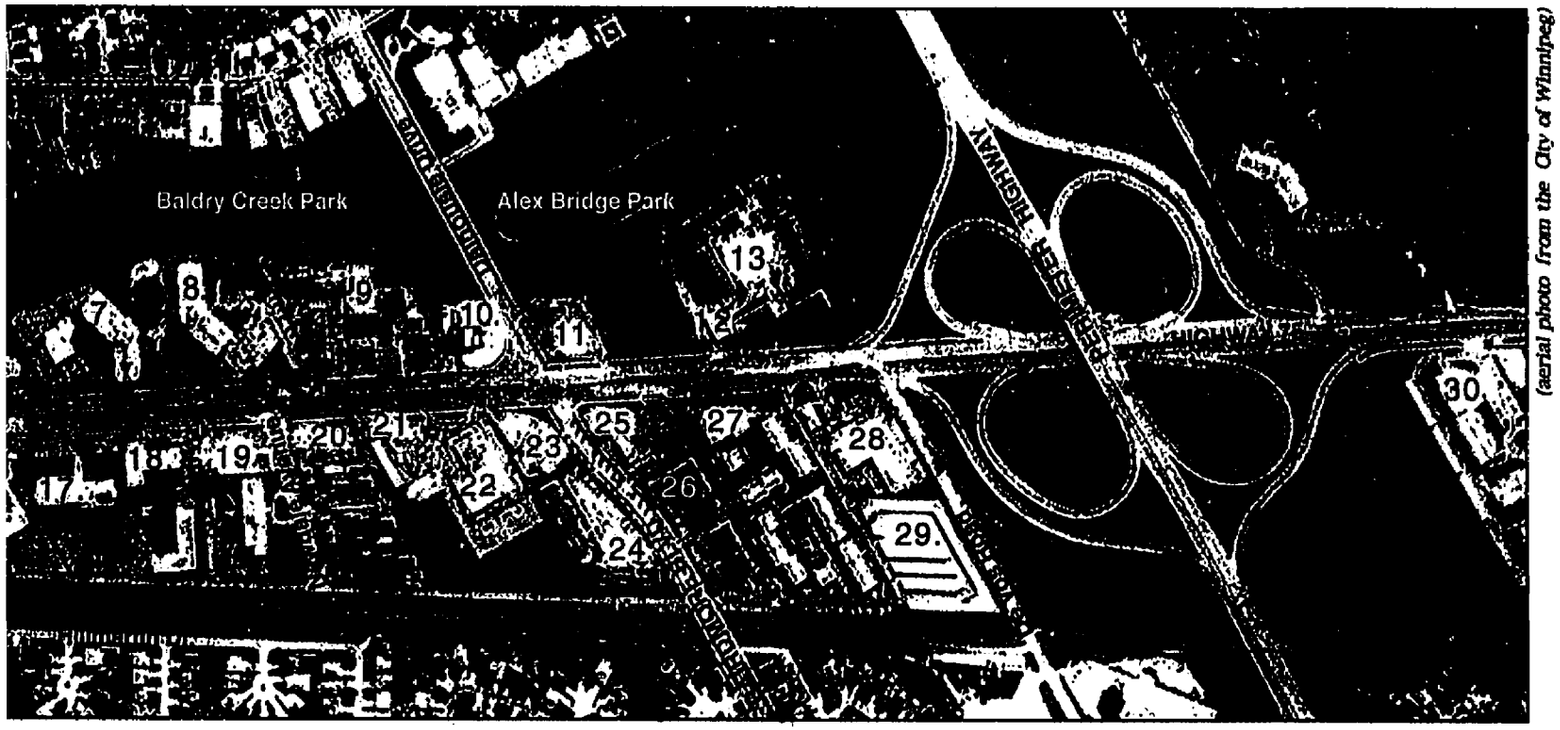
commercial/retail zones

multiple family dwellings

single family dwellings

3- 6 Land Use: site inventory

1. Esso Station
2. Fort Richmond Plaza
3. Domo Gas Bar
4. Fort Richmond Square
5. Pony Corral Restaurant
6. Richmond Gardens
7. Lakeshore Park I Apts.
8. Lakeshore Park II Apts.
9. Chimney Ridge Apts.
10. Fire Hall
11. Shell Stn. & Convenience store
12. Fort Richmond Transmission
13. Apartment Complex
14. Turbo Gas Bar
15. Fort Richmond West Mall
16. Holiday Inn
17. Westminster Court Apts.
18. Newdale Apts.
19. Newdale Plaza
20. Manitoba Housing Apts.
21. Husky Station & car wash
22. Winnipeg Honda
23. Petro Canada Station
24. Bairdmore Estates Apts.
25. MacDo
26. Bairdm
27. Countr
28. Comfo
29. Sentin
30. South



(aerial photo from the City of Winnipeg)

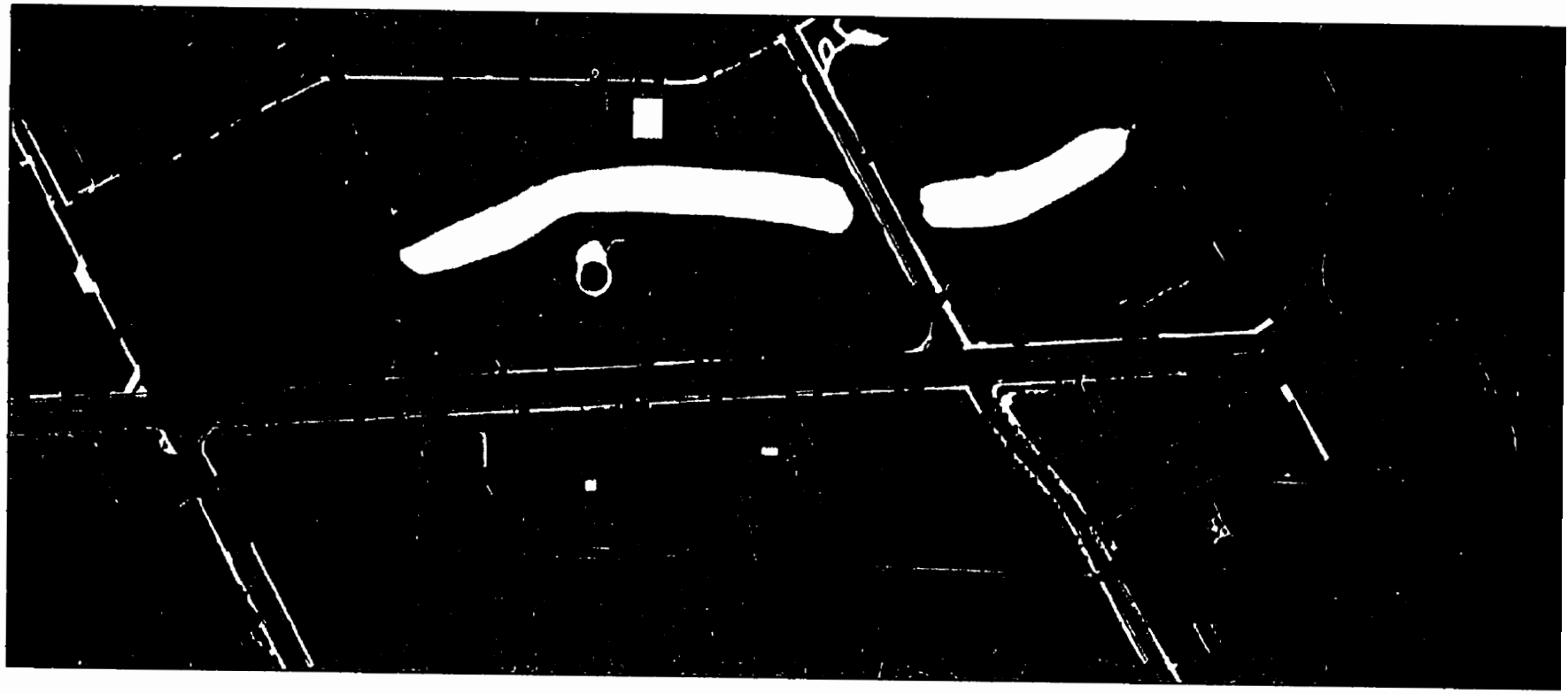
re Park I Apts.
re Park II Apts.
Ridge Apts.

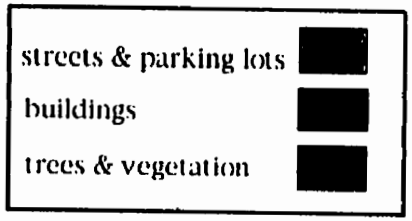
13. Apartment Complex
14. Turbo Gas Bar
15. Fort Richmond West Mall
16. Holiday Inn

19. Newdale Plaza
20. Manitoba Housing Apts.
21. Husky Station & car wash
22. Winnipeg Honda

25. MacDonald's Drive In & office
26. Bairdmore Square Apts.
27. Country Knoll Apts.
28. Comfort Inn & Rhodos Restaurant

3-7 Land Use: Composite map





Composite map

3-8 Land Use: buildings

buildings

The figure ground image illustrates the positive and negative space of the site; buildings and the space around them, their size, location, orientation and relationship to each other.

buildings

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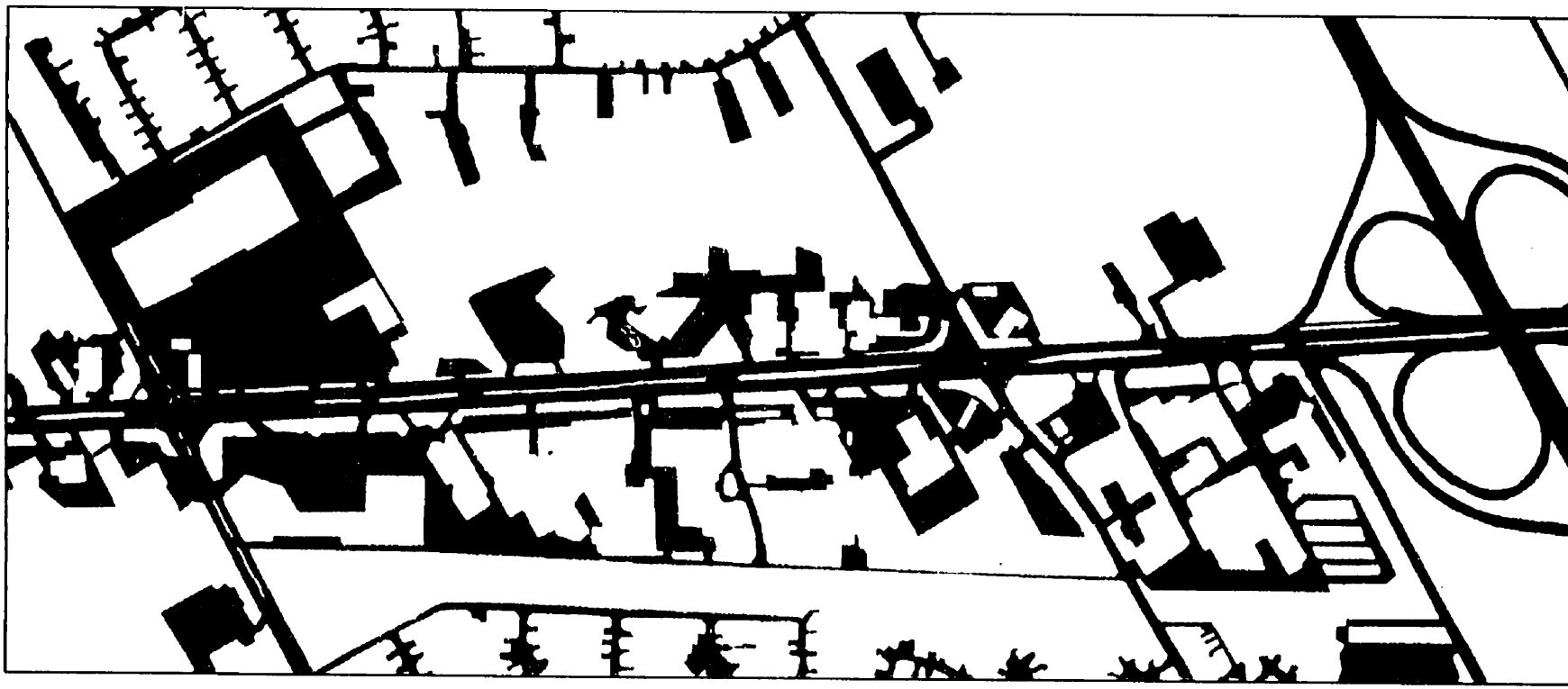
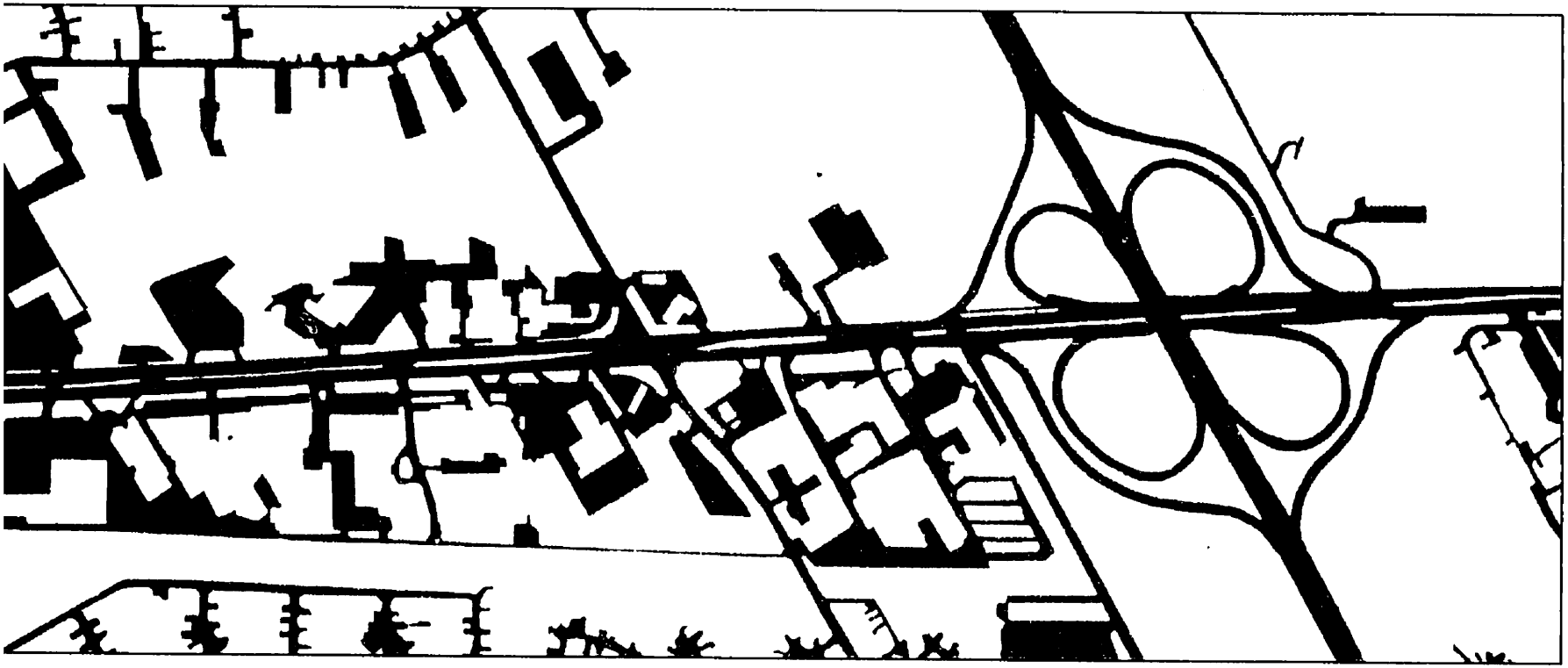


streets & parking lots

In spite of increased automobile use and urban sprawl, streets and parking requirements are often left to the application of zoning laws or engineering solutions. Land values, economic viability, and efficient movement of traffic have taken precedence over the qualitative characteristics of a street.



