PLANNING FOR WINTER LIVABILITY

...toward an implementation strategy

by

Gerald H. Couture

A thesis
presented to the University of Manitoba
in partial fulfillment of the
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The force that through the green fuse drives the flower
Drives my green age. That blasts the roots of trees
Is my destroyer.
And I am dumb to tell the crooked rose
My youth is bent by the same wintry fever.

-- Dylan Thomas

ABSTRACT

Living in a country blessed with such a dominant winter season, it is amazing that we Canadians have not done more to accommodate the climate in the planning and design of our cities. Yet, the times may be changing. It has been suggested by Alvin Toffler that the industrial society of which we are a part and which has been characterized as "engaged in a bloody war with nature" is being supplanted by a new, post-industrial civilization which emphasizes "symbiosis or harmony with the earth".[1] If this is true then perhaps there is hope for better adaptation in the future. This thesis is based on the premise that we are indeed shifting from an adversary to a nonadversary posture in our relationship to the natural world around us and planning for winter livability represents one manifestation of this new attitude.

This thesis examines the winter livability concept in terms of the arguments put forth by various writers acknowledging that what is required above all is a change in attitude. This attitudinal perspective is further explored in order to appreciate how it has fluctuated over the period of man's development and how we can now decide on a suitable posture for the future. Striving to increase winter livability is a direct consequence of this new attitude and the issues which this encompasses are categorized and systematized in order to facilitate further progress. The result is a closer link between plan and action as evidenced in a proposed methodology which moves toward an implementation strategy. The emerging scheme is intended to meet the challenge presented by Norman Pressman when he states: "It is insufficient to know about the problems and changes taking place. We must now prepare a blueprint for action before it is too late."[2]

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[1] Alvin Toffler, THE THIRD WAVE, William Morrow & Co. Inc., New York, 1980, p.290.

[2] Norman Pressman, "Developing Livable Winter Cities" in RESHAPING WINTER CITIES, Livable Winter City Association, University of Waterloo Press, 1985, p.28.

PREFACE

My interest in the winter city emerged during my undergraduate years in architecture. Although at the time I had no knowledge of the winter livability concept as it will be presented here, I did have a keen interest in the development of winter cities. In particular, I was interested in the characteristic called "regionalism" as it relates to architecture. That is, how architectural expression has historically been a product of site-specific forces. These forces are generally regarded as both physical and cultural. Taken together, they represent the essence of a particular time and place, an essence which has been discernible in the built form. This expression is normally referred to as indigenous, vernacular, or regional architecture.[3]

Although cultural forces do influence indigenous architectural form, environmental influence, and more specifically, climatic influence, often dominates. In these instances, the result is a very localized identity. A regional quality in architecture reflects the environmental forces that act upon it and is therefore evidence of a harmony that has been struck between man and nature. Consequently,

[3] Christian Norberg-Schulz has studied this phenomenon extensively, labelling the trait as "genius loci" in his seminal work GENIUS LOCI: TOWARDS A PHENOMENOLOGY OF ARCHITECTURE, Rizzoli, New York, 1980.

northern cities should look unlike southern cities and, in the past, they often did. Yet, one would be hard pressed to identify a regional quality in many northern cities today.[4]

This point has intrigued me for some time and I am grateful for the opportunity to further explore it. Although an exploration of regionalism is not the specific purpose of this thesis, it was the seed from which it grew. I have always instinctively felt that, coincident with historical precedent, efforts made to establish, (or re-establish), a regional identity which reflects localized culture and environment, would be a step in the right direction. As it turns out, the winter livability concept, which is being promoted in Canada by the Livable Winter City Association, is striving to do just that. Their ideal for a true winter city is one which is in greater harmony with its site than is presently the case.

The ensuing document is both a tribute to the work that has been accomplished to date, as well as an attempt to further this "winter city movement". The area that will be focused on, and which has interested me the most, is the application of winter livability ideas, more specifically, the progression from idea to action. Many ideas exist for

[4] In RESHAPING WINTER CITIES: CONCEPTS, STRATEGIES AND TRENDS (University of Waterloo Press, Livable Winter City Association, 1985, p.37) Norman Pressman has stated that "Apparently, climatic and human responses of traditional cultures have influenced older, historic cities to a much greater extent -- when technological change and social change were slow -- than they have our own contemporary cities and buildings in an era of extraordinary rapid change."

improving winter livability yet few are implemented. Why more positive steps are not taken is difficult to understand. Walter H. Kehm asks:

> Is it a lack of awareness? Lack of will? Lack of imagination? Perhaps people don't perceive a problem. They have always lived with it so why change? Simply endure. In my view endurance is not a defense nor is it an acceptable response.[5]

Neither is it in my view. This document is meant to provide an acceptable response.

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There is little doubt that any person who endeavours to put thoughts on paper expresses more than just a particular point of view. Inevitably, individual biases emerge as well -- be they culturally or intellectually ingrained. This document proves no exception. However this is not an apologetic note, since absolute objectivity is not only unattainable but may be undesirable as well. In fact it is primarily the subjective component of such explorations which oftentimes stimulates discourse and intellectual growth. A particular bias, therefore, is not to be assumed as automatically negative. Indeed, the reverse may be true, since acknowledging such bias may prove edifying to the work that follows.

With this expectation, it must be duly noted that three obvious biases permeate this thesis. They may be labelled as:

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[5] Walter H. Kehm, "The Landscape of the Livable Winter City", in RESHAPING WINTER CITIES, p.57.

1. **Architectural** -- Based on my background, I have a special affinity for, and optimistic faith in, the creative mind and its ability to accomplish creative problem-solving. It is assumed throughout this work that creative solutions will materialize if the means for implementation are present.

2. **Ecological** -- I view man as part of a system within which all things are interrelated and carry this wholistic view into other realms of knowledge as well. Interdependency is a natural phenomenon.

3. **Scientific** -- Specifically related to technique, I have a strong belief in logical process and scientific methodology, in spite of the apparent dichotomy that it establishes with respect to the first bias mentioned. I feel that even creativity can follow logical process.

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There is one other area in which I invariably express a strong personal bias -- that is, toward those who have supported and assisted me in my endeavours. To these, I am extremely grateful and acknowledge their contributions forthright.

I thank first and foremost my advisor, Professor Basil Rotoff, for his dedicated study of my work and insightful criticisms. I greatly appreciated his interest and support. Thanks are extended as well to my readers, Professors John

Welch and Harlyn Thompson for their advice and understanding.

I am also very grateful to my fellow students for their encouragement and companionship, especially in the last few months when relief from the pressure became such a necessity. I must also acknowledge the countless hours expended by my sister, Yvette, whose typing skills helped transform a mass of scribblings into a presentable manuscript.

Finally, I would like to thank my family for their reassurance and optimism which continually helped me renew faith in myself. And thanks of course to Gwen, for everything.

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Chapter I

INTRODUCTION: STATEMENT OF PURPOSE

> The solution lies in living with the climate, not in spite of it.[1]
>
> -- Boris Culjat and Ralph Erskine

The purpose of this thesis is to explore the concept of winter livability, outlining and categorizing the issues involved, leading to a suggested method for dealing with the application of these ideas.

Planning for winter livability, in its strictest form, is a strategy that can be traced to prehistoric times where it was originally concerned with adaptation to hostile environments as a matter of survival. However, winter livability, as it will be used here, is a fairly recent term which deals with much more than man's ability to survive the elements. In fact, it presupposes survivability and focuses on the quality of life in human settlements located within northern latitudes. This chapter will attempt to encapsulate this subject matter. It will not be dealing directly with specific issues that emerge from winter livability (that will

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[1] Boris Culjat and Ralph Erskine, "Climate-Responsive Social Space: A Scandinavian Perspective", ENVIRONMENTS, A Journal of Interdisciplinary Studies, University of Waterloo, vol. 15, no.2, 1983, p.22.

be covered later), but rather, will expound on the concept in a general fashion, outlining its appropriateness as a city planning thesis. The intent is to present the necessary groundwork from which the proceeding chapters will unfold.