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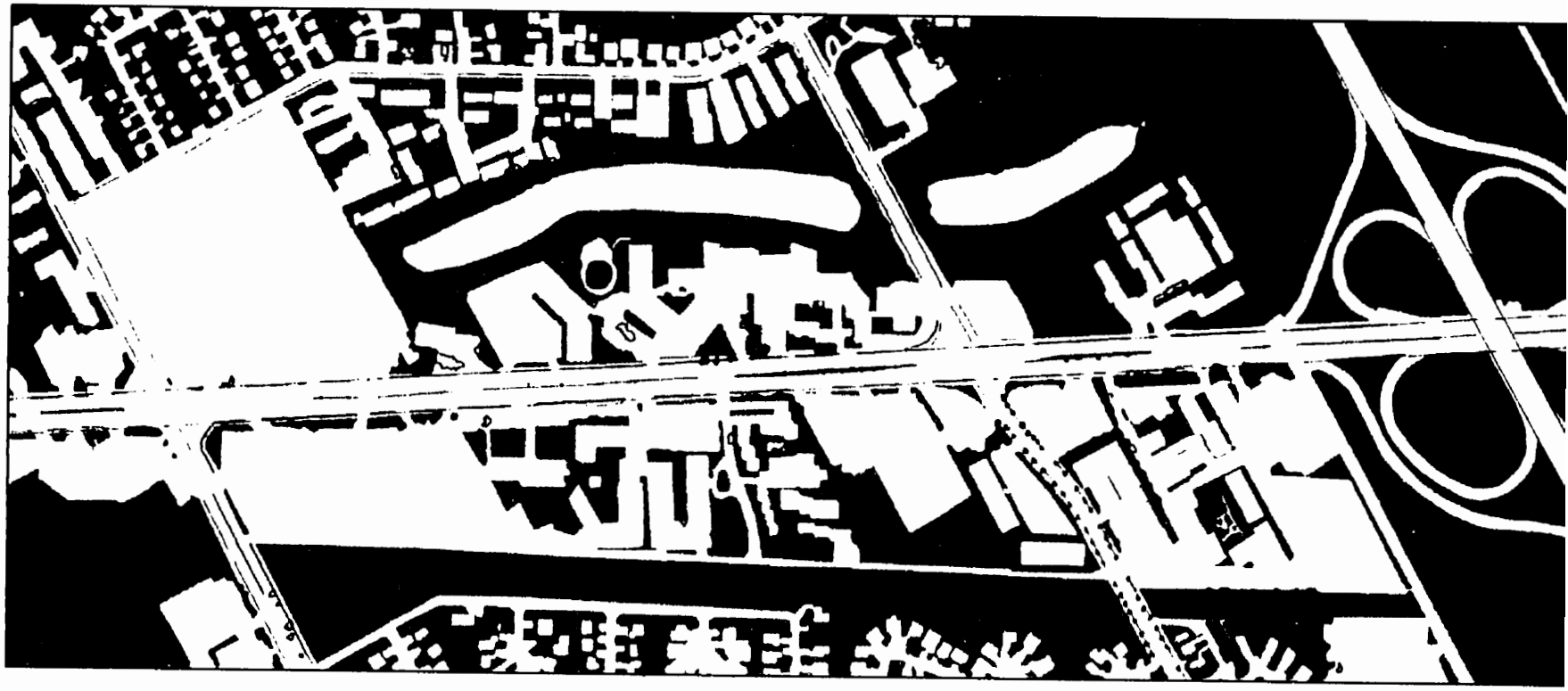

trees & vegetation

Open areas, including Baldry Creek Park and Alex Bridge Park, are a valuable resource for environmental, educational, and recreational opportunities. Open areas should be preserved as wildlife corridors to provide habitat, encourage naturalization, and contribute to diversity.

Use: *Trees and vegetation*

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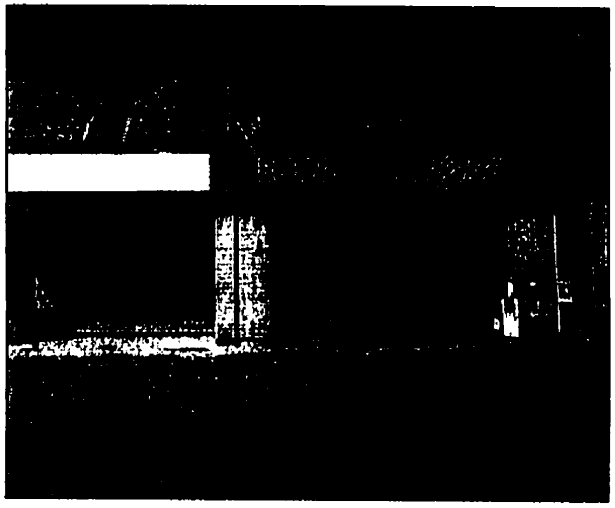


3-11 Richmond West Mall

3-12 Westminster Court parking lot *(photos F. Cholakis)*

Neighborhood characterization

The Pembina corridor runs through two large residential areas, Fort Richmond and Richmond West. Both are classified by the City of Winnipeg Planning Department as neighborhoods, and are part of Riel, a larger area designated a community. A 1991 census update states that the population of Fort Richmond is 12,425, and the population of Richmond West is 4,480, giving a combined total of 16,905. St. Norbert is shown as 1,535. In Fort Richmond, there are 4,355 occupied private dwellings, made up of 2,510, single-detached houses, 60 semi-detached houses, 430, row houses, and 1,355 apartments In Richmond West, there are 1,500 occupied private dwellings. In Fort Richmond the majority of homes were built in the period between 1961, and 1980. Construction of new homes dropped considerably after 1985. In Richmond West, most homes were built between 1971 and 1991.

In Fort Richmond the average family income is $52,715.00, and in Richmond West, it is $53,334.00. Both neighborhoods are ethnically diverse. The 1991 census update lists ethnic origins as: French, British, German, Aboriginal, Ukrainian, Polish, and Filipino. Both areas also have significant immigrant populations.

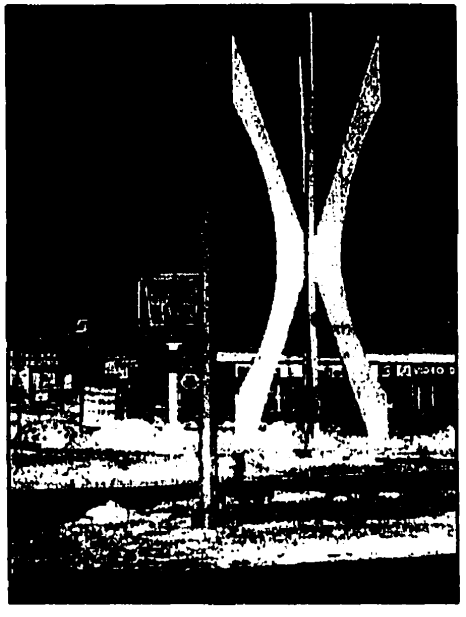
3-13 Chimney Ridge Apartments

3-14 Lakeshore Park I & II (photos F. Cholakis)

Physical and visual character

Buildings

Building sizes and heights along the corridor range from the Petro Canada station footprint of approximately 250 m^2, to the approximately 12 500 m^2 of the Richmond Park Mall shopping centre. Building heights range from one story, which is the most prevalent, to nine stories (Lakeshore Park I and II apartments). Westminster Court and Richmond Gardens are both six stories. All others are lower. There are no consistent architectural styles along the corridor, and there is a wide range in the quality and type of materials used in the buildings.

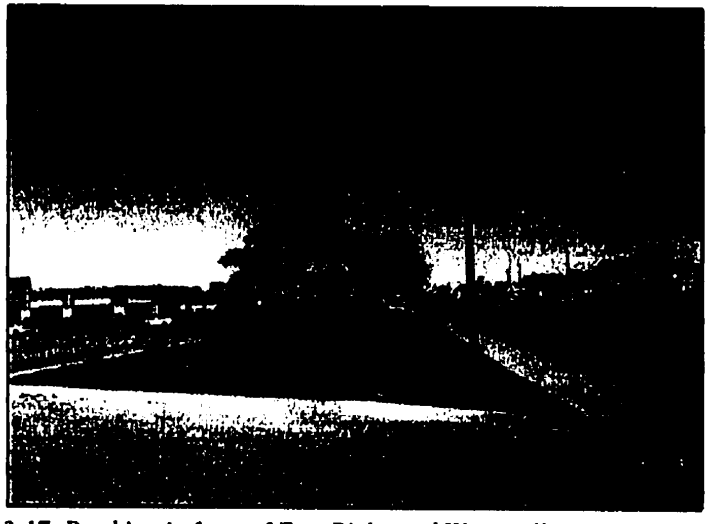


3-15 Pembina Bairdmore intersection

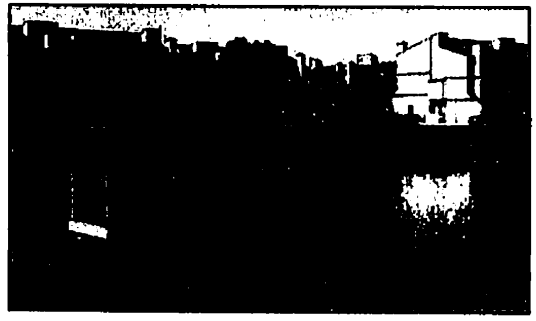
3-16 MacDonald's *(photos F.Cholakis)*

Landmarks

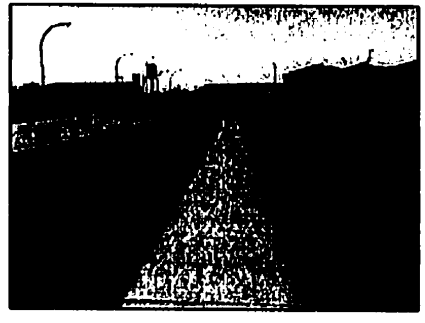
There are several existing landmarks in the corridor which can be used as points of orientation. The concrete sculpture on the north east corner of the Killarney Kirkbridge, Pembina intersection, and the horse in front of the Pony Corral Restaurant have both been in existence for a long time, and are well known. The sculpture is effective because it is very large and unusual and is a reminder of the time when the subdivision was developed. Both are more noticeable than the Richmond Plaza sign, which is lost in a sea of other, similar signs. The log cabin style MacDonald's at the Bairdmore Boulevard intersection is also unique so most people notice it and remember it. The MacDonald's sign, which is very large, is probably the first thing people notice after driving through the underpass as they enter the city from Highway 75. The overpass itself at the Perimeter is a landmark which might serve as a point of orientation, but there is nothing about it that makes it different from any other overpass. The UGG grain elevator is visible from a considerable distance. Factors which contribute to its prominence are; its height, its distinctive form, and the fact that there are no other tall buildings around it.



3-17 Pembina in front of Fort Richmond West mall (photos F. Cholakis)



3-18 Baldry Creek Park



3-19 Dalhousie Drive

Existing Vegetation

Although there are many trees and shrubs in the Pembina Highway traffic corridor, there are not a lot of large mature trees. Any original trees that may have been on the site would have been cut down prior to development when the land was used for agricultural purposes. New trees have been planted, usually at the entrances to buildings but most are quite small and are so spread out through the corridor, that they have little impact on the observer. Other plant material, shrubs, and low evergreens used to buffer parking lots, are also extremely small in comparison to the scale of the street. Trees have been planted in the center strip, but there are no boulevard trees on Pembina Highway between Killarney and the Perimeter. There are poplars spaced at about 10 meters on center, planted along both sides of the street on the boulevard, on both Kirkbridge Drive and Bairdmore Boulevard.