This chapter will begin, then, with a precis of the winter livability concept, outlining the main arguments, the perceived problems, and a selected focus for this thesis. This will be followed with an elaboration on the definition of livability, stating what exactly it encompasses and what are the variables involved, emphasizing, of course, the winter season. From this discourse, the connection between winter livability and the urban context will be explained since the thesis itself will focus on the city. In order to further clarify this relationship, the chapter will end with a section that deals with the role of the planner in order to determine his sphere of influence in promoting winter livability.

The end result should present the reader with a clear outline of this thesis, the general intent and purpose behind the selection of this topic, and the specific orientation which will provide direction through the successive chapters.

1.1 Problem Statement

Canada is among the coldest countries in the world, second only in fact to the USSR,[2] yet Canadian cities have been planned with little or no consideration for the winter season. John C. Royle, one of the original promoters of the winter livability concept in Canada, makes the point more strongly. "We live in badly designed cities and communities -- badly designed in terms of their adaptation to our climate -- and decline to insist that our architects and planners do better by us."[3] In effect, we do our best to ignore the climate which results not only in a maladjustment to the environment but the waste of a potential resource as well. It is this attitude which Royle characterizes as a "cold-climate mentality", which must be overcome if we hope to transform winter's negative image into something more positive. The attitude which must prevail is best articulated by Eberhard Zeidler. "Not all cities have a winter. It is something special. Something that on our continent only northern cities have. Winter is something to enjoy; not something to escape."[4]

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[2] The annual mean temperature in the USSR is 2 degrees C. compared to 3.3 degrees C. in Canada according to the Atmospheric Environment Service of Environment Canada as cited by Val Werier in "The Liveable (sic) Winter City", HABITAT, Canada Mortgage and Housing Corporation, Ottawa, vol.26, no.3, 1983, p.31.

[3] John C. Royle, "The Challenge of Being Northern", RESHAPING WINTER CITIES: CONCEPTS, STRATEGIES AND TRENDS, Norman Pressman, ed., University of Waterloo Press, Livable Winter City Association, 1985, p.19.

[4] Eberhard Zeidler, "Creating a Livable Winter City",

In essence,the rationale for promoting winter livability lies in the argument that our cities, because they do not properly address the climate, are not only uncomfortable for the individual but inefficient as well. Val Werier has stated that "Canadian cities have been planned as if winter were a fleeting phenomenon."[5] The evidence of this is both visual and experiential with the implication that a true winter city should look and function differently than a sun-belt city. Yet, "the skyline of Calgary is not unlike that of Dallas, Texas. Suburban homes in Winnipeg are similar in design and colour to those in semi-tropical Los Angeles."[6] Along with this visual evidence are experiences such as traversing "...Montreal's Place Ville Marie, Toronto's Bloor-and-Young, or Winnipeg's Portage-and-Main, with paralizing streams intensified by the funnelling effect produced by tall buildings."[7] What this suggests is that we plan and design our cities in accordance with concepts that have been developed in the South, as if there were no difference in climatic conditions. Yet the repercussions of this indifference, as evidenced above, are severe enough to warrant a re-evaluation of this attitude.

RESHAPING WINTER CITIES, p.79.

[5] Werier, "The Liveable Winter City", HABITAT, p.31.

[6] Ibid.

[7] John C. Royle, "How To Make Cities More Livable In Winter", CANADIAN GEOGRAPHIC, The Royal Canadian Geographical Society, vol.104, no.1, Feb/Mar 1984, p.21.

Furthermore, the argument is strengthened when we begin to recognize the psychological and behavioural influences of climate on man. According to Norman Pressman, individuals in some northern latitudes spend as much as 70% of the total annual hours indoors. Looking strictly at the winter months this figure can be as high as 95%. In other words, "the rhythm of urban life often varies with respect to climate and the different seasons. The northern lifestyle is seasonally variable and is highly reflective of 'climatic reality'."[8] Consequently, if socialization patterns are different from North to South, plans, designs, and policies should mirror those differences in order to achieve their own "climatic reality."

Promoting winter livability then, is an attempt to reverse past trends by better accommodating the climate in the planning and design of our cities with the understanding that doing so will not only make winter cities more comfortable places to live but more efficient urban entities as well.

Recent years have borne witness to a growing awareness of the need to achieve this goal. As well, there have been positive steps taken in that direction, although the ground here has barely been broken. Evidence of the types of achievements that can be realized are to be found in North America, Europe, and even Asia. In Canada, numerous examples exist such as the following three examples outlined by

[8] Pressman, "Introduction", RESHAPING WINTER CITIES, p.14.

Royle.

- Fermont, a sub-Arctic Quebec town of some 3000 people, has a mixed-use "windscreen" building running more than a kilometer long and three to five storeys tall, designed as a wall to shield the town from winter winds. The building provides climate-controlled access to all the town's amenities and services, including schools.

- The new Rideau Street Transit Mall in downtown Ottawa has several blocks of glass-covered sidewalks and bus stops with sliding glass panels that can be opened for sunshine and closed for bad weather. These are believed to be the world's first weather-controlled sidewalks on so large a scale.

- Regina and Saskatoon have master plans to make themselves model winter cities. Their intent is to turn the year around, putting heavier emphasis on outdoor winter activities. Henceforth summertime parks and playgrounds would get a smaller proportion of their recreation budgets.[9]

Even from these three examples we can see that winter livability strategies can cover the gamut from small-scale design to master plan policies and can be concerned with offering protection from the elements or with promoting winter recreational opportunities. The premise underlying this "winter city movement" suggests that a better acknowledgement and understanding of the winter season combined with creative and innovative approaches both at the project level and in planning and development policies can transform winter from a punitive force into a tamer, friendlier element.

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[9] Royle, "How To Make Cities More Livable In Winter", CANADIAN GEOGRAPHIC, pp.21,22.

Spearheading this drive is a recently formed Canadian organization, the Livable Winter City Association (LWCA), with a self-imposed mandate to act as a vehicle for the exchange of ideas and information, to promote research into winter related issues, and to attempt to influence the public and politicians toward changes in urban design and municipal policies. Such changes are long overdue, particularly in Canada because of the length and severity of our winters.

The LWCA drew its inspiration from Ralph Erskine, a British-born architect practicing in Stockholm, who began, about 35 years ago, to design and promote structures that took account of the northern climate. (The "windscreen" principle used in Fermont is based on his ideas.) In Minneapolis, Dr. William C. Rogers began promoting the winter city concept back in 1977 and has since organized two conferences and has written and spoken extensively on the subject. In Canada the LWCA was founded by John C. Royle (among others) in early 1983 and the movement is now firmly entrenched across Canada having garnered the support of numerous well-known architects and planners. It has since sponsored publications and research as well as a national student competition on winter livability.

Following these initiatives, the purpose of this thesis is twofold.

- On the one hand it will present an overview of winter livability, outlining the details of what is to many, an unfamiliar concept.
- On the other hand it will offer a planning methodology through which further winter livability ideas may achieve fruition.

The overall intent can best be characterized as organizational. In the former instance, by categorizing the major directions and trends that may be discerned in the established quest to achieve winter livability. In the latter instance, by formulating a strategy for a unified approach to solving winter livability dilemmas.

In RESHAPING WINTER CITIES: CONCEPTS, STRATEGIES AND TRENDS, (1985), Norman Pressman has stated that:

> The aim of this book is not be provide "ultimate" solutions for specific communities or countries. Instead, it is to describe a general and broad-based approach toward improving livability in cities from which various localities with their respective site and culture specific issues can derive guidelines for redevelopments and policies. It is this more generalized conceptual basis which can serve as a framework for enhancing the quality of community life.[10]

This thesis strives to complement that goal by suggesting a method by which various localities can adapt the guidelines they choose as appropriate to their particular context. In other words, the result should be what Pressman calls a "blueprint for action"[11] without detailing the specific

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[10] Pressman, "Introduction", RESHAPING WINTER CITIES, p.16.

[11] Idem., "Developing Livable Winter Cities", RESHAPING WINTER CITIES, p.16.

action, but rather, by supplying a mechanism through which a host of innovative ideas may achieve fruition.

The rationale for this approach is both logical and practical. Logically, it is important to the development of new ideas to provide a vehicle through which they may progress beyond the idea stage into reality. The greatest of innovations are meaningless if there exists no organizational means to implement them. While it may be possible to establish a specific procedure to accommodate a specific idea, the result is unidirectional. The establishment of a generalized strategy that can accommodate a variety of ideas paves the way for a more concerted effort.

On the practical side, methodology appears to be the area of greatest concern. As Pressman has stated:

> We have accumulated a significant body of literature and know-how dealing with technological, social and environmental issues and impacts of development in winter latitudes. The critical work will be in the translation of the criteria into urban designs, community organizations and development policies...[12]

While there is always room for more innovative winter livability schemes and it is hoped that efforts continue in this direction, it is appropriate at this time to look more closely at ways of implementing these ideas. Yet it is acknowledged that we cannot look productively at procedural measures without first carefully examining the specific issues that arise from the winter livability concept and suggestions that have been proposed for ameliorating specif-

[12] Ibid., p.27.

ic situations. Such is the dual nature of this thesis: an examination of where we presently stand followed by a suggested means of improving future "product delivery".

This thesis follows a four chapter format, the first chapter providing the introductory information required to fully comprehend the concept. After this introduction, some background information is supplied. Here, a theoretical foundation concerning the man/nature relationship is explored in order to present a conceptual framework from which winter livability proposals may be evaluated. This is followed by chapter three which outlines the main issues involved in winter livability, categorizing and systematizing them as a way of organizing a future implementation strategy. The next and final chapter establishes the remaining groundwork which is required before the strategy can emerge. It synthesizes this information into a strategy for implementing future winter livability proposals with the hope that such a strategy may prove useful for a number of winter cities.

1.2 Winter Livability

It was mentioned earlier that the winter livability concept concerns itself with the quality of life in northern climates. While this is certainly the case, the statement is incomplete. There are many ways of adding to the degree of human comfort that would be quite inappropriate when

viewed against the philosophical backdrop from which the winter livability idea emerged. Placing a dome over an entire city, for example, may be highly effective but would be contrary to the winter city concept which does not promote the overpowering of nature, at least not to such an extent.

In short, the concept stems from an ecological perspective which suggests that man must regain a sense of coexistence with nature rather than being in opposition to it. However, in light of the highly urbanized context within which winter livability schemes are to be introduced, the term "coexistence" may be misleading. It is not meant to imply a regression toward some romanticized vision of a more primitive lifestyle. Rather, coexistence strives for recognition and subsequent action which responds logically to the influential effect of climate. Ecologist Eric R. Pianka calls for an "ethic of equilibrium"[13] which urges a sense of proportion in thinking about our place in nature. This concept along with other theoretical perspectives on the man/nature relationship is further explored in Chapter II. Suffice it to say at this point that winter livability strives to improve human comfort in ways that acknowledge, accommodate, and even take advantage of site-specific winter conditions which can, at times, be deemed as somewhat less than cordial.

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[13] Fred Plog and Daniel G. Bates, CULTURAL ANTHROPOLOGY, Second Edition, Alfred A. Knopf Inc., New York, 1980, p.80.

Broadening the spectrum of human comfort in such an environment is a complex issue which, in its simplest form, is best characterized as involving a dual approach: increasing the enjoyment of winter's positive aspects, and protecting from the negative ones. By doing so, an increased sense of livability is to emerge which Hans Blumenfeld has described as being comprised of safety, prosperity, variety, accessibility, and beauty.[14] This dual approach requires a better understanding of the climate and its impact on man and can thereby be seen as increasing man's ability to coexist with nature. Yet, as stated by Pressman, "these are two extreme-opposite positions which suggest that critical to planning for northern climates is the provision of choice."[15]

The key to providing choice can be seen also as the factor which introduces a degree of quality to the strategies. This can result by combining the two approaches. That is, increasing the enjoyment of winter's positive aspects, such as promoting recreational opportunities, can be accomplished in a manner that offers some protection as well. Similarly, offering protection from winter's negative aspects, such as glass covered urban spaces, should still offer some degree of contact with nature, if only visually. Therefore, in

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[14] Hans Blumenfeld, "Problems of Winter in the City", RESHAPING WINTER CITIES, p.47.

[15] Pressman has labelled these two positions as:
1. Do Not Overprotect Man from Nature, and
2. Offer as Much Protection from the Elements as Possible;
see "Introduction", RESHAPING WINTER CITIES, p.15.

spite of their different emphases, enjoyment and protection are winter livability goals that should be addressed simultaneously though not necessarily with equal importance at any one time. While this may appear straightforward, the complexity emerges when attempting to ascertain the proportion that should be struck and the manner in which the factors may be emphasized or de-emphasized. The variables which must be addressed can be said to fall into three categories.

Firstly, the specific **climate** must be analyzed in detail. Winter cities have been defined as "places where the average January temperature is 32 degrees F. (0 degrees C.) or colder."[16] But in spite of this common trait, winter cities vary greatly in climate. Pressman states that to some cities, "...winter is associated with heavy snowfall or intense cold, while to others it may be related to darkness (cities close to the Arctic circle) and slush mixed with rain and snow."[17] Consequently, what comprises winter livability will vary from city to city, some having very similar requirements, and others having little in common. And as winter livability proposals become more site-specific it will also be necessary to analyze the particular microclimates that exist within each locality.

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[16] Pressman, "Developing Livable Winter Cities", RESHAPING WINTER CITIES, p.28.

[17] Ibid.

The second variable to consider is the **user** -- the person or group for whom winter livability is being sought. Basically, winter livability means different things to different people. Obviously, developing opportunities for winter recreational activities for pre-school children will vary greatly from what may be offered for senior citizens. Similarly, the amount of protection required by those two groups will vary in scope and degree. Furthermore, as a component of the designated user groups, the type of activity being contemplated must also be addressed. Achieving winter livability for motorists as opposed to pedestrians, for example, involves a shift of emphasis. And enjoyment of the winter may manifest itself in both passive and active opportunities each of which requires a different strategy. Clearly, the type of user and activity is a complex issue which warrants careful analysis.

The third variable which must be acknowledged when attempting to provide winter livability is the mechanism for change. In other words, the **method** by which the strategies may achieve fruition. The winter livability concept is not preoccupied with utopian ideals, it is concerned with applied action. As such, the existing political, bureaucratic, and economic systems cannot be ignored. Conceiving ingenious proposals can be a futile effort if the means of implementation have not been properly addressed. Careful consideration must be given to all the forces, pro and con,

that act upon the implementation process within any given locality.

> If there is any measure of a plan's success, it is the degree to which it is put to use. ... One way to ensure that (a plan does not end up on the shelf) is to bear in mind during the plan's formulation, the laws, institutions and financial agreements available for implementing it. The process of recommending actions must include consideration of the means by which they are to be carried out.[18]

This is not to say that only a conservative approach should be pursued, but rather, that a thoughtful acknowledgement of existing plans, policies, legislation, political and bureaucratic structures, budgets, etc., (as well as technological capabilities), can determine the most appropriate means of interjecting new strategies. Even if drastic changes in the existing system are recommended, the manner in which these changes can occur must be addressed. Increasing project feasibility is the objective of such an endeavour while lending more credibility to any winter livability proposal.

In short then, 'winter livability' is concerned with increasing the human comfort zone and optimizing the quality of life in winter cities. It attempts to achieve this by promoting the positive aspects of the winter season while offering protection from the negative ones, bearing in mind that the provision of choice is crucial. This requires the thoughtful addressing of three types of variables: the

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[18] John S. Willson, Philip Tabas, Marian Henneman, COMPREHENSIVE PLANNING AND THE ENVIRONMENT: A MANUAL FOR PLANNERS, Abt Books, Cambridge, 1979, p.155.

site-specific climatic factors, the particular user group and activity, and the method of implementation.[19] This thesis focuses on the last of these three points while acknowledging the progress that has been made in the other two.

1.3 The Urban Context

It is clear that the winter livability concept, in its underlying motivation, reflects a concern for the welfare of the individual. In this sense, the physical context may vary without compromising the objectives. Human comfort is the primary issue regardless of whether the backdrop is a small northern community or a large urban center. Yet the fact that human comfort hinges on the immediate environment necessitates a closer look at man's self-made habitat.

It has been suggested that winter cities are poorly adapted to the climate.[20] The fact that these advanced urban settlements do not, to any great extent, offer equally advanced winter livability conditions when compared to smaller settlements suggests a malfunctioning in the urbanization process. It is this harsh critique of the manner in which cities function that warrants a closer examination of

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[19] This represents a somewhat simplistic breakdown of variables. There are other factors to consider as well which complicate efforts to categorize the issues neatly. This problem is explored further in Chapter III.