A small clump of about ten mature elm trees in front of the Pony Corral Restaurant and the Richmond

3-20 Chimney Ridge Apartments

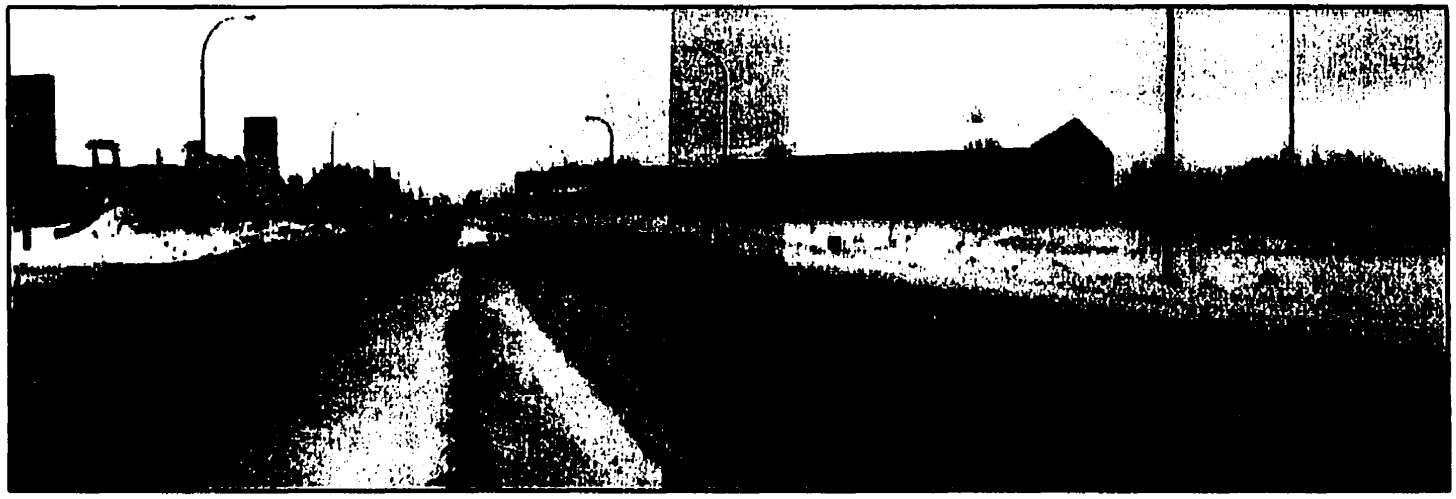
3-21 Trees in front of Pony Corral *(photos F.Cholakis)*

Gardens Apartment Block look as though they could be remnants of riverbottom forest. There is another group of large deciduous trees at the north end of Baldry Creek Park. Both parks are covered with turf grass, closely mown except for one area at the south end of Alex Bridge Park. Trees, primarily evergreens and shrubs have been planted in a large landscaped area between the Lake Shore Park I, and Lake Shore Park II buildings, as well as many other medium and large trees elsewhere on the property. There is a clump of about ten to fifteen deciduous trees behind the Chimney Ridge townhouses, and large spruce trees and poplars in front. This complex has proportionately more trees than any other along the corridor, and has a different character as a result. A line of very tall willows divides the property between Fort Richmond Transmission, and the apartment block next to it, which has a patch of about twenty evergreen and deciduous trees behind it and about five more scattered along the south side. The rail line right of way is a grassy strip approximately 45 meters wide, narrowing to 35 meters. Just south of Kirkbridge it widens to a triangle 125 meters across at its widest point.

On the west side of Pembina beginning at the Kirkbridge /Killarney intersection, there is a planted strip across the front of the Richmond Mall parking lot. It varies from five to ten meters in width, and is planted with evergreen and deciduous trees, grass, and shrubs. There is a similar, small landscaped area in front of the Holi-

3-22 Shrubs in front of Shell station (photo F. Cholakis)

day Inn Hotel. The Westminster Court and the Newdale Apartments both have a turf area in front of the buildings. Westminster Court is set back approximately forty meters from Pembina Highway, and has twenty five meters of turf grass in front of the building along with a few spruce trees. The Newdale has only about seven meters of grass in front of the building. From this point south all the lots have a strip of turf grass between the sidewalk and the parking which is in front of the buildings. The only other significant treed area is around the Country Knoll Apartments where there are tall elm trees, and about ten evergreens. There is a landscaped area in front of the Comfort Inn which is about twenty meters deep and is planted with trees and shrubs. Evergreens have been planted on the south side of the cloverleaf. The loop on the west side contains about seventy five to eighty five trees, with about twenty five in the loop on the east side and another twenty five between the cloverleaf and Cloutier Drive.



4-1 Looking north from De Vos Road *(photo F. Cholakis)*

4. Design Issues

A recent study on communities at the urban edge suggests that in recent years urban planners have focused on urban renewal and revitalization in the urban core, and paid less attention to the metropolitan edge. The authors believe that designers should address, "The challenge of developing meaningful and vital urban environments in these areas" (Southwort, Owens 1993, 271). A development which has affected all areas of urban planning is the fact that recently there has been a strong return to traditional ideas about urban design and community livability.

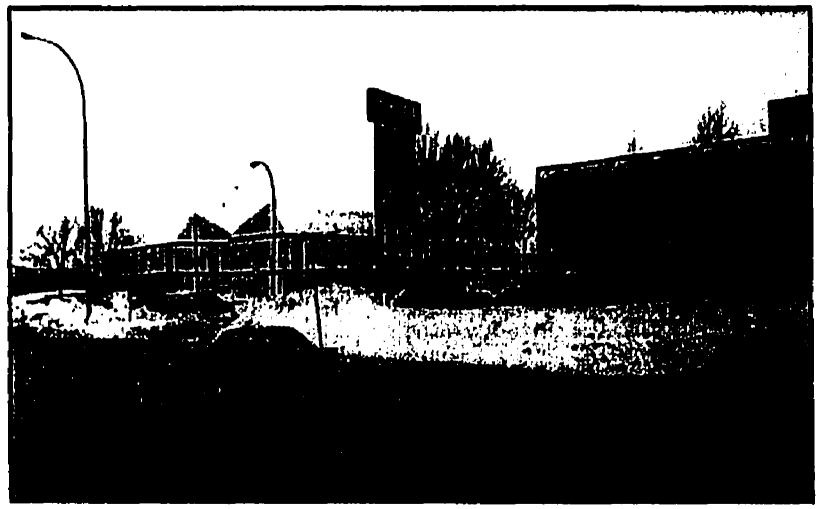
Identity, character, and image

One of the most pervasive problems with highway corridors is their lack of identity. Local or regional character is obscured, or lacking completely. Strip malls, gas stations and fast food outlets are spread out along

4-2 Petro Canada station Bairdmore and Pembina (photo F.Cholakis)

streets that are built to the same specifications, in buildings styles that are no different from one city or part of the country to another.

In an article in *Urban Land,* Charles Kubat suggests four major design principles for better integration of highway growth corridor areas into their context. They are; 1.) Connections with community. There must be connections between the highway zone, and the rest of the community. This can be accomplished through the extension of existing street patterns, continuation of similar land uses, and building at a compatible scale. 2.) A sense of place. As an alternative to sprawling, uniform development, communities should encourage clustering and intensification. Public spaces such as parks and plazas can be better defined by building edges that encourage pedestrian activity. Continuous building frontages and pedestrian scaled streetscapes can also highlight an areas identity. Areas which contain public facilities such as a post office, library, food and business services can serve as a connectors between the corridor and the adjacent community. 3.) Identity. Special gateway entries and a symbol or natural feature can be used to establish or reinforce the image of a corridor community. 4.) Links across the corridor to the street system. There should be as many connections as possible for pedestrians, bicycles and automobiles across the corridor (Kubat 1991, 17).



4-3 Newdale Plaza strip mall *(photo F. Cholakis)*

Philip Langdon also comments on identity, "Old communities are satisfying to walk or drive through in part because so many of the buildings face the streets and roads, making travellers feel they are someplace, not just in transit between destinations" Langdon 1994, 216).

Form, complexity and density

The Evolving Metropolis: Studies of Community, Neighborhood and Street Form at the Urban Edge, a paper by Michael Southworth and Peter M. Owens suggests that one of the biggest challenges for urban planners and designers is to determine how to introduce a mixture of land uses close to residential neighborhoods at the urban fringe. They point out that there is a tendency to separate and divide uses in those areas, leading to further automobile use and congestion as a result. In addition to creating a more vital and diverse place to live, a finer grained separation of uses within buildings, neighborhoods and communities would support a more time and energy-efficient lifestyle (Southworth, Owen 1993, 279).

It is generally conceded that what we consider "a neighborhood" is the basic building block of a community,

4-4 Looking north on Pembina *(photo F. Cholakis)*

and there are a number of ways to consider its form. According to Elizabeth Duany and Andres Plater-Zyberk, contemporary planners and strong proponents of "neotraditional" design, there are five principles which must be met in order to create a balanced successful neighborhood. The first is that the neighborhood have an identifiable center and an identifiable edge. It should also be a walkable size. Duany and Plater-Zyberk agree with the traditional belief that a neighborhood should be the distance a person can walk comfortably in five minutes or a 1/4 mile (400 meters) radius from its centre. Other people believe a ten minute walk, or 1/2 mile (800 meters) is appropriate. There should be a mixture of uses, and different kinds of housing close to one another. There should be a network of connecting streets, and finally, there should be centers such as day cares, civic offices, schools and churches, where people meet (Langdon 1994, 217).

The current standard practice is to zone long stretches of highway frontage for commercial development. The result is that the energy and vitality that a commercial center can generate becomes too spread out. In many cases the form of the buildings echoes the linear form of the highway. Strip malls are elongated rectangles, with tenants lined up in a row. Ideally, buildings should be close to, and facing the street. Clustering of commercial and retail locations should be encouraged.

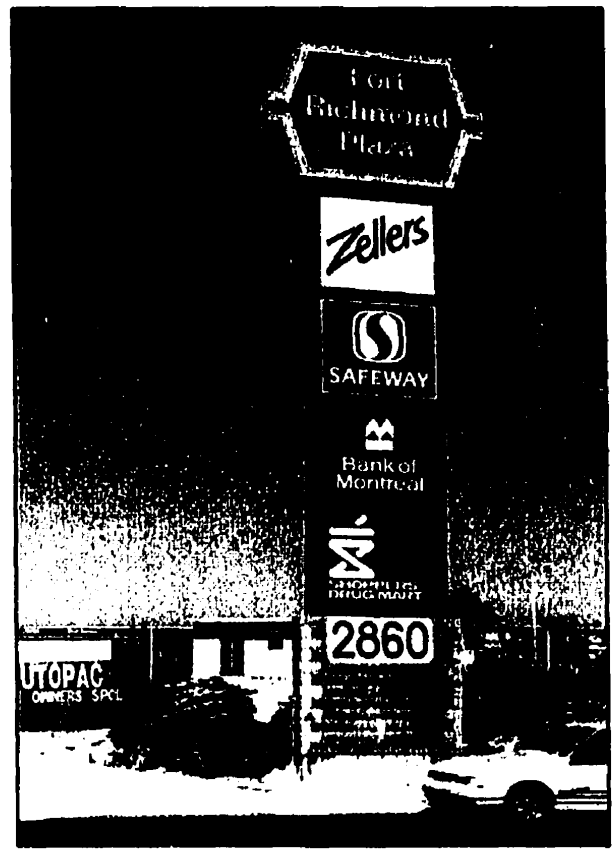
4-5 Fort Richmond Plaza parking lot (photo F. Cholakis)

One of the reasons for a lack of unity on Pembina Highway is the fact that there are long distances between buildings, which means they have little relationship to each other and that pedestrians are reluctant to walk from one to another. At some time in the future zoning could be changed to allow infill of these large gaps. This could be done in a way which would be sensitive to the existing buildings and would result in more efficient land use as well as different uses in the same building. Infill development is being suggested in large cities as a way of supporting growth within the city center, as opposed to environmentally undesirable urban sprawl. In Toronto, some zoning has been changed to allow additional stories to be added to one and two story buildings in desirable areas as an efficient and cost effective way to gain building space.

Signage

There are many places which are enhanced by having a variety of signs. One of the best examples is Times Square which is considered to be more exciting and interesting because of the signage. This is most effective when the site is a contained space which has definite parameters. There are usually tall buildings surrounding

the space, and many of the signs are on the same plane so that they become part of a wall or vertical surface. On Pembina Highway the signs are distributed throughout a long narrow space. They are at different heights and are oriented in different directions as well as being different sizes, shapes, and colors. Many are extremely tall and large, in order to be readable from a moving car. Because there are so many, they become a blur, and there is a tendency to not read any of them. There is certainly a need for signs which identify a business, or give other specific information, but they could be more thoughtfully designed "Monument" style signs at human scale are preferable.

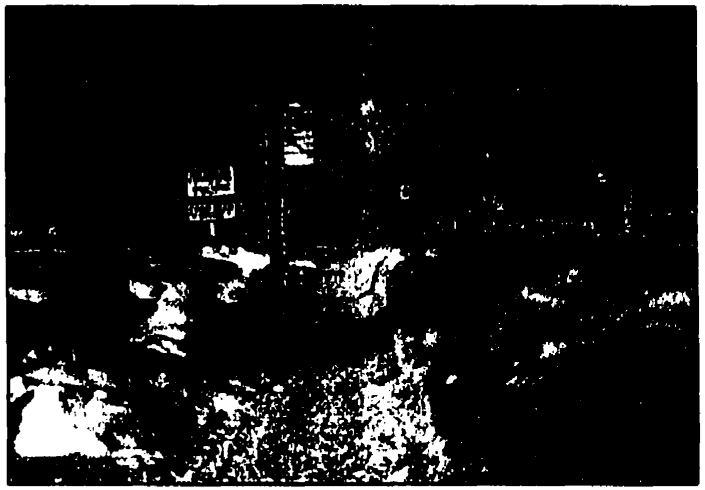


4-6 *(photo F. Cholakis)*

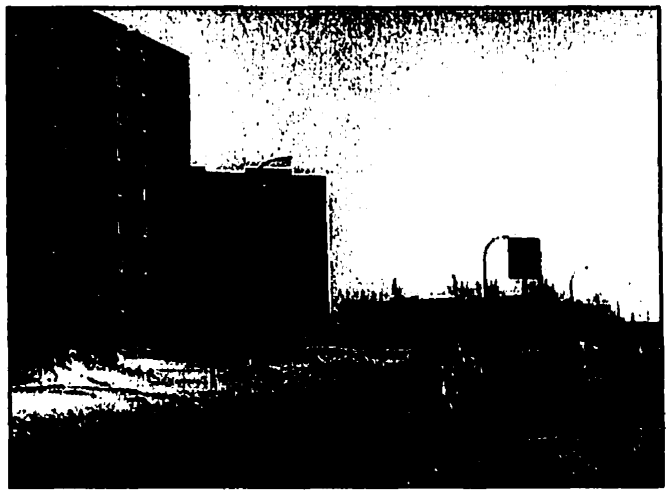
Streets and traffic

In his book *Great Streets*, Allan Jacobs describes how he tried to get design professionals to respond to a survey aimed at finding out what it takes physically to produce the best streets. He points out that it can depend on many things, "it is a complicated matter, and political, economic, and social realities, memories, images, desires, whether or not the sun is shining, personal values, and feelings of the moment may be the most telling determinants of the ascendancy of one place over another" (Jacobs 1993, 7).