[20] See Royle, "The Challenge of Being Northern", RESHAPING WINTER CITIES, p.19; and Val Werier, "Introduction", THE WINTER CITY, A Conference sponsored by the Canadian Housing Design Council in co-operation with the Continuing Education Division, University of Manitoba, Winter, 1982, p.1.

the urban context.

In the introduction to THE WINTER CITY, which is comprised of the transcripts of a 1982 conference on winter livability held in Winnipeg, Val Werier has stated that:

> The effects of sun, wind and low temperatures have not been adequately considered in the environment of the winter city. The profile of Canadian cities is similar to those 1,000 miles south, as if there were no difference in climatic conditions.[21]

It is important to understand why this has occurred. Although the collective influence of numerous forces are responsible for this lack of regional identity, the fact that it is a widespread phenomenon can be traced to a common characteristic. Boris Culjat and Ralph Erskine have pointed out that:

> Cold climate areas of the earth are, at the present time, also the areas with highly developed economies. Typically, the influence of climate, and generally the natural environment, has tended to be ignored. High-tech society has the means to overcome the restraints of the inhospitable natural environment with technological means and inducement of energy.[22]

In other words, the short answer is that we have ignored the climate in the design of our cities because we have had the money and the means to do so. However, this does not present the total picture. It explains **how** we have managed to ignore the climate without clearly explaining **why**. A broader perspective is necessary.

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[21] Werier, "Introduction", THE WINTER CITY, p.1.

[22] Culjat and Erskine, "Climate-Responsive Social Space", ENVIRONMENTS, p.13.

Two manifestations of money and technology which offer deeper insights into an urbanization process that has largely ignored the climate are the automobile and the media. The automobile was a culprit on two counts. Firstly, it allowed large distances to be travelled quickly and efficiently. Urban man no longer had to live near his place of work, which in itself is not bad. However, it had a negative side effect: as commuting became possible, urban sprawl resulted. The vast arterial network connecting the satellite communities with the downtown drastically transformed the urban fabric. The spread of suburbia countered densification which would be the more logical strategy in a cold climate. Secondly, the automobile provided man with a mobile cocoon, a sheltered environment from which he could escape the elements. Provided a car was available (and that it would start), man could travel in relative comfort even at 40 degrees below zero. As stated by Len Vopnfjord "...the availability of warm individual models of transportation dealt a severe blow to the malicious intent of "Old Man Winter" and obviated the necessity of fundamental change to the form of the city."[23] This reinforced an urbanization process heavily weighted in favour of the automobile.

An urbanization process which tended to ignore the climate was also the result of a strong influence by the media, which, like the automobile, is an outcrop of money and tech-

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[23] Leonard W. Vopnfjord, "The Planner's Role", THE WINTER CITY, p.11.

nology. Through astounding advances in communications (primarily television), virtually the entire cold climate population is made aware of a different and appealing lifestyle available to those in the "sunbelt" areas. John Royle has stated that "those who must contend with harsh climate, or who live in isolated communities lacking amenities and opportunity, are made fully -- painfully -- aware of their disadvantages."[24] The result is misguided emulation which strives to duplicate what is considered to be the good life and creates maladaption instead. This accounts for the lack of a regional identity and why, as stated by Val Werier, "suburban homes in Winnipeg are similar in design and colour to those in semi-tropical Los Angeles."[25] Thus, advances in communications technology have also contributed to a city form which is much more suited to an altogether different climate.

There is no doubt that available energy and technology has encouraged urban growth in a manner that virtually ignores the climate and there is little doubt that winter cities can, with difficulty, continue this trend. However, it is now apparent that the cost of such an approach is rapidly becoming prohibitive. It took the energy crisis of the mid seventies to expose our vulnerability. The consequence is aptly described by Blanche van Ginkel.

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[24] Royle, "The Challenge of Being Northern", RESHAPING WINTER CITIES, p.19.

[25] Werier, "The Liveable Winter City", HABITAT, p.31.

> Today, notwithstanding that all tools and materials are available throughout the world, to ignore the demands of climate is perilous. It is possible to heat any building in the Arctic and to cool any building in the tropics, but it is questionable whether survival should depend on so flimsy a thread and at such great cost.[26]

The cost is both personal and national. On a personal level, the increasing energy costs are borne by the consumer, while on a national level, increasing costs are resulting in an exodus to sunbelt areas. Says John Royle: "The continuing flow of population, industry and buying power from the frost belt to the sun belt requires northern communities to become more livable to compete." Yet, he goes on to say that the energy crunch has taught us that change is possible. "We can revamp our communities and our lifestyles for our own good."[27]

Urban planning and management have to date been influenced primarily by factors not in accordance with climatic appreciation. It has been said that "to the extent that it is considered at all, nature is viewed largely as an economic constraint on use."[28] This approach can be altered, but such change requires a fundamental restructuring of attitudes. And this is surely the crux of planning for winter livability -- affecting changes in attitude toward our climate. Such changes can then result in new methods of urban

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[26] Blanche Lemco van Ginkel, "Introduction", ENVIRONMENTS.

[27] Royle, "How To Make Cities More Livable In Winter", CANADIAN GEOGRAPHIC, p.25.

[28] Willson, et al., COMPREHENSIVE PLANNING AND THE ENVIRONMENT, p.2.

planning and management which in turn will add a dimension to human comfort. The first step to increasing winter livability must therefore be psychological, and psychological transformation can lead to fundamental changes in urban development and design.

Effecting shifts in attitudes can be a formidable task, requiring a strong commitment on the part of policy-makers and planners who must take a leadership role both in facilitating the implementation of thoughtful winter livability strategies as well as in public education. And while it is acknowledged that such action be initiated in urban and non-urban areas alike, the focus must be on the urban context since many rural communities, victims themselves of misguided emulation, look to the city as a role model.

1.4 The Role of the Planner

If changes are to occur within the urban context such that the product is a more livable winter city, then the planner must necessarily play a vital role. As his title suggests, the planner's task is to map out a plan of action, one that can lead to fundamental change when implemented. We are speaking here of planners working within a bureaucratic system be it at the federal, provincial, or municipal level. Indeed, a concerted effort between all three is the ideal route, although significant progress can be realized at each level individually. The most appropriate coordinat-

ed strategy however, is subject to debate. The intent here is not to discuss the various roles of the planner, but rather, to expound on the role of the planner in general, and his relation to the other professionals who find themselves in a position to effect change.

In an address entitled "The Planner's Role" given at The Winter City conference in 1982, Leonard W. Vopnfjord (Chief Planner for the City of Winnipeg), stated:

> As a planner, my role is to anticipate the needs and desires of the people. Where is the groundswell of popular support for the construction of a winter city? What are the people telling me about their needs and desires to better adapt to winter? Very little.

He goes on to conclude:

> It is therefore neither my role nor my inclination to suggest radical alterations to the shape of this City. I do support, however, some less dramatic steps more in keeping with the expectations of the citizenry and within the economic realities of our times.[29]

This approach, if presented as the voice of a particular planner, is merely a matter of professional debate. However, since it is presented, to some extent, as representative of the stand of a sizable majority within the planning profession, it must be more carefully scrutinized. Certain points may be contended.

There is no doubt that the role of the professional planner requires, among other things,[30] an ability "to antici-

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[29] Vopnfjord, "The Planner's Role", THE WINTER CITY, p.12.

[30] T.I.Gunton, for example, in an article entitled "The Role of the Professional Planner", identifies and evaluates eight alternative roles including: planners as technoc-

pate the needs and desires of the people". However it does not follow that strong public support must be present before action can take place. (After all, minority rights are to be acknowledged as well.) The key word is "anticipate". **Anticipating** needs and desires implies an ability to make decisions based on insight and perception. It is the planner's role to act professionally on behalf of the citizenry based on his knowledge of the situation, which should most certainly be be a more educated opinion than that of the public at large. The planner is much more than a weathervane to public opinion, he must show leadership, while certainly keeping in mind such things as the "economic realities of our times".

This is not to say that the planner should necessarily be suggesting "radical alterations" to the shape of the city. That is not the point. In fact, the approach suggested by Mr. Vopnfjord of small incremental steps is a very valid strategy. The point is simply that the strategy selected need not be dictated by a strong public outcry. The planner can, to a large extent, be a public educator. Through his actions, public awareness can be achieved. A lifestyle based on a strong dependency on fossil fuels and a general disregard to the natural forces of the environment has been nurtured for over 200 years (since the Industrial Revolu-

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rats, public servants, referees, advocates, bureaucrats, state agents, social learners, and social reformers. Vopnfjord's statement aligns itself with the role of the planner as public servant. (See CANADIAN PUBLIC ADMINISTRATION, vol.27, no.3, Fall 1984, pp.399-417.)

tion). Such ingrained attitudes do not change on their own. There must be education and leadership, both of which can be provided by the professional planner through a concerted effort with other professionals whose roles are linked to planning.

Chief among these is the politician, the elected official who, more than any other actor involved, is visibly accountable for his actions. Consequently, and quite understandably, political decisions, generally fraught with hesitancy, tend to avoid the extremes. New ideas must be accompanied by a very convincing argument and it is here that the planner's role is crucial. He must present his case strongly enough to convince elected officials that to act upon these new ideas is in their own best interest. In other words, that such action will ultimately receive strong public approval. Making our cities more livable in winter must be deemed as a worthwhile and necessary endeavour and planners are in the best position to do the convincing. Politicians, however, must be willing to listen.

If politicians do become convinced, the result will be manifested in policy and plan formulation. Following specified policy and direction, other professionals, such as architects, engineers, transportation specialists, etc., can implement winter livability schemes. This is the assumed logical process. However, the reverse procedure can also be highly effective. If these private professionals, acting on

their own initiatives, promote schemes that begin to achieve increased winter livability, such actions may influence political support by having established, through example, a level of success. Nothing is more appealing to a politician than to lend support to a proven successful cause. Therefore, professionals in the private field, can also assume a leadership role.

Wherever the initiative is to emerge, the planner, mediating between public and private interests, between the designer and bureaucracy, is destined to be a prominent actor in the winter city scenario.

1.5 Conclusion

Life can be pretty miserable in a northern city. No one who has spent a winter in one would deny that fact. Yet neither would they deny that these cities also possess a particular beauty and charm which cannot be duplicated elsewhere. The challenge is to optimize the positive features while mitigating the negative ones. Doing so improves winter livability.

There is a need for improvement in this area, that is certain, but so what? ...where do we go from here? Many interest groups clamour for urban improvements. In order to produce the necessary action, the case must be presented such that the goals of winter livability become priorities in the minds of those who are in a position to effect change. Consequently, it must be shown that:

1. it is possible to improve the situation,
2. there is a means to implement changes effectively and efficiently,
3. there is a high price to pay not to do so.

Demonstrating that improvement is possible can be accomplished by research and experimentation or, preferably, by actual case studies. Fortunately, due to the efforts produced by winter city pioneers, many winter livability ideas have been implemented in towns and cities both in North America and abroad, enough to give ample credence to this first premise -- that improvement is possible. Some examples of these achievements were cited earlier and more are highlighted in a later chapter.

By these same efforts, it has been shown that changes which bring about improvement can be implemented both effectively and efficiently. Yet the means to achieve this have been localized, varying with each situation. At times it has resulted from public initiative, other times, private; guidelines have been at times suggested or legislated, and so on. Development of a generalized methodology for the implementation of winter livability ideas would strengthen the winter city concept. Decision-makers would then be in a position to envision the manner in which improvements would unfold. This thesis is a step toward that goal.

It must be acknowledged that, at times, action by decision-makers will not take place until such time that it

can be proven to be detrimental not to do so. This may arise either through the realization that the benefits by far outweigh the costs or as a result of strong public support for such action. If both are present then the case becomes virtually impossible to ignore. John C. Royle in an article entitled "The Challenge of Being Northern" has stated that:

> My first question is whether northerners recognize that their cool/cold countries are engaged in a contest with warm/hot countries to attract or hold population -- human masses that should develop into huge markets for goods and the source of much of the labour to produce the goods for all the world.[31]

Such arguments, backed by research, strengthen the cost-benefit approach (and more are needed) while education and awareness programs will help garner public support. Efforts in these areas are critical to the success of the winter city campaign.

In this light, establishing a methodological strategy, that is, a format for instigating change, must be seen as only a partial requirement in the endeavour to create a true winter city.

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[31] Royle, "The Challenge of Being Northern", RESHAPING WINTER CITIES, p.22.

Chapter II
BACKGROUND

Chapter II

BACKGROUND: CLIMATE, ENVIRONMENT, AND MAN

> The unequivocal starting point must be man as a spiritual and social part of nature.[1]
>
> -- Tapio Periainen

The need to plan for improved winter livability arises as a reaction to climatic conditions which can, at times, be terribly inhospitable to our socio-cultural functioning. Such a need presupposes an imbalance in the man/nature relationship -- the premise being that if the relationship was in harmony, man would not be deemed as fighting a battle against nature and therefore, the need for improving livability would not exist. But what is the relationship of modern man to his environment? In this chapter we shall examine that question while relating it to an historical context and the corresponding theories of human/habitat interaction. This should help put the concept in its proper perspective. From an understanding of these theories we will be able to make the connection to climate's impact on our cities by the extent to which it has influenced human behaviour and, subsequently, the built form.

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[1] Tapio Periainen, "Some Visions of Arctic Design", ENVIRONMENTS, A Journal of Interdisciplinary Studies, University of Waterloo, vol.15, no.2, 1983, p.38.

It must be reiterated that climate and man are being examined from an ecological viewpoint, that is, one that attempts to recognize the interdependence of living things on each other and their environment. What should emerge from this broadened scope is an awareness and understanding that while climate is an important factor to consider when dealing with the planning of cities, it has not generally received the acknowledgement that it deserves. The relationship between climate and man should then become clearer. And as is so often the case, a better understanding of the problem is the necessary first step toward a solution.

2.1 Theories of Man/Nature Interaction

Since antiquity, man has sought to understand his relationship to the world about him. In fact every society has philosophical or mythological explanations about the natural world and man's place within it. In this way members of a society articulate both their behaviour as individuals and their requirements for survival as a population. Mythological explanations aside, the philosophical standpoints have been numerous but can be said to fall into three broad categories.[2] Firstly, "environmental determinism" views humans as dominated by the environment, that is, the environment is a **determining** force for human society. The other extreme,

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[2] This breakdown is a slightly modified version of the classification used by Emilio F. Moran, HUMAN ADAPTABILITY: AN INTRODUCTION TO ECOLOGICAL ANTHROPOLOGY, Duxbury Press, North Scituate, Massachusetts, 1979, p.5.

"human determinism", sees nature as somewhat of a **limiting** factor to human possibilities but acknowledges that man can live outside natural constraints. The third category, which has been labelled as "human adaptation to nature", stresses the interaction of humans with the environment with neither force being dominant. Here the environment can be said to play a **modifying** role.

These three views should not be seen as strictly delineated but rather as forming categories along a continuum of philosophical standpoints, with strict environmental determinists and strict human determinists forming opposite ends of the spectrum, with different views of human adaptation bridging the gap. Each of these categories can now be looked at in slightly greater depth.

- **Environmental Determinism**

In a chapter on climate from the book FORM, FUNCTION & DESIGN, Paul Jacques Grillo states:

> The climate we live in determines our whole way of living. It creates the particular environment for every kind of civilization. From the slightest variation in climate have stemmed altogether different types and systems of society and culture.[3]

Such is the view of the environmental determinist. The idea is an old one that originated with the Greeks and can be traced to the twentieth century. It is a view that was extended to explain social and political events as well, at times serving as a rationale for political

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[3] Paul Jacques Grillo, FORM, FUNCTION & DESIGN, Dover Publications, Inc., New York, 1960, p.77.

dominance. ("Favourable" geoclimatic conditions were purported to produce superiority thereby destining the rule and control of less virtuous domains.)

In more recent times, the position softened somewhat and writers admitted that different responses to environmental pressures were possible but they stressed that humans usually took the path of least resistance and thereby yielded to those pressures.[4] But whether carried to the extreme that views nature as dominant over human activity or whether nature is seen merely as the single most important factor affecting human development, environmental determinism is still an unsettling issue for many people because its premise implies a limited state of free will and thus permits limited ingenuity. With the environment as a determining force, the consequence must be that humans have little or no say in their own destinies and such a proposition inevitably invokes negative reactions.