Jacobs then goes on to list what he considers the criteria for what good streets should do. The first point he makes is that a great street should make community. That is, it should facilitate "people acting and interacting to achieve in concert what they might not achieve alone". For this reason the best streets should be accessible to as many people as possible as well as being easy to find and easy to get to. The street should be a place where it is



4-7 Pembina looking north from the Holiday Inn



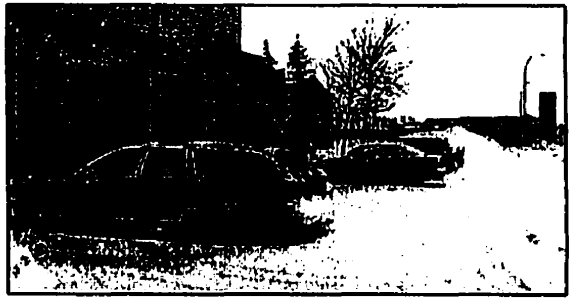
4-8 Lakeshore Park Apts. I and II (photos F. Cholakis)

possible to see and meet all kinds of people, not just those of one socioeconomic background or age group. In addition to being a desirable place to live, work, and play, a great street should contribute to what a city should be. The second criteria is that a street must be comfortable and safe. Jacobs means safety from traffic or from accidents not necessarily safety from the perceived threat of violence. He acknowledges that there should be good lighting and other accommodations but he does not believe in "sanitizing" the street by means such as using only small trees or prohibiting set back entryways as a way to avoid "societal misfits". Another thing which is important to a street is that it encourages participation. People can stop and talk or they can just sit and watch. Participation involves the ability of people who live or work on the street to contribute something to the street either individually or as a group. This contribution can be something as simple as a gesture to make improvements to an area, or more complex, such as organizing a local business improvement zone. Jacobs believes that if a street is to be great, it must be memorable, and continue to leave a strong, lasting impression. He also feels that a great street is one that is representative and can stand for others. Another observation Jacobs makes about streets which are generally thought to be successful is that we go there not because we *have* to but because we *want* to.

> They are entertaining and they are open to all. They permit anonymity at the same time as individual recognition. They are symbols of a community and of its history; they represent a public memory. They are places for escape and for romance, places to act and to dream. On a great street we are allowed to dream; to remember things that may never have happened and to look forward to things that, maybe, never will (Jacobs 1993, 11).

Pembina Highway is a classic example of a linear system roadway pattern. The advantages of this system are that the flow is primarily between two points, and it is suited to areas along canals, highways, or railways. The disadvantage is that there is a lack of focus (Harris & Dines 1988, 342-3). In the two long blocks between Killarney and the Perimeter, activity is focused in primarily in two areas, the first is the area around the Fort Richmond Mall, and the second, at the intersection of Pembina and Bairdmore Blvd.

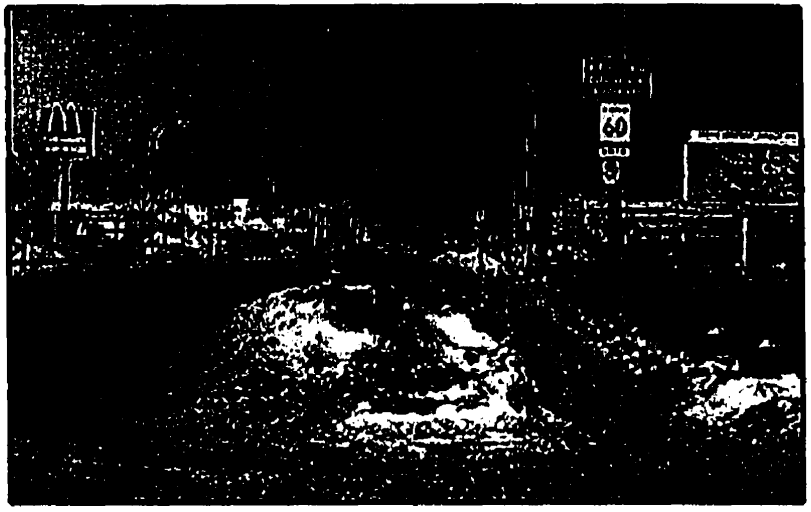
Since the 1950's, the problems with heavy traffic have increased dramatically in large cities all over the world, and a variety of solutions have been proposed. In the 1960's, residents in Delft, The Netherlands, replaced a traditional residential street with a roadway which was designed to force motorists to greatly reduce their speed while navigating around strategically placed barriers. The idea was that this would not eliminate traffic but restrain or "calm" it, and the name *woonerf,* or residential yard, was used to describe it. In 1972 the first official woonerf was constructed in Delft, and the idea spread to Germany, where it is known as *Verkehrsberuhigung,* which means traffic tranquilization. From that came the North American name, *Traffic Calming* (Jacobson 1997,. [6]). The concept behind traffic calming is that roads should not be designed primarily for automobiles, but should also consider the needs of pedestrians, cyclists, and mass transit. Ideally, a variety of road users should be able to interact with one another in a harmonious and mutually beneficial way. The concept of traffic calming is intended primarily for residential streets but the negative effects of high volume traffic are widespread and



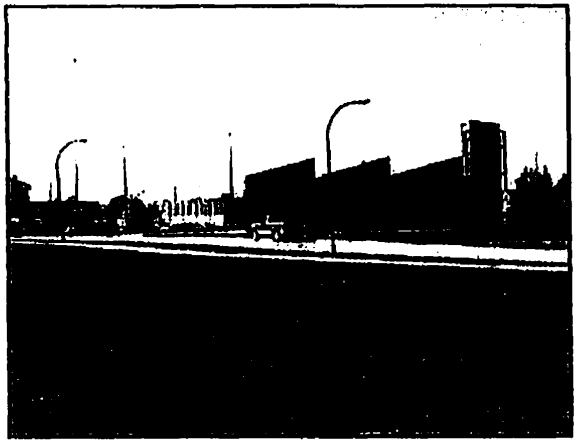
4-9 Chimney Ridge Apartements

4-10 Fort Richmond Mall parking lot (photos F. Cholakis)

interconnected. People are concerned about safety, pollution and social issues, and traffic calming deals with these concerns. Traffic calming has been described as "the restraining of automobile traffic through the use of measures which physically alter the operational characteristics of a roadway" (Jacobson, n.d. [2]). Features of traffic calming can include changes to the roadway, such as narrowing or realigning, changes to road surface, and increasing vegetation. In Ontario, London, Toronto, Markham, and Hamilton have adopted traffic calming to various degrees. Principles of traffic calming can be used to create more pedestrian friendly, shared areas, in places which are presently used for parking.



4-11 Sidewalk east side of Pembina (photos F. Cholakis)



4-12 Sidewalk on south side of Dalhousie Drive

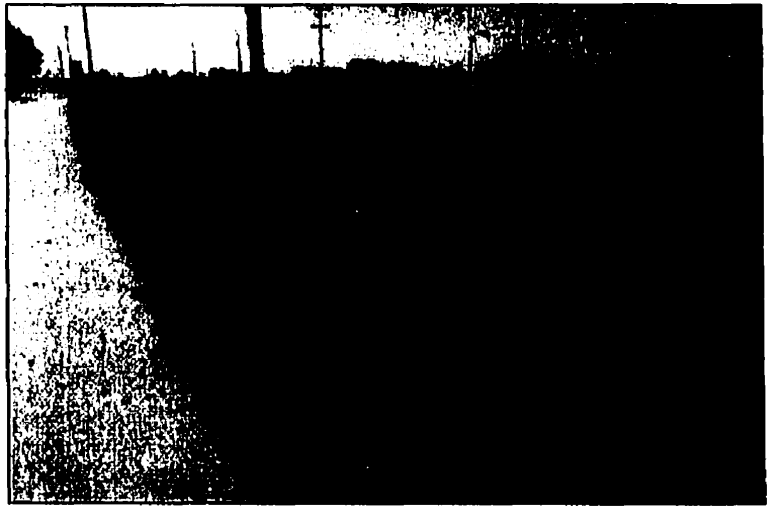
Transitions and linkages

Because they are zoned for different kinds of land use, traffic corridors are usually not well integrated into the community which surrounds them. Among the obstacles to integration is the fact that land ownership and development decisions are often fragmented. Also, standard practice calls for low-density, auto-dependent patterns of development in suburbs. In some cases there can be inappropriate zoning and resistance from residents to the integration of commercial with residential areas (Kubat 1991, 20).

Neither the residential areas nor the corridor are designed in a way that lends itself to smooth transitions between them. Both are geared to the automobile which entails following a street hierarchy which is not always direct. Although there are sidewalks, they adhere to the street pattern which is designed for vehicular traffic, and does not take advantage of opportunities which might be available to pedestrian circulation.

In addition to movement from outside the corridor to within the corridor, other transitions must be considered. For example, transitions from public to private zones, from inside to outside, from enclosed to open areas, from pedestrian walkways to streets, from streets to parking lots, and from streets to parks.

Because corridors are designed to encourage automobile use, and discourage walking or riding a bicycle,

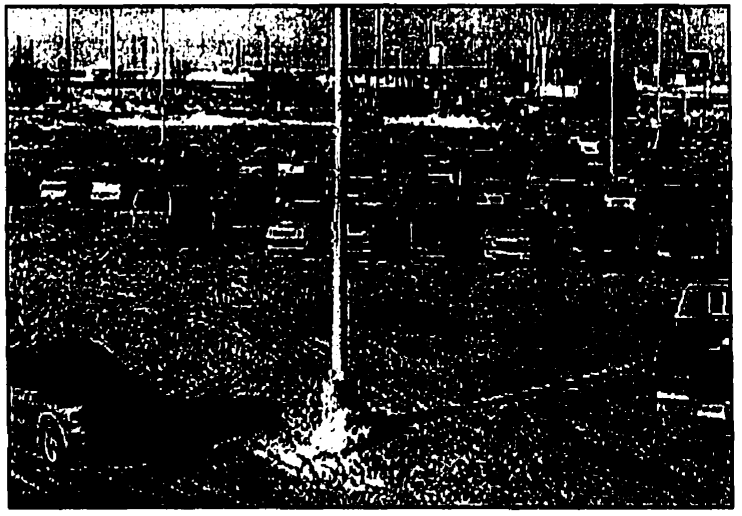


4-13 Path across the railway tracks from Fort Richmond West to the mall (photo F. Cholakis)

there are fewer opportunities for social interaction, which can lead to the social cost of isolation, as well as loss of other opportunities of all kinds.

According to Jon Lang, there are two different kinds of behavior settings: *places*, and *links*. He defines places as locations where a standing pattern of behavior occurs in a localized area, at a point. In a link, that standing pattern of behavior consists of movement between places (Lang 1994, 187). Kevin Lynch uses the terms *paths* and *nodes* to describe the same settings.

One of the most important considerations for the site is of movement through the site from outside it, and the actual connectors or links between places within the site. According to Jon Lang, it is these links, sometimes more than the places themselves which are important, and can be effective mechanisms for helping to provide a sense of community. "Sometimes it is their symbolic value that is the important factor, at other times it is the nature of activities along the link. It is the informal gatherings and opportunities to see others and be seen that are important. Where ... the possibility of meeting acquaintances is as important as the view or 'taking the air'" (Lang 1994, 274). In some cases, places can be part of a link. For example, people will often linger in a hallway or on a sidewalk even though that is not what it was meant for. Designers have been accused of not allowing for



4-14 Fort Richmon Plaza parking lot (photo F. Cholakis)

that occurrence when designing a link, because their primary concern is to design for movement.

Large shopping malls such as Fort Richmond Plaza are considered to be the centers of activity in most neighborhoods, functioning much the way the village square once did. Although the mall is a destination and a place where chance meetings can take place, the links to it are primarily automobile links. People drive there and then get into their cars again and drive home. A large mall housing chain stores is impersonal and because the focus is commercial there is a limited scope of activities which take place there.

In *A Better Place to Live*, Philip Langdon compares the chain stores along a busy arterial with small more permanent enterprises found in small business districts in Oak Park, Illinois. He states, "Small neighborhood centers tied to the surrounding residential areas by a network of streets and sidewalks, can generate a powerful sense of attachment" (Langdon 1994, 53).

Experiential qualities

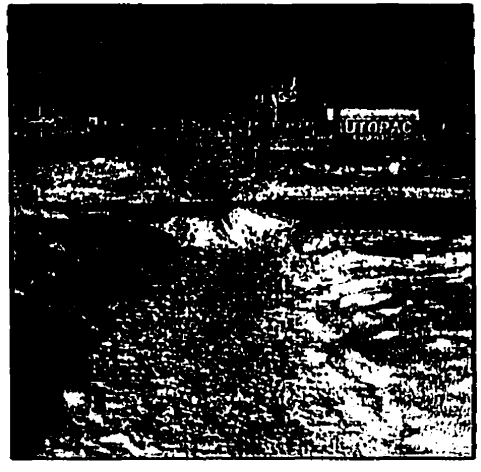
When speaking of enriching the "experience" of the Pembina Highway corridor, I am not referring to the fleeting experience of driving through an area, passively allowing images to impress upon one's vision, or of

watching the periphery slide by. Rather, I am suggesting the experience of being on the street as an end in itself, something which demands participation, and should be as interesting, exciting or as relaxing as we wish to make it. Whether driving, walking or cycling, it should be an experience that is malleable, and rich, one that is constantly engaging, challenging, and evolving, and one we are drawn to again and again.

Seasonal Issues

Because Winnipeg has such markedly different seasons, there are more opportunities to present the site in different ways, and to mark the changes in our climate.

Comfort, in extremes of heat, cold or wind is a design consideration. Walkways and small plazas or seating areas along the street would be sheltered from winter winds and oriented to make the most of sun angles for warmth. Dark colored pavers would absorb and retain heat for making these areas more comfortable in early spring and late fall . Vegetation is a major factor when considering various seasons. Choices of shrubs and trees should include spring flowering shrubs, and trees and shrubs that have colorful fall foliage or brightly colored bark. Accommodation must be made for snow clearing and storage and for winter activities.



4-15 East side of Pembina Highway (photo F.Cholakis)

Lighting

Illumination of city streets has evolved to an ever increasing degree, and plays a large part in the aesthetic character of a place, partially as a result of the types of fixtures used, and partially as a result of the pattern and intensity of the light itself.

Some of the design principles associated with lighting are; orientation, identification, safety, security, and character. One of the most important purposes of lighting is to make critical sites, circulation and activity zones legible. Another is to facilitate the safe movement of pedestrians and vehicles, while reducing the potential for harm or risk to property. Lighting also helps to reveal important features of an environment, at an appropriate intensity of light in order to encourage nighttime use of a site (Harris and Dines 1988, 540-1).