- **Human Determinism**

Somewhat as a retaliatory action against the concept of environmental determinism, ideas emerged in the late nineteenth century which reflected the opposite end of the spectrum. Although the intent was a direct refutation of deterministic theories in general, the outcome, to a large extent, merely presented a new form of deter-

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[4] This view is based on the work of the 20th century geographers Huntington and Taylor as outlined in Moran's book HUMAN ADAPTABILITY, p.28.

minism -- human determinism. Its rationale is based on man's ability to live outside of natural constraints, the conclusion being that with technology and ingenuity there are no real (or perceived) environmental limits that cannot be overcome. Deserts can be irrigated, mountains removed, tropics air conditioned, etc.

This school of thought, although in less extreme form, was also put forth by Malthus (18th century) with his theory of possibilism.[5] Possibilism was based on an awareness that populations do not exploit their habitat to the fullest, and when they begin to do so, environmental factors limit their capacity to expand. Thus nature is viewed as a limiting factor to human development. A variation of this concept was put forth by Frank Boas at the turn of the 20th century.[6] Here, nature circumscribes the possibilities for humans, but historical and cultural factors explain what possibility is actually chosen. Both these views still emphasize human rather than environmental forces as dominant.

To appreciate the polarity of environment versus human deterministic views, compare the following statement about climate by Philip Wagner with the one previ-

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[5] Moran, HUMAN ADAPTABILITY, p.34.

[6] Boas' view has been called "historical possibilism" and is summarized by Moran in HUMAN ADAPTABILITY, pp.34,35. A variation of this view is termed "probabilism" by Marotz and McColl, COPING WITH NATURAL ENVIRONMENTS, (Kendall/Hunt Publishing Company, Dubuque, Iowa, 1982, p.3) and is credited to Alexander Goldenweiser's writings in the 1930's.

ously presented by Paul Jacques Grillo.

> The direct effects of the climatic conditions experienced by most humans are too variable, and their extremes are too rarely beyond human tolerances, for these phenomena to exercise a strong selective effect on human populations. Furthermore, even without artificial protection the human body can function quite satisfactorily in most of the usual climatic situations on earth, and in unusual conditions artificial protection is almost always available. Climate, then, generally has slight effect on man.[7]

- **Human Adaptation**

Human adaptation theories encompass a wide range of ideas which are similar in that they acknowledge the complexity of the man/nature relationship and concede that single-factor explanations expressed by deterministic theories do not present a complete picture. These theories then, focus on the interaction of man and environment. Although such reasoning dates to ancient Greece, the majority of this work has emerged after Darwin's theory of evolution in the 19th century. The ideas have been continuously revised to present day.

With Darwin, neither environment nor culture served as the control over the man/nature relationship. His focus, rather, was on the interaction between environmental change and modifications in biological forms. The process of adaptation thus became the key. Darwin provided a theory (evolution) and a method (natural selection) that simultaneously helped explain change and

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[7] Philip Wagner, THE HUMAN USE OF THE EARTH, The Free Press, New York, 1960, p.13.

continuity. And as stated by Moran, "this approach was fundamental to the emergence of a modern theory of people/nature relationships."[8] Since Darwin, the science of genetics has provided an exact accounting of the sources of variation and continuity in organisms. Here, the environment is viewed as a force which interacts with man to create biological changes.

In the 1950's Julian Steward developed an approach called "cultural ecology" which has since evolved into "ecological anthropology".[9] This approach saw the man/nature relationship as governed by the need to use appropriate strategies for resource utilization in a particular environment. It involved a comparative methodology that focused primarily on behavioural considerations. Adjustments and adaptations needed to ensure efficient resource utilization can be studied and compared using this approach, thereby avoiding the need to justify either man or the environment as dominant.

The "ecological anthropology" perspective has become increasingly multi-disciplinary over the years, characterized by highly sophisticated scientific methods of observing behaviour, controlling variables, and generating theory on human adjustment to environment. It is the generally

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[8] Moran, HUMAN ADAPTABILITY, p.38.

[9] See Marotz and McColl, COPING WITH NATURAL ENVIRONMENTS, p.3; and Moran, HUMAN ADAPTABILITY, pp.42-62.

accepted means of studying the man/nature relationship.

Yet the deterministic themes are still relevant in an historical context. When examined along an evolutionary timeline, man's early development in the pre-technology era was strongly influenced by climate, to a point where environmental deterministic theories are more accurate than other explanations. On the other hand, man's progression into the 19th and 20th centuries centered strongly on industrialism and was more in tune with human determinism as its philosophical base. Therefore deterministic theories, in general, are not to be viewed as irrelevant nor totally inaccurate. Neither are they to be viewed as reactionary or contradictory, but rather, as overzealous efforts at explanation. Their shortcomings lie in their oversimplification. They are generally unidirectional rather than systemic and they emphasize stages rather than process. An ecological approach on the other hand, by definition, focuses on systems and process. This approach views human development as resulting from a complex web of interrelated forces, with the environment, or more specifically, the climate, being but one of those forces. Therefore, since climate is only one of many factors it should be regarded as a **modifier** rather than a **determinant**. This is the view that will be espoused in this thesis.

2.2 Climate and Environment

The terms climate and environment have so far been used almost interchangeably because the exploration into theories of man/nature relationships did not necessitate a clear differentiation. It is important now, however, to confront this issue -- to establish what exactly climate is and what relationship it bears to the environment since the extent to which we view climate as a reckoning force within the environment (and how we react to that force) is at the heart of planning for winter livability.

Everyone knows that climate has something to do with weather but may not be clear on the distinction between the two. In short, climate is weather averaged out over a period of time. In other words "weather is what happened in the atmosphere yesterday, or is happening today, or will happen next week, climate is what has happened and can be expected to happen over the reasonably long run."[10] To be more specific, climate is the determined pattern of the five weather elements: wind, radiation (sun), temperature, moisture (precipitation), and pressure.[11] These five elements when summarized by means and extremes constitute climate.

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[10] Robert Claiborne, CLIMATE, MAN AND HISTORY, W.W. Norton & Co., New York, 1970, p.25.

[11] This is a generally accepted definition of weather as outlined in Marotz and McColl, COPING WITH NATURAL ENVIRONMENTS, p.86-87.

Climate manifests itself seasonally which is the result of the sun/earth geometry. Depending on the configuration of this geometry the seasons may present extreme variations in climate or virtually no variation at all. Differences in these seasonal patterns of climate have defined specific regions on the earth and have influenced the types of plants that could flourish, soils that could be formed, and animals that could survive in those regions. In ecological terminology these biogeographical zones representing particular sets of climatic , floral, faunal, and soil characteristics are called biomes.[12] Biomes, then, represent the natural environment, and the relationships just mentioned within the environment can be summarized in the following diagram. (Figure 1)

On a global scale, there are four principal biome types: forest, desert, tundra, and grassland.[13] These four can be further subdivided. For instance, forests may be tropical rainforest, monsoon forest, temperate rainforest, temperate deciduous forest, boreal forest, etc. The important point to remember is that each of these various biomes represents a state of stability. Each is an energy-based system characterized by a cyclical organization which balances the energy flow in and out of the system. Yet the incoming

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[12] Ibid., p.62.

[13] Ibid., p.67. Classification of biomes varies with different writers. Some suggest a larger number of primary biome types. This particular breakdown was selected because its simplicity is suitable to the generalized ecological perspective which is being presented.