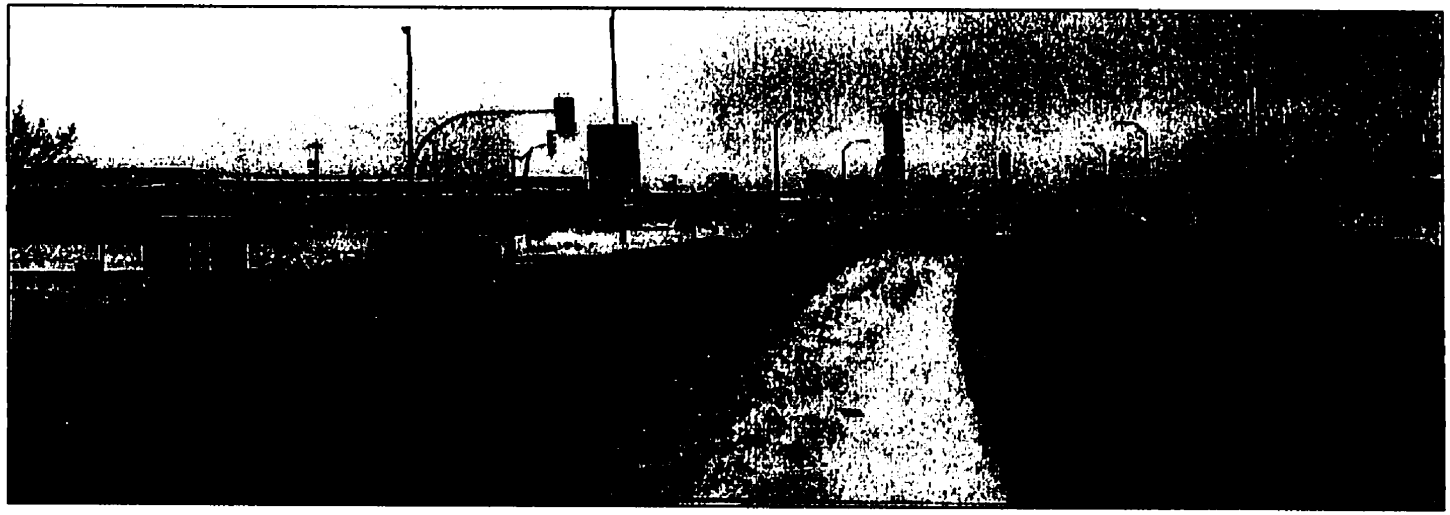
Lighting makes activities possible and comfortable, it aids orientation, and it has aesthetic functions. Lighting is also a factor in the security or perceived security of a place. The degree of illumination required varies depending upon what the activity is, and on the user. Two design considerations for lighting are, the ability to see at various distances, and under different conditions, and freedom from glare. At the least, people must have enough light to be able to see their environment without ambiguities in order to carry out activities (Lang 1994, 226).

One of the problems with constantly increasing the amount of light in cities is light pollution. Light pollution refers to the growing problem of excess diffused light escaping into the atmosphere, making it difficult to see the night sky, an experience which everyone should have the pleasure of enjoying, and which is essential to the study of astronomy. In an article, Civic Strategies for Lighting Design, Brian Edwards states, "Light pollution is a growing problem which planning authorities are beginning to address. The background glow of urban areas means that the stars are rarely visible and safety guidance such as airport landing lights and highway signs have to be brighter than ever" (Edwards 1994, 32). "Sky glow is one form of light pollution. Glare, the uncomfortable brightness of a light source when viewed against a dark background, and light trespass, the spilling of light beyond the boundary of the property on which the source is located, are other forms of light pollution" (CfDS 1997 [2]).

In a letter to the Globe and Mail (9 July, 1996), P.A. Delaney, Astronomy co-ordinator, Petrie Observatory, and other astronomers point out that for some years amateur and professional astronomers have been trying to prevent the use of lighting fixtures which are not "fully shielded", and emit large fractions of their light sideways and upward instead of downward where it is useful. The writers make the point that "street lighting which is fully

shielded is more energy efficient, more pleasant, and probably safer because the direct glare from a fully-shielded lamp does not strike a driver's or pedestrians eyes until the lamp is well above his or her line of sight. This also helps to preserve that person's dark-adaptation and alleviate the problem of 'night blindness'". According to the article fully shielded street lighting is available in Canada and is in mandatory use in Richmond Hill Ontario, where the University of Toronto's David Dunlap Observatory is located. It is also used in some heritage districts.

The British Astronomical Association, Campaign for Dark Skie, has been working to heighten awareness of light pollution, and suggests the following ways to reduce the problem. 1.) Turn off lights when they not needed for safety, security or enhancement. 2.) Direct light downwards whenever possible to illuminate its target, not upwards. 3.) Use specifically designed lighting equipment that once installed minimizes the spread of light near to, or above the horizontal. 4.) Do not "over light". It is a waste of money. 5.) To keep glare to a minimum, ensure that the main beam angle of all lights directed towards any potential observer is kept below 70 degrees. 6.) Whenever possible use floodlights with asymmetric beams that permit the front glazing to be kept at or near parallel to the surface being lit. 7.) For residential and small scale lighting, use low wattage tungsten halogen lamps, or low brightness lighting such as a compact fluorescent lamp. 8.) For road lighting, light near to or above the horizon should be minimized (CfDS, 1997 n.p.).



5-1 Looking north toward the Pembina Kirkbridge Killarney intersection *(photo F. Cholakis)*

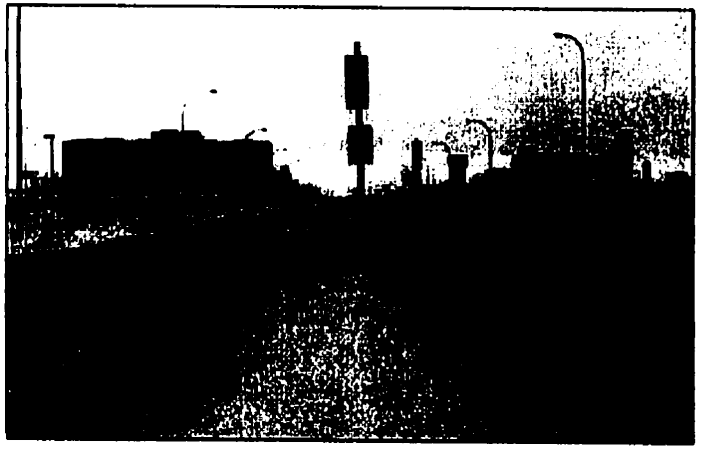
5. The Design Development

The Pembina Highway corridor is not simply an isolated traffic route disassociated from its context. Rather it is one of a number of related and interconnected components which make up an interesting and potentially vital neighborhood. Its coherence and meaning comes from this context. For this reason the design adresses issues of community livability and improving the pedestrian environment as well as the function and aesthetics of the corridor.

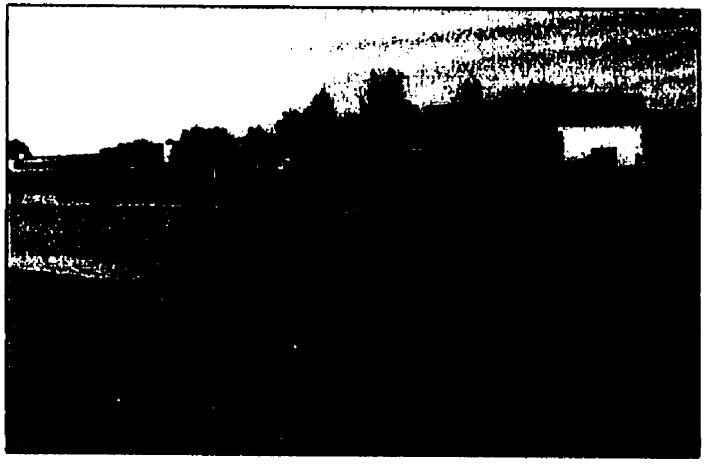
The corridor and its context have many positive feature which are taken into consideration by the design proposal. Among these features are its diversity of land use, which includes different housing types as well as commercial buildings and a large amount of open space suitable for wildlife habitat restoration and light recreation. As well, the site has great geographic and historical significance. One of the objectives of this proposal is to identify and build on these very positive components of the neighborhood, revealing its potential and that of the corridor within it. It is intended to provide a functional, efficient plan which will encourage and facilitate future layers of complexity and meaning in an ever more finely textured and vital neighborhood.

The four elements of the design proposal are:

- Site character and the concept of a river
- Street plazas and their connections to the neighborhood
- The constructed wetlands
- Street trees and plant material along Pembina Highway



5-2 Pembina looking north



5-3 Baldry Creek Park *(photos F. Cholakis)*

Site character

It has become popular in recent years to put up signs in a district identifying it as a particular neighborhood. Signs alone cannot create character. Character is more than superficial ornamentation, or designation by bureaucratic decree, it is an aggregate of many features and traits. Geographic location is a part of it. In Winnipeg, our location in Canada and on the prairies is a large part of our character. Topography also plays a part. The Red River, a distinctive meandering river, which has played a defining role in the growth and character of Winnipeg, is less than two kilometres from Pembina Highway.

Neighborhood character is also a reflection of the values of the people who live and work in a place. Residents have family values, economic, social, environmental and political values. Schools and places of worship reflect educational and religious values. In the Pembina corridor, values would also include historical values of the fur trade era and the importance of the Pembina Trail since that period .
Values demonstrated by this proposal are:

1.) A recognition of the importance of urban places which provide settings for socialization and social learning

2.) The repudiation of the automobile as the primary form determinant of cities

3.) The importance of preserving and enhancing natural systems, processes, diversity and habitat

4.) The benefits of human interaction with nature

It is important that this site be recognized as a *specific place* having a distinct character which has accrued meaning, rather than being seen as an undefined or undifferentiated space which leaves no impression and elicits no response from those who pass through it. One way to make that character tangible is by establishing a concept which is then illustrated by a design. This concept proposes a "river" of vegetation which runs through the site, marking it as a special and unique place. The symbolism of a river is directly related to existing site conditions, the proximity of the Red River, and to historical associations. In addition, water is the most elemental and potent life giving force; an appropriate metaphor for regeneration.

Approaching Winnipeg from the south, just past the point where a vista to the Red River opens on the right, a similar, matching "river" will begin to gather. A fluid swath of vegetation; densely planted trees, shrubs, native plants and grasses will curl to the west gradually building in size and height, cross the overpass, then pour down to the roadway on the other side where it will continue to flow through the site. This ribbon of vegetation will define and elaborate both the entrance to the city and to the neighborhood.

From of the shadow of Lake Aggassi, from the Red River, and from Baldry Creek, which in recent decades has been suppressed beneath the site, the configuration of a new river will emerge. The vegetation "spirit of the river" will assume form and movement, its influence reconnecting, regenerating and renewing the Pembina Highway corridor.

Most traffic corridors appear so much alike that it is difficult to distinguish between them. The Pembina Highway corridor would project a stronger identity if it had a more cohesive, distinctive, appearance. Disparate parts of the corridor should be connected by having things in common, such as plant material, colors, construction materials, proportions and styles.

Philip Langdon talks about the idea of "sharpening the distinctions between one road and another so that each travel corridor evolves its own identity" (Langdon 1994, 228). He describes the approach taken in Bozeman Montana, where guidelines were drawn up that reinforce the most prominent traits of several major road corridors. "Dramatic and forceful architectural forms such as entrances, wall openings and parapets would give the corridor a unique identity" (Langdon 1994, 228). The use of paving patterns and porous pavers could help to define areas. Also the corridor should have a distinct beginning and ending, which would be marked by the street

and boulevard trees. Ideally, more buildings, more windows and more doorways would suggest more activity on the street, and give it a feeling of enclosure. In lieu of actual buildings this effect would be achieved through the use of architectural details, archways, and free standing facades. Rows of trees would also provide a sense of enclosure.

Site ordering

Kevin Lynch talks about the "sensed quality of a place [as] an interaction between its form and its perceiver" (Lynch 1990, 153). That form means the ordering of the elements within a space. The size, location, orientation, and disposition of elements along the corridor; buildings, parking lots, walkways, plazas, and plantings provide the structure of the design.

As part of a plan to create an attractive, safe pedestrian environment on Pembina Highway, this design proposes six street plazas, three on each side of the highway, approximately opposite each other.
Plazas on the east side of Pembina Highway would be,

1.) in front of the Fort Richmond Plaza

2.) between Lakeshore Park II and Chimney Ridge Apartments

3.) between the Shell station and Fort Richmond Transmission

and on the west side:

4.) in front of the Fort Richmond West Mall

5.) in front of Newdale Plaza

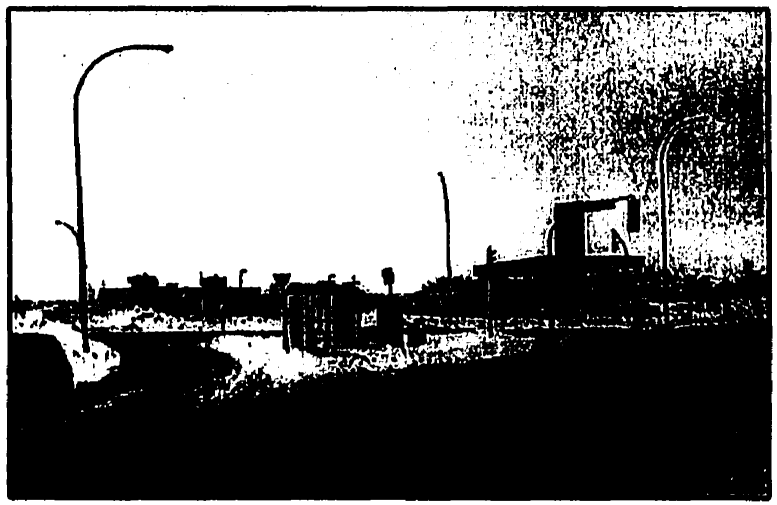
6.) in front of MacDonald's

The size of the plazas would range from 100 to 500 square metres. Each plaza would have a bosque of trees, and would provide a refuge where people could sit and chat or wait for the bus in a comfortable, attractive and sheltered place. The plazas would have kiosks displaying notices of events of local interest, or one or two small play structures. They would have places where food carts could park and chairs and tables for people who have either brought their lunch or bought take out food and would like a place to sit down. Some of the plazas could have ramps or curbs specifically designed for skateboarding. A similar idea has been used in Houston

Texas, where a series of arches are located along an arterial street in the Galleria district. Each arch ends in an "oasis" which has amenities such as drinking fountains and seating, and at night is washed with light so they become destinations (Bressi 1997, 72).

In describing a linear organization, Francis Ching talks about a series of spaces which "can either be directly related to one another or linked through a separate and distinct linear space". He points out that a linear organization "can consist of a linear space that organizes along its length a series of spaces that differ in size, form, or function, and that spaces that are formally or symbolically important to the organization can occur anywhere along the linear sequence and have their importance articulated by their size and form (Ching 1979, 214).