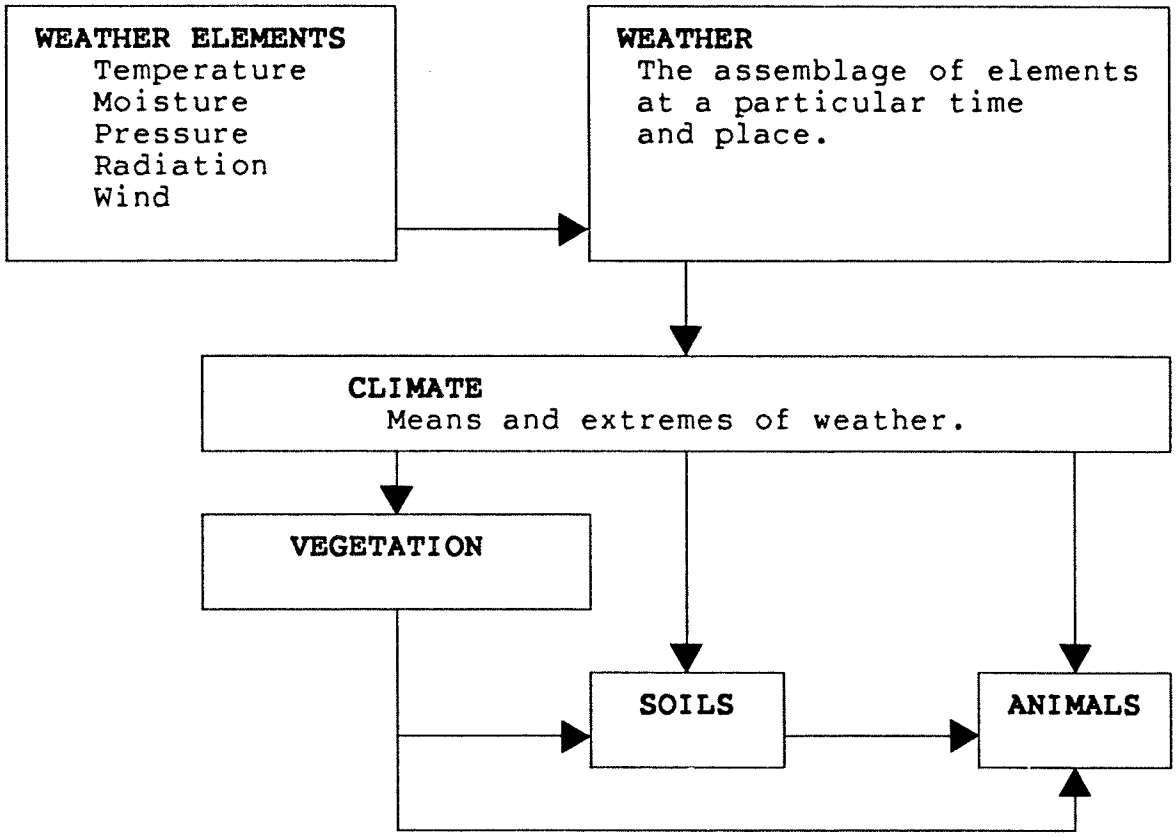

Figure 1: BIOME

Source: Marotz & McColl, COPING WITH NATURAL ENVIRONMENTS, p.62.

energy (primarily sunlight) varies widely from place to place, as does the way it is disposed of within the biome. Climate controls the energy and is thus the shaper of biomes.

2.3 Introduction of Man

For man, the biome within which he evolved and was therefore an integral part of, was the tropical region of Africa. This was his first home, a warm comfortable environment teeming with life. The evolutionary process assured his compatibility to the surroundings. As stated by Peter Broberg, "man has the warmth of East-Africa in his genes."[14] Originally, mankind successfully occupied the natural environment as merely one more species in a balanced system. But as the human species improved its technology, it had greater impact on the environment, "not only modifying it to meet its needs but degrading it through overuse."[15]

What is often overlooked however, is that this attitude of exploiting rather than caring for its habitat is not unique to man. Indeed, the human species was simply doing what nearly every other animal species does. Bears will uproot trees to get the berries, deer can overbrowse their range, and beavers can radically alter the environment for their own needs. But within a biome, stability must ultimately be attained. Therefore most animal species possess some form of homeostatic control, that is, a force that strives for equilibrium. "As population levels build up and

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[14] Peter Broberg, "All-Year Cities and Human Development", RESHAPING WINTER CITIES: CONCEPTS, STRATEGIES AND TRENDS, Norman Pressman, ed., Livable Winter City Association, University of Waterloo Press, 1985, p.3.

[15] Robert Leo Smith, THE ECOLOGY OF MAN: AN ECOSYSTEM APPROACH, Second Edition, Harper & Row, New York, 1972, p.174.

pressures on the environment increase, the population declines, and with the decline the environment recovers."[16] In other words, biomes, in their natural state, are equipped with an inate self-sustaining mechanism that can accommodate some degree of instability while still being able to restore balance. Man also exhibits a sense of homeostatic control within a natural environment as witnessed in some co-called "primitive tribes".[17] Exploiting the environment, then, is not to be regarded as either a singularly human characteristic, nor is it necessarily to be assumed as destructive to the balance within a natural biome, providing the homeostatic control ultimately prevails.

What is unique to man however, is his intelligence, and this enabled him to develop technology which eventually overpowered the homeostatic control. "Endowed with unique mental and physical characteristics, the species (man) was able to escape certain environmental constraints, free itself of certain pressures of natural selection, and dominate other forms of life on earth."[18] With the aid of tech-

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[16] Ibid., p.175.

[17] For example, Fred Plog and Daniel G. Bates, in CULTURAL ANTHROPOLOGY, Second Edition, (Alfred A. Knopf Inc., New York, 1980), cite on p.69 that Roy Rappaport (1967) demonstrated how the Tsembaga of New Guinea helped maintain a complex ecosystem in balance through ritualistic pig slaughters. It should be noted however that "while these and other practices may help maintain the population in a viable relationship with its resources, the people themselves may not recognize this beneficial consequence." (Ibid., p.70).

[18] Smith, THE ECOLOGY OF MAN, p.174. By overcoming the natural homeostatic response, the course of natural evolu-

nology, pressure created on the environment which would normally result in a restriction of population was countered instead by migration. Technology aided migration in that it gave man the ability to adapt to other biomes.[19] In fact, among all the organisms on earth only one, man, has colonized the whole planet. Marotz and McColl have stated that "the key factors in understanding how man has been able to occupy so many diverse biomes, biomes well beyond his apparent biological limits are, first, his mobility, and second, his adaptability."[20] Other animals migrate but they can only adapt to biomes within which they are genetically capable of surviving. The use of technology allowed man to transcend genetic adaptation by creating opportunities for what may be called functional adaptation, or more appropriately, adjustment.[21] In this way he was able to counter the

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tion was altered. "By its activities the human species has exploited other forms of life to extinction, destroyed the habitats of plants and other animals, and otherwise changed the balance of life on earth." (Ibid., p.175.)

[19] In THE ECOLOGICAL VIEWPOINT, (Canadian Broadcasting Corporation, Toronto, 1965, p.48), R.E. Balch stresses that "with the development of man's brain a new evolutionary mechanism came into play: the transmission from one generation to another of acquired knowledge, something that is not genetically inherited." Thus it was not simply the matter of creating technology to facilitate adaptation to other climates which was important to mankind's development, but also the ability to pass this information onto others and thereby allow for continuity and improvement.

[20] Marotz and McColl, COPING WITH NATURAL ENVIRONMENTS, p.89.

[21] Moran, HUMAN ADAPTABILITY, p.7.

environmental forces with which he was not biologically equipped to cope. It is man's intelligence as manifested through the use of technology, which set him **apart from** nature as opposed to being **a part of** nature. He has been fighting the natural forces of the elements ever since.

2.4 Technology

As has just been mentioned, man migrated to other biomes as a response to pressures placed on the environment by overpopulation. Strategies for his adaptation had to confront the conditions found in these new biomes. Since the dispersion of man throughout the globe occurred much too quickly to be accommodated by genetic changes, adaptation required technology. That is, adaptation was necessary for migration to be effective and technology was necessary to make adaptation possible. Had the technology not been present he would not have survived, and his demise would have been the result of an homeostatic control within his native biome. Therefore, in order to survive and progress, man had to learn from nature how to protect himself against new weather conditions and how to use his ingenuity to turn its liabilities into assets. Nowhere was this need greater than when man migrated toward the North, encountering damp winds, slush, cold, snow, fog and ice.

What technological advancements allowed man to brave these strange and often hostile environments? Quite simply,

it was the result of fire, clothing and shelter. Fire was the tool of many uses, one of which was to provide heat, while clothing and shelter represented successive technological layers between body and cold.

The biome is an energy-balanced system, the incoming energy being predominantly solar. The introduction of fire was revolutionary because it altered this system. As stated by Robert Claiborne, "in taming fire man had become a species which, for the first time in evolutionary history, could draw on sources of energy outside those supplied by solar heat and its own metabolism."[22] In using fire as a heat source, mankind was, in effect, opposing the natural system by creating an artificial climate.

Clothing and housing, on the other hand, represented a different strategy with the same objective. Rather than altering the immediate environment man found he could defend himself against it by the use of protective devices. Marotz and McColl have put it this way:

> Clothing and housing are two mechanisms humans have learned to use against less than ideal environments. Few features have been more important in permitting the peopling of the earth. Both are similar because both mitigate against (sic) stress by altering energy exchanges between the body and the environment.[23]

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[22] Claiborne, CLIMATE, MAN AND HISTORY, pp.183-184.

[23] Marotz and McColl, COPING WITH NATURAL ENVIRONMENTS, p.89.

Clothing represents the personal way of dealing with stress in the environment, it offers portable protection. And functionally, a house is no more than a large suit of clothes, but much more rigid. While clothes suffice to protect us individually, the house can provide group protection while promoting companionship and support.

Yet it must be borne in mind that these responses were originally strictly a matter of survival. As mentioned in a previous section, this early stage of man's development was strongly influenced by the environmental forces with which he was attempting to cope. As such, his responses can be said to have been determined by those forces (the theory of environmental determinism).

As human technology and ingenuity increased, clothing and housing as environmental protective devices, became much more sophisticated. Eventually, adaptation to virtually every biome on earth was possible. Yet in spite of increased technological sophistication, the types of climatic responses have remained much the same for a long time: clothing and shelter accompanied by a generated heat source. Technological developments which would progress beyond the two fundamental protective elements of clothing and shelter into the realm of climate controlled urban spaces (the next logical layer) have not been accepted and implemented to any great degree. Perhaps this has not occurred because such a move lacks the urgency of the previous two. Regardless, the

two technological developments of clothing and housing are, by themselves limited. And one of the objectives of the livable winter city campaign is to expand on the possibilities afforded by the third technological envelope, the sheltered urban space.

2.5 Regional Identity

As man began to control the immediate environment as a means of adapting to unfamiliar climatic conditions, the manner in which he did so was necessarily strongly related to the new context. The creative process through which he sought solutions was inextricably bound to his experiential process. In other words, he had to learn from nature how to survive. As a consequence of this, the solutions reflected each particular environment and changed as the environment changed. Thus a quality of regional identity emerged. This quality, Grillo states "...reveals triumphant solutions of common sense and simplicity ... The design is that way because it could not be otherwise -- and live."[24]

The variety of environments to which man was becoming accustomed did not only influence his selection for clothing and shelter but also affected his behaviour and eventually, his physiological make-up. Thus the quality of regionalism which is generally considered as being expressed primarily in the built form, is actually more broadly manifested both genetically and culturally.

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[24] Grillo, FORM, FUNCTION & DESIGN, p.77.

Genetically, man has responded to his environment in two ways. On the one hand there is the evolutionary change through the mechanism of natural selection involving the replacement of individuals with one type of adaptation by those with another. This type of change involves entire populations and occurs slowly, over numerous generations.[25] This response has produced the various racial characteristics found throughout the globe, each more appropriately suited to a specific environment. On the other hand, there is also a more flexible response which has been labelled as a "developmental adjustment".[26] This involves morphological change in individuals and is the result of what Moran calls genetic plasticity. During the growth or development period, an individual has the ability to mold itself to prevalent environmental conditions. For example, a child growing up at high altitudes will develop larger lungs and chest capacity to adjust to prevalent low oxygen conditions.

Both these types of physical responses are indicative of the impact that climatic conditions can have on human development and how a particular region can invoke specific responses.

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[25] Moran, HUMAN ADAPTABILITY, p.7.

[26] Ibid. Moran has referred to the classification of environmental adjustments as being regulatory, acclimatory and developmental, as per Robert Ricklefs, ECOLOGY, Chiron Press, Portland, Oregon, 1973.

A sense of regional identity can also be distinguished in the particular cultural traits that have evolved. In terms of environmental adjustment, these have been called "regulatory responses" and reflect man's behavioural flexibility. "Virtually all behaviour is a form of regulatory response that either serves to maintain a stable relationship to the environment or permits adjustment to changes in that environment."[27] Thus the two aforementioned strategies of clothing and shelter are both regulatory mechanisms and although they evolved as a matter of survival, they invariably reflected the environment in which they were produced.

When human technology developed to a point where the ability to survive the elements was manifest, then the purely functional nature of clothing and shelter began to be influenced by social or religious factors. House form, for example, was constrained but no longer determined by available materials. Rather, the result tended to be a compromise between behavioural and religious values, as well as factors of the environment.

And as man's ability to adapt to other biomes represented a breakthrough in his evolutionary development, so too did his departure from strict functionalism in adaptation techniques represent a breakthrough in his cultural development. Settlement patterns reflected not only the distribution of resources but also certain social and cultural factors such as marriage patterns. And religion could affect the form,

[27] Ibid.

layout and location of houses.[28]

Yet a regional quality or style was still very evident. Regardless of the elaborate cosmological interpretations that might have influenced man's cultural development, the technology was nevertheless localized, responding to the environment's constraints. Subsistence technology was, by necessity, site-specific. Man and nature were still intertwined.

Regionalism, from an ecological point of view, is a reflection of this harmonic relationship between man and nature. It constitutes evidence of man as being suitably adapted to his particular habitat. It identifies neither man nor environment as dominant but rather, it exemplifies a balance that has been struck between the two. And if it is true that a regional quality is no longer discernible in modern man's development, as was suggested in Chapter I, then surely any attempt to recapture that harmony represents a step in the right direction.

2.6 Conclusion

The theories posited on the relationship between man and the environment offer valuable insights into the issue of planning for winter livability. The positions have been presented as to whether nature is viewed as dominating human activity or whether man is acknowledged as being able to override environmental forces, or whether in fact, man is

[28] Ibid., p.96.

seen as interactively balanced within the environment. These should not be viewed as strictly right or wrong propositions. They can, however, serve as guideposts. Man has in the past, and is still, fluctuating between these positions. There is no doubt that in man's early development, particularly as a hunter and gatherer, natural forces in many ways determined his behaviour. However, as the agrarian tradition grew, man began to control his environment to some degree thereby exhibiting an adaptational response to his habitat. The industrial age, by contrast, has been characterized by an over-exploitation of natural resources and a general disregard for, and dominance of, the environment -- human determinism. Yet these are generalizations and there are examples to the contrary. (One can readily discern climate's determining effect on modern man observing his migratory responses to the south come January.) The key lies not so much in classifying the past as in selecting a path for the future.

In doing so the question ought very well be asked: why should an adaptational response to the environment be more appropriate (as has been suggested in this chapter) than one which utilizes man's ingenuity and technology to overcome the natural forces? In a nutshell, the answer must be that the price is too high not to do so.

Although an image has been presented of the natural environment as a delicately balanced system (and in spite of its

resiliency, it is), the forces that are at work within the environment are by no means delicate. They are in fact, formidable. Consequently, if one is to overpower these, the counterforce must be equal or greater in strength, and such an effort is not produced without considerable cost. It is possible to heat any building in the Arctic but the energy required to do so must overcome one of the severest climatic environments on earth. Not only is the cost great, but the lifeline is precarious.

Technology can be man's greatest asset, but it can also spell doom. It enabled man to adapt to otherwise inhospitable climates and thereby free himself of the deterministic force of the environment, but the pendulum has swung too far in this direction. If we are to compensate for this shift and attempt to regain a proper balance, it is important to understand the prospects before us. The choice has been eloquently stated by Tapio Periainen.

> First, if our target is a high value for nature, we shall have to take the ecology of cold regions, natural resources and the ways of life they prescribe as the unconditional premises for new solutions to ways of living and forms of housing. In this respect it is illogical to underrate primitive peoples' knowledge and skill, based as they are on long traditions and experiences.
>
> Second, if our target is equilibrium between man and nature, that is between architecture and material objects and nature, we can achieve it either organically, in a natural way, or with the aid of high technology -- but softly.
>
> Third, and probably the most common way in Western cultural circles, is to minimize the value of nature. The result of this in practise