In this case the plazas would all have the same formal and symbolic function but would differ in form. The plazas would be used as mini-parks, but would be located along the street and would be a focus of activity in the corridor. Breaking the street into segments would make it seem shorter to pedestrians and it would appear more interesting to motorist as well. The plazas would also provide a series of orientation points along the street. This could be reinforced by having a slightly different structure, such as a low wall or a facade in each one that would differentiate it from the others.



5-4 Bus stop at the Dalhousie intersection
New bus stop locations would be at the plazas.
(photo F. Cholakis)

existing sidewalks
proposed walkways
proposed crosswalks
proposed plazas
existing bus stops
proposed bus stops

Numerous connections with the community are essential to the integration of t to overcome the auto-dependent pattern of development . If the pedestrian en will consider walking within the neighborhood as an alternative to making freq

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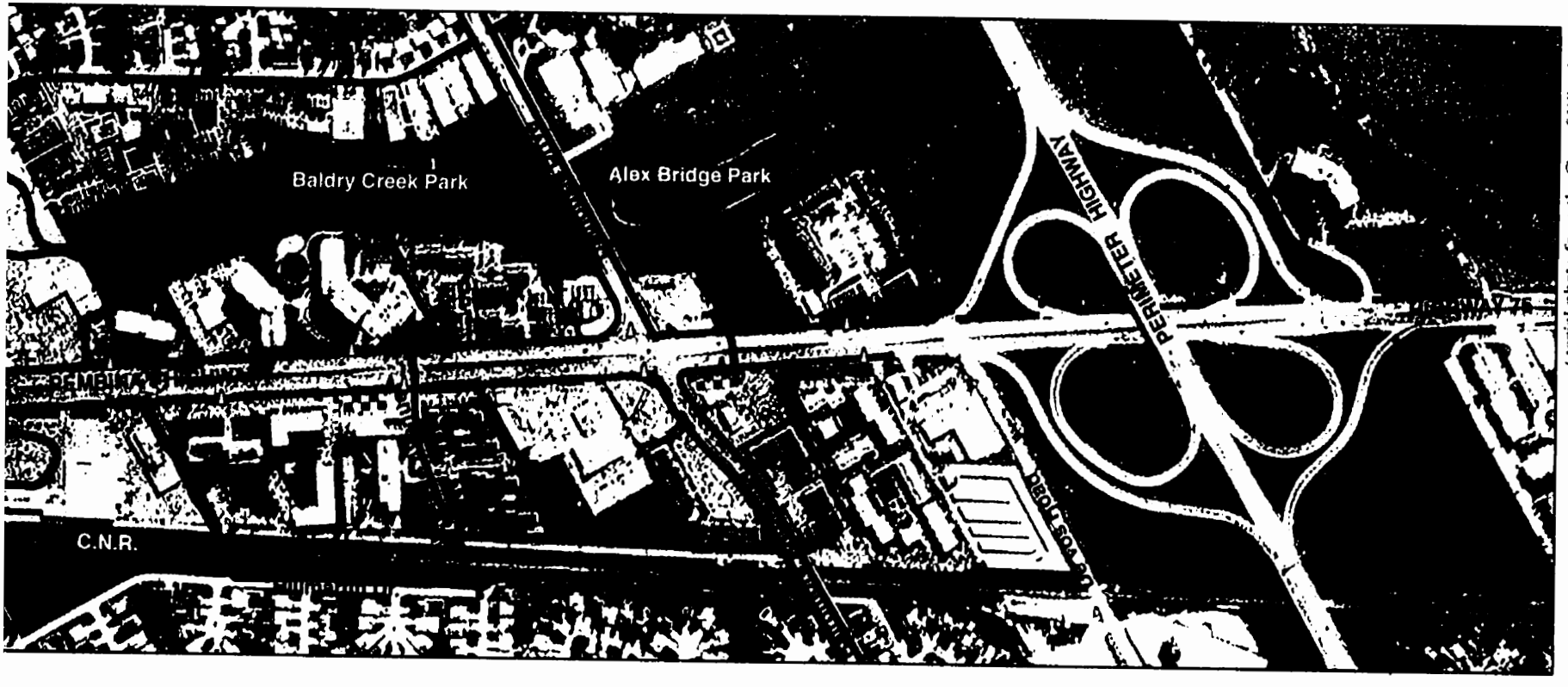
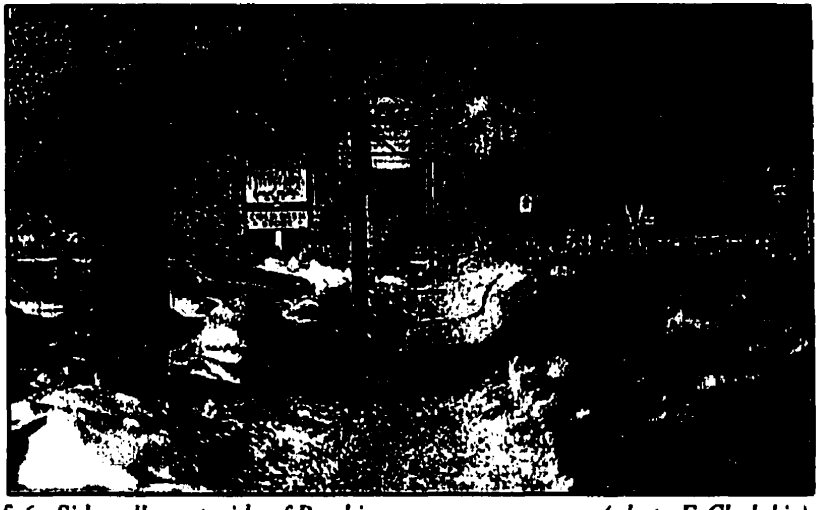


(aerial photo from the City of Winnipeg)

proposed plazas
existing bus stops
proposed bus stops

Numerous connections with the community are essential to the integration of the corridor with its context, and to overcome the auto-dependent pattern of development . If the pedestrian environment is attractive, people will consider walking within the neighborhood as an alternative to making frequent, short automobile trips.



5-6 Sidewalk west side of Pembina *(photo F. Cholakis)*

Connections to and through the site

Most people are not willing to give up the comfort and convenience of their automobile when they have to travel some distance or if the weather is poor. However, as a result of the tremendous interest in healthy life styles combined with environmental concerns, people are much more willing to walk occasionally, and it is impossible to avoid walking at least a little while going about our daily tasks. Many people exercise by walking or jogging daily and seek out pleasant places for this activity.

Another noticeable trend in recent years has been the increase in cycling. Since the development of the mountain bike, more and more people cycle regularly, some to and from school or work, others strictly for recreation. Although the climate in Winnipeg prevents us from cycling year round, it is not unreasonable for people to ride their bikes for at least six months of the year. Concern about the risks of riding on arterials such as Pembina Highway is much more of a deterrent than the weather.

In addition to being healthy and environmentally responsible, walking and cycling can be very enjoyable, and results in much greater social interaction. In spite of this, walking as a mode of transportation has not been given much attention, even though there are large segments of the population such as the elderly and children,

5-7 Sturgeon Creek pedestrian /bicycle path (photo F. Cholakis)

who do not drive cars. Also, in order for Winnipeg Transit to encourage people to use the bus, users must feel comfortable walking to and from the stops, in a pleasant environment.

Extensive pedestrian/bicycle pathways connecting residential areas to the corridor and to the Alex Bridge and Baldry Creek Parks, would provide safe, easy and enjoyable access to various parts of the site. The strength and vitality of the Pembina corridor depends upon a welcoming pedestrian environment, and a variety of routes connected to it. There are many potential users for these routes living in close proximity to the corridor. In addition to the many apartments and town houses along Pembina, there are hundreds of single family residences within 400 meters of the street, and hundreds more within 500-600 meters. Although there are sidewalks along Pembina, they are not buffered from the wide roadway and the moving traffic by parked cars or by trees or shrubs. The boulevard along Pembina is a 4.5 metre wide strip of grass. As a result sidewalks are not enjoyable places to walk. Walkways, more diverse and interesting than the existing sidewalks, would be varied in size and configuration, and would be made more enjoyable and functional through the use of features such as; universal access design guidelines, variations in width, materials and configuration, arches, trellises, planters and plant material. A system of these walkways would connect the plazas along Pembina as well as Fort Richmond Mall

5-8 A walkway between the Holiday Inn and the Westminster Apts. parking lots would connect to Hillmartin Drive. (photo F.Cholakis)

parking lot, the Richmond West parking lot, retail businesses along the street, apartment blocks, parking areas and open space throughout the site. The existing sidewalks would be incorporated into the design.

One obvious place for a new pedestrian and vehicular connection to Pembina would be from Newdale Ave. across the tracks to Hillmartin Drive. Paths indicate that this route is currently used even though there is no road or sidewalk. Another area where there could be a connection is on the north side of the Holiday Inn parking lot across the tracks to Hillmartin Drive. A sidewalk approximately two metres wide could be installed alongside existing planters. A system of bicycle/pedestrian pathways and nature walks would spread through the wetlands area, connecting to the Fort Richmond Plaza, and to the corridor, and would include a boardwalk over the wetlands. Another new connection could be made through the parking lot on the south side of Lakeshore Park II. Residents of Fort Richmond could access the walkway around the wetlands by way of an existing sidewalk from Baylor. At the south end of the site, there would be a connection beside the location of the proposed Tourism Winnipeg office between the Shell station and Fort Richmond Transmission .

There would also be extensive, safe, facilities for cyclists; street lanes as well as off-street paths, secure racks, including racks on buses to facilitate the connection between mass transit and cycling.

5-9 The Pony Corral Restaurant has an outdoor terrace and holds special events in the parking lot in the summer. (photo F. Cholakis)

The street as focus of the neighborhood

Rather than the shopping centre and the malls being the main focus of activity as is now the case, I believe that the street itself should be the central focus of the community, knitting together a variety of elements in a functional and yet imaginative way. As such, it would provide the physical framework for development and a setting for a variety of uses from shopping and socializing, to special events and activities. In order for this to happen, it must appeal to people of different ages and with a variety of interests who will use it in different ways at different times.

The use of a large number of street trees to delineate the corridor would mark it very clearly as the center of the neighborhood, the entrance to the city, and as a unique and important place. To further reinforce this a large marker would be erected at the overpass. The proposal includes a Tourism Winnipeg information office just north of the overpass on the east side of Pembina Highway, between Fort Richmond Transmission and the Shell station. Travellers could stop at to obtain maps and information about the city. The building would be located on the plaza, fronting on Pembina Highway. Travellers would be able to use the plaza and the walkways connecting to the wetlands area and nature walks. Historic markers would provide information about the Pembina Trail.

5-10 Dalhousie Dr. Pembina intersection *(photo F. Cholakis)*

Traffic

The most pervasive element of the Pembina corridor at the present time is the traffic. As an arterial roadway, it fulfills its function is to move six lanes of traffic smoothly through the area. Two things which would improve the pedestrian environment of Pembina Highway are; 1.) reduce the volume of traffic, and 2.) slow the speed of traffic. There would be practical as well as aesthetic reasons for doing this. Heavy volumes of high speed traffic are intimidating and unpleasant for pedestrians and cyclists. Less traffic would mean a reduction of pollutants such as carbon monoxide, nitrogen oxides, hydrocarbons, and particulates, caused by automobile exhaust emissions (Marsh 1991, 235). Another environmental consideration would be that because vehicles operate more efficiently a slower speeds they consume less fuel, reducing consumption of a non-renewable energy source. There would also be a reduction of noise caused by heavy traffic

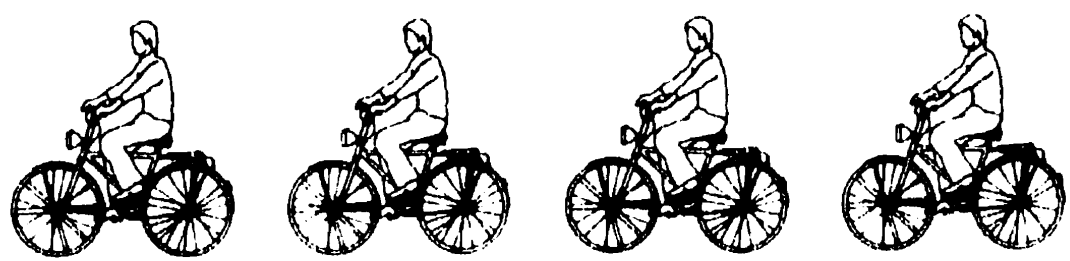
In order to reduce the volume of traffic along Pembina there must be a strong motivation for people to walk instead of driving when making short trips in the area. The proposed system of plazas, walkways and crosswalks would provide an appealing environment for pedestrians.

One way to slow traffic would be to allow on-street parking in certain areas. On-street parking in desig-

nated areas and during limited hours would slow traffic and provide a buffer between pedestrians and the traffic. Allowing on- street parking and reducing the number of traffic lanes would mean that cars would have to slow down for people parking, and getting in and out of their cars.

An example of how this can work can be seen in St. Norbert, south of the Perimeter, where there is a farmer's market every Saturday and Wednesday during the summer months, beside the community centre on Pembina Highway. Traffic on Pembina Highway is forced to slow down in the vicinity of the market because of the activity on the street. Because the parking lot can not accommodate all the cars, people park along both sides of the highway in front of the market and cross back and forth, going to and from their cars. Also, because parking is in short supply, people cruise slowly along the inside lane waiting for a spot, forcing cars behind them to change lanes and go around. There does not seem to be any difficulty with this arrangement, and drivers just accept it as being a necessary part of the experience. In addition to casual, spontaneous socializing on the site, other people who are just driving by stop to investigate the activity.

The addition of three "on demand" pedestrian crosswalks on Pembina Highway would also improve the pedestrian environment. The crosswalks would allow pedestrians to cross at the plazas. One across from Fort Richmond Plaza, one just north of the Newdale Blvd. intersection, and another just south of the Bairdmore Blvd. intersection. Traffic lights at the two intersections should be timed to give pedestrians ample time to cross the whole width of the street.



5-11 Elm trees by Truro Creek, Winnipeg (photo F. Cholakis)

Planting Plan

Because the site is close to the Red River it is likely that prior to settlement the area was part of, or certainly in proximity to, riverbottom forest. Riverbottom forest refers to plant communities which were in the same areas as Aspen parklands and prairie grasslands, but were found in the low lying areas along the river valleys and flood plains across the prairies. Although there is very little evidence of native vegetation on the site, there is a large amount of open space which offers many opportunities for planting trees and other plant material.

The importance and value of trees in an urban setting cannot be overstated. Trees are the most important plants for energy conservation and for design purposes. They are an investment in the future, and can ameliorate the climate more than any other plant material. In addition to their aesthetic value, trees are highly beneficial to the urban environment. "Trees are pollution sinks. They collect pollutants and particulate ash from the air (by both absorption and adsorption). And as they photosynthesize, they remove carbon dioxide from the air and manufacture oxygen, which is especially useful in urban areas with poor air quality" (Foster 1978, 39).

In *Great Streets*, Allan Jacobs talks about one of the characteristics of a great street. "Great streets have definition. They have boundaries, usually walls of some sort or another, that communicate clearly where the edges of the street are, that set the street apart, that keep the eyes on and in the street, that make it a place" (Jacobs 1993, 277).

On Pembina Highway, definition and identity would be provided by Discovery Elm™ *Ulmus davidiana japonica* 'Discovery', American Basswood, *Tilia americana*, and Patmore Ash, *Fraxinus pennsylvanica* 'Patmore' planted along both sides of the street, continuing up to the intersection spaced at 5 metres on center. Because paved surfaces absorb up to 50% of the sun's heat, large areas of concrete and asphalt become uncomfortably warm in summer and contribute to the urban heat island. Large, deciduous, native trees with broad canopies would mitigate this, while at the same time creating a very attractive, comfortable and appealing place for pedestrians by providing patterns of light and shade along the corridor. In addition to their aesthetic appeal, the trees would provide shade and have a cooling effect in the summer, while allowing exposure to the sun's warmth when the branches are bare. The experience of the corridor both for people in cars, and for pedestrians, would be dramatically changed by the addition of these rows of trees on both sides of Pembina Highway, particularly as the trees mature. The Discovery Elm™ can reach a maximum height of 12 metres with a spread of about 6 meters, the American basswood, a height of about 20 meters, and a spread of 10 meters, and the Patmore Ash a height of about 12 meters.

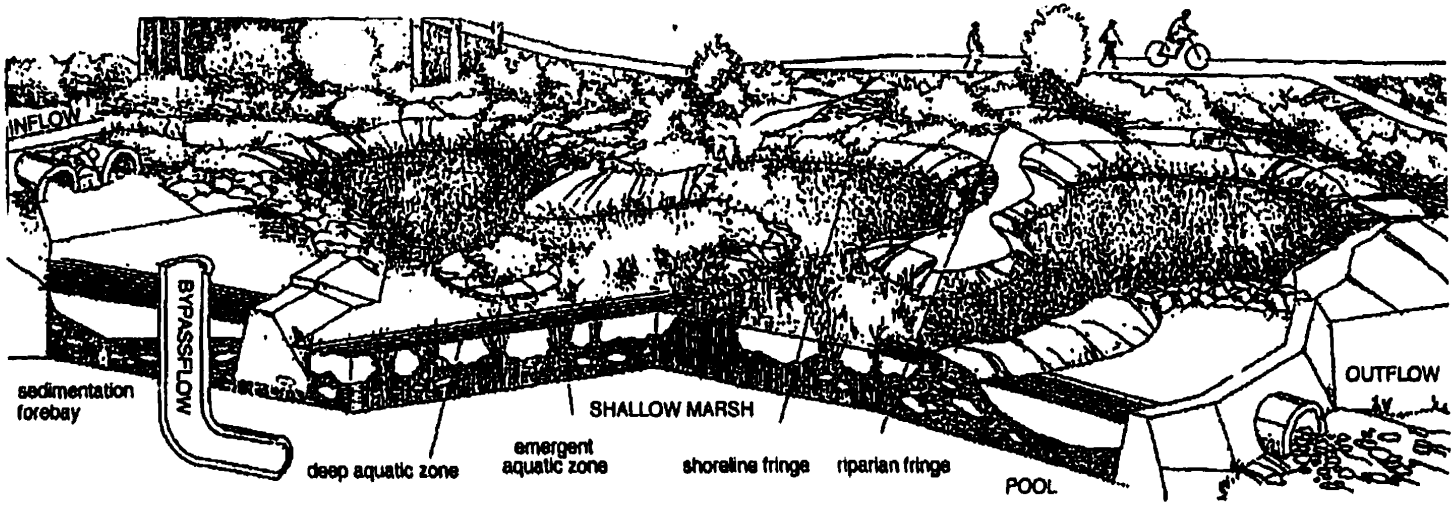
5-12 Balmoral St. Winnipeg (photo F. Cholakis)

Trees which would comprise the "phantom river" would be: American Elm, *ulmus americana* L., Eastern Cottonwood, *populus deltoides* Marsh., Manitoba Maple, *acer negundo* L., Showy Mountain Ash *Sorbus decora* (Sarg.) Schneid., Green Ash *Fraxinus pennsylvanica* Marsh., and Black Ash, *fraxinus nigra* Marsh.. Shrubs would include Arrowwood *Viburnum rafinesquianum*, Rugosa Rose *Rosa rugosa*, Silver Buffaloberry, *shepherdia*

argentea, and Smooth Sumac *Rhus glabra.* Ground covers such as Birdsfoot Trefoil *Lotus corniculatus,* would also be used, and grasses such as Canada Wild Rye, *Elymus cinereus,* Blue Grama, *Bouteloua gracilis* and Big bluestem, *Andropogon gerardi.*

Plantings of trees, shrubs, flowers, ground covers and grasses around the plazas and along the street would be coordinated by using the same varieties, and would extend through both public and private property. This would help unify the street and contribute to its continuity. Recent "neotraditional" communities are built with a strong emphasis on a unified appearance and frequently have restrictions which enforce it. The trees would also minimize the differences in building styles and materials. Tree species would vary at the pedestrian plazas, where they would be most densely planted, indicating an area of high pedestrian activity.

5-13 Big bluestem
photo by Robert Taylor, (from
Natural Heritage of Manitoba : Legacy of the Ice Age
James T. Teller ed., 107)



5-14 A prototypical constructed wetland
(from "Constructing Wetlands for Water Quality Enhancement in Western Canada", by the Wetlands Design Group)

Constructed Wetlands

The water retention ponds in Alex Bridge and Baldry Creek Parks are currently serving an important function in the management of storm water runoff. There is an even greater potential for these large open areas to contribute dramatically to the Fort Richmond neighborhood. By making changes to their configuration and more significant changes to the vegetation surrounding them, they could become highly effective constructed wetlands, providing a functional and aesthetic complement to the corridor context.

Urban storm water has been identified as a major source of pollution. In recent years a number of technologies have been developed which enhance natural processes to improve water quality. These processes are referred to as "constructed wetlands", and are based on the use of plant material, algae and microbes to remove excess nutrients and pollutants from incoming water. Many contaminants are removed or altered into less harmful forms as a result of being exposed to the natural processes inherent in wetlands organisms (Wetlands Design Group n.d.).

A constructed wetland has many benefits in addition to improved water quality. It provides an ideal oppor-

tunity for increasing species and habitat diversity, as well as many educational and passive recreational opportunities. Plant material used in the constructed wetlands would be native trees, shrubs, grasses and aquatic plants.

Community Involvement

In order to bring about substantial changes in the way we look at the design of cities and neighbourhoods, there must be a commitment from residents, planners, and politicians toward a common goal. I believe that community involvement is now an important aspect of any design and that community groups trying to build consensus are no longer thought of as aggressive demonstrators bent on boycott as they once may have been. Instead, they add a human dimension to the process. In order for a community to establish a strong identity and function effectively, it is important that the residents and property owners be involved in choices and decisions that are made. Urban and landscape design should reflect the values of the people who live in the community, whether they are family values, moral, historic, environmental, aesthetic, or economic, values. In *A Better Place to Live*, Philip Langdon talks about the importance of life in public places.

> Traditionally the neighborhood was an important social network that stabilized people, helping them to evaluate the world and find a path to satisfaction. The neighborhood was an anchor for the individual, providing emotional, spiritual, and intellectual support. When a neighborhood has an animated public life, residents benefit. They obtain greater opportunities to find companionship, develop friendships, and form ideas. They are led toward balanced lives. Their ability to cooperate in solving community problems and carrying out community improvements multiplies (Landgdon 1994, 152).

One of the advantages of a sense of community is that people then take ownership of an area. Residents acknowledge responsibility for their own neighborhood and the more they identify with their neighborhood, the more likely they are to remain there, investing in it for the long term, which in turn, results in greater social and economic stability for the area. Interest groups become involved in making choices for their community, and lobbying for the things they believe in. Community involvement has other social benefits, such as crime prevention and a safer environment.

6. Conclusions

Like cities, streets evolve slowly over time, and are shaped by many complex, physical, cultural, and political factors. Pembina Highway has changed dramatically from the muddy trail which served as a trade route from the Red River settlement to the United States, and despite some constraints, it now has many qualities which present opportunities for it to become an interesting, vital and attractive street. The site reflects diversity in land use and residential types, and there are existing recreational facilities which could be enlarged upon. The retention ponds and the large open space around them present an ideal location for the development of wildlife habitat and the enhancement of plant and wildlife diversity. Culturally, people are interested and concerned about the environment, and in social and moral values. There is nostalgia for some of the qualities towns and villages had in the past, and a desire for more hospitable and livable cities.

Along with physical changes to cities and the development of the suburbs in the past few decades, peoples attitudes to their surrounding also changed. It has been suggested that the growth of the suburbs reflects a cultural and political shift from the public to the private domain (Calthorp 1993, 37). Gated communities and shopping malls are examples of this. In many ways large malls have replaced the traditional outdoor public square or plaza. The difference is that while these are attractive spaces, they are privately owned, wholly commercial venues which are designed to attract customers. As such, they promote exclusion and lack the real meaning and identity which can be derived from a neighborhood and the people who live there. Like private recreational facilities, shopping malls are private property and are dominated by the consumption of goods and services.

One of the greatest attractions of owning a single family suburban dwelling has always been the lure of having a yard, one's own private domain in which to enjoy the outdoors. This space is generally respected as private property and is used only by the owners. A common criticism of contemporary housing is that they often have large front yards which are wasted space because no one uses them. The automobile has extended personal privacy even further, so that it is possible to retreat from the public domain almost entirely, resulting in alienation from one's community. This is a great loss to both the individual and to society. One of the greatest benefits

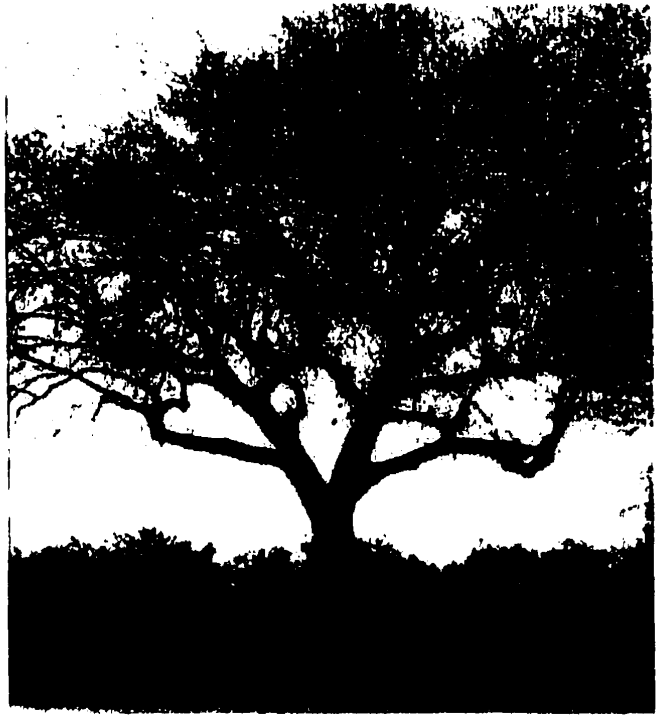
of a city is the opportunity for human interaction, and the public realm is crucial to our learning about ourselves and how to relate to others. In addition to their function as a conduit for circulation and movement, streets should be used as a way to reverse this trend, by being used as a compliment to private space, smoothing and enhancing the transition between the public and private domain.

Neighborhood streets, even wide arterials such as Pembina Highway can meet the needs of pedestrians by providing safe, direct, easily accessible links to shops, schools, services and recreation facilities. People who do not drive must still have access to necessities and opportunities, as well as feeling that they are a part of their community and its activities. The pathways along which automobiles, transit, cyclists and pedestrians move through the site gives it form, cohesiveness and meaning. Linkages and connections are conduits for natural processes, communications, and social and economic interactions.

The proposed plazas would improve the appearance of Pembina by making it a series of shorter, connected segments rather than one uninterrupted expanse. They would also provide pleasant, comfortable public space everyone from the elderly to young children, for sitting, visiting, waiting for a bus, walking a child, or people watching.

Public places and streets should be designed to express hospitality and emphasize the humanizing and civilizing functions of cities. The implementation of the four parts of the design proposal would accomplish this by:

1) Giving the site a strong identity and a connection with history through the concept of a river of vegetation running through it.
2) Encouraging socializing as a result of connections with the neighborhood and the creation of comfortable, safe, plazas at strategic locations along the street.
3) Providing educational and recreational opportunities, as well as environmental enhancement through the constructed wetland.
4) Creating a strong impression of 'place', ameliorating climate, and presenting a welcoming gateway to Winnipeg, through concentrated tree planting along Pembina Highway.

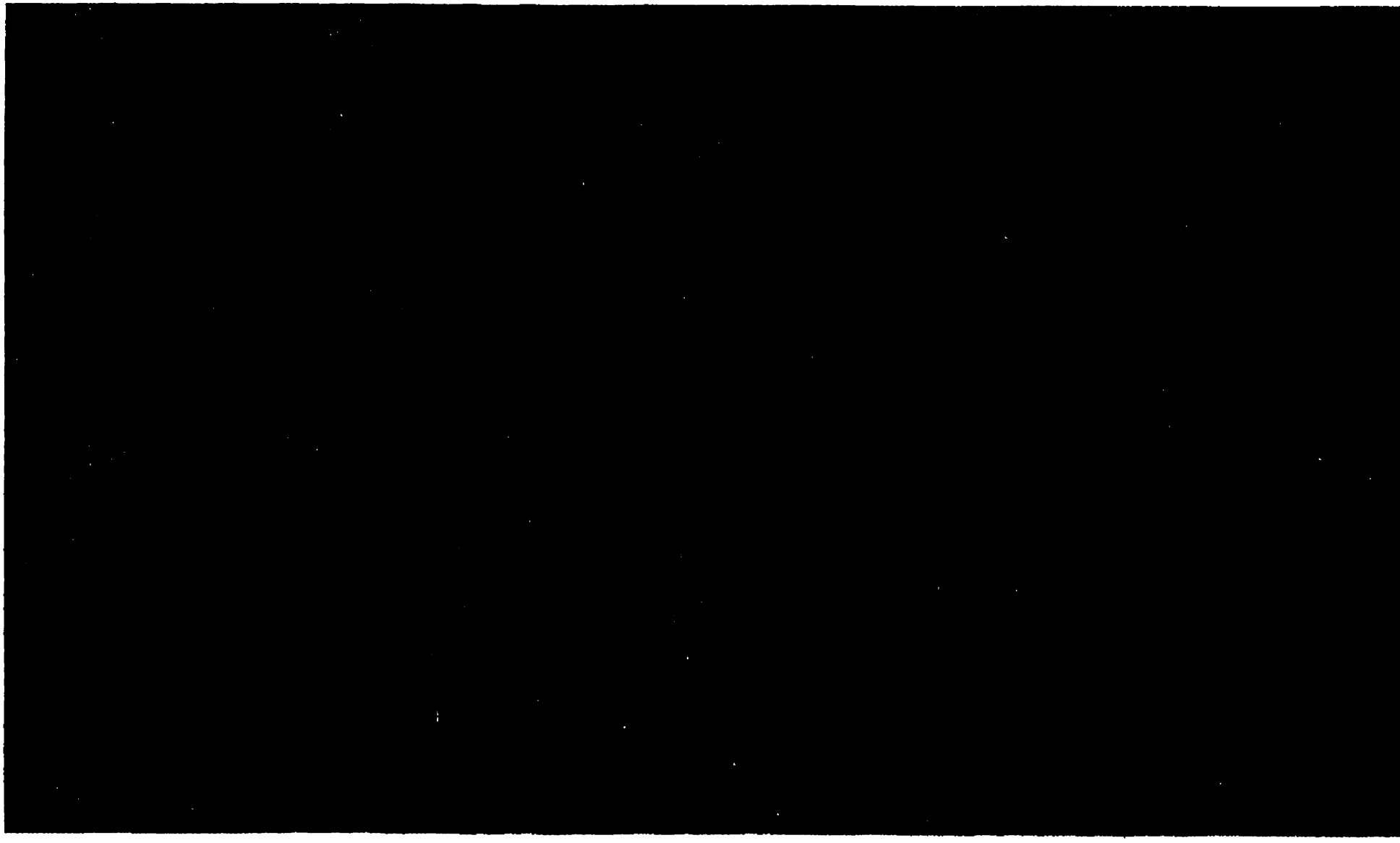


5-15 (from The Prairie Gardener 1998)

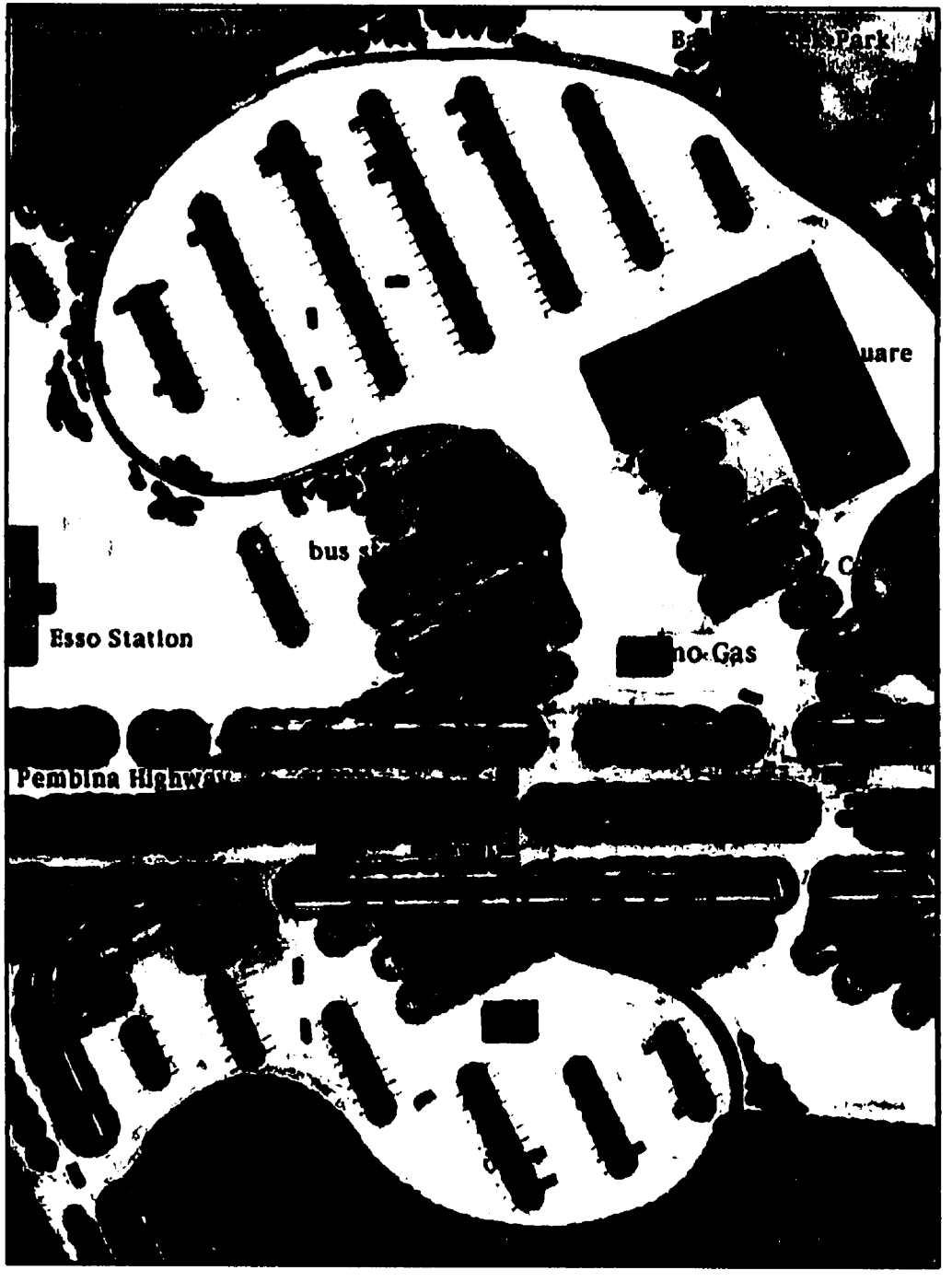
Architecture that serves only the marketplace, the temporary bonding of place and consumption, is a throw-away unless it speaks genuinely to another level of community, to common values and patterns of thought, or to qualities so fundamental to the human condition that they evoke some deep chord of recognition and invite many different kinds of people to empathize with its patterns and each other

Donlyn Lyndon

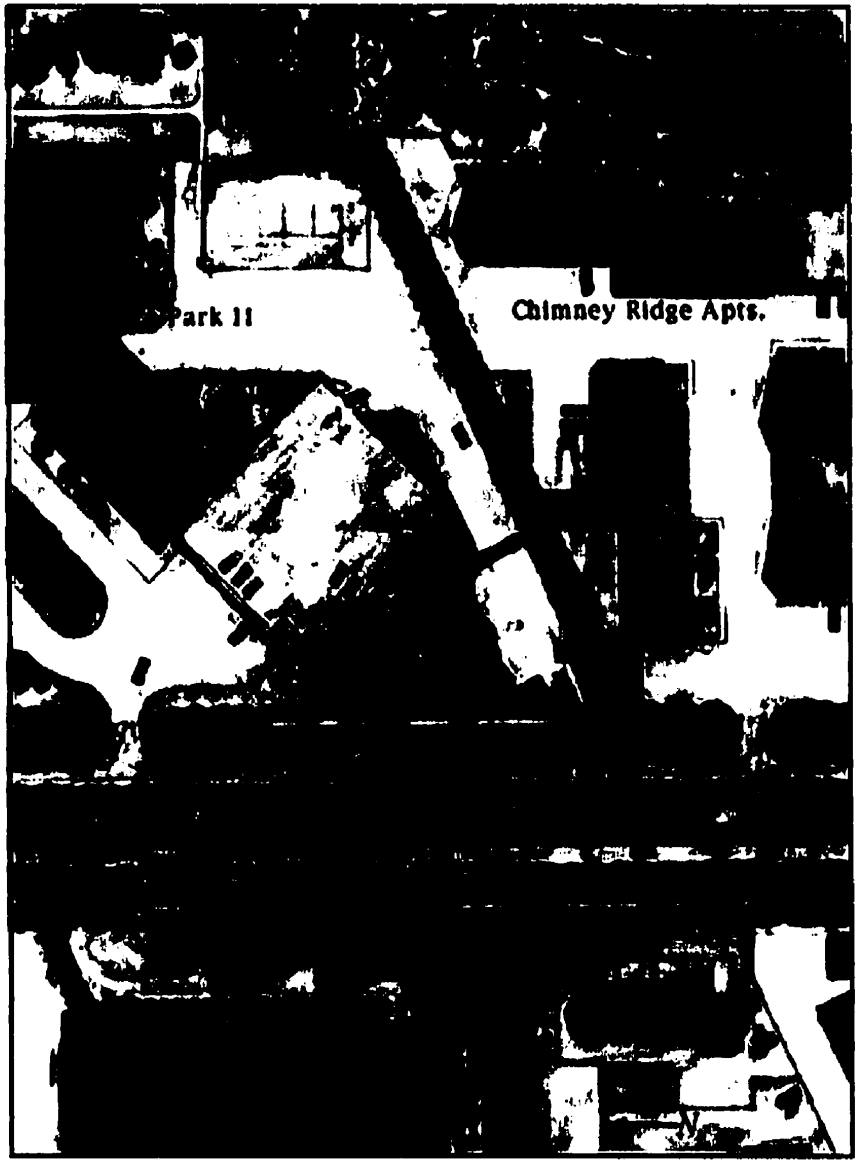
"Caring About Places"



5-16 The Pembina Corridor: site plan



5-17 Fort Richmond Plaza plan



5- 18 Newdale Plaza plan

5-19 Dalhousie Plaza plan

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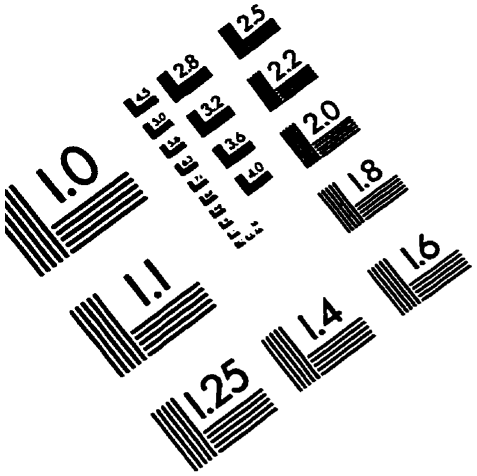

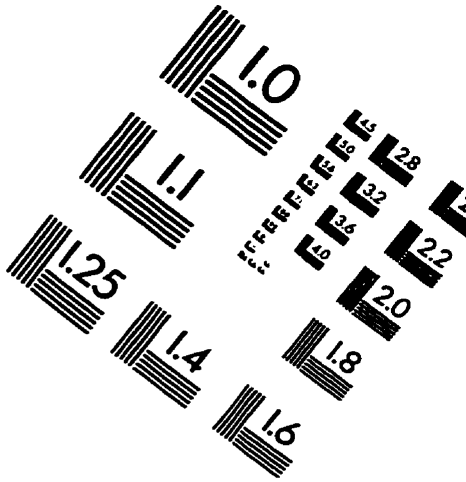

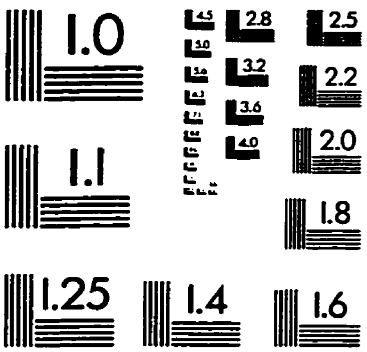

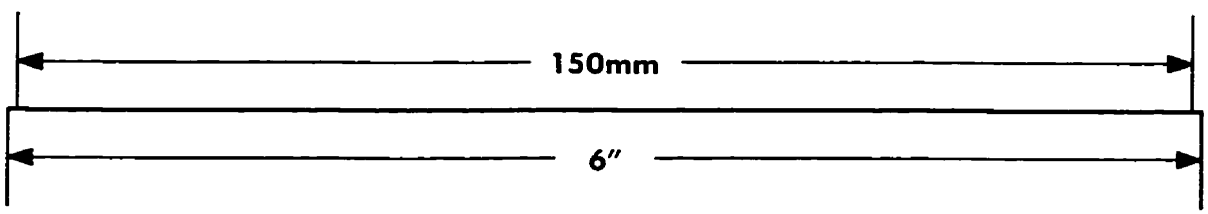

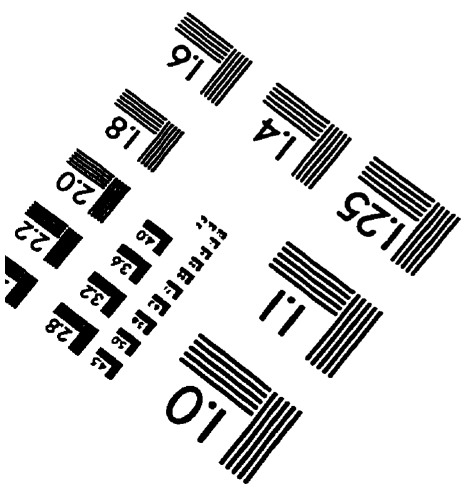

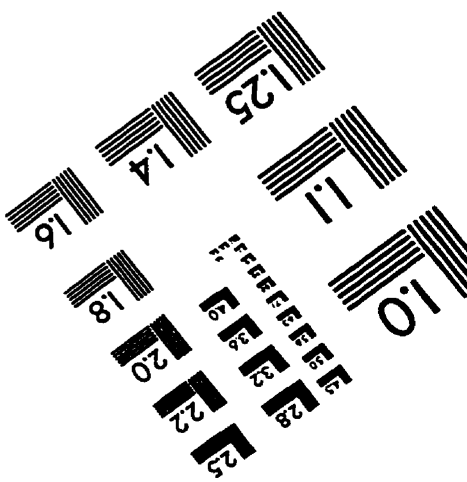

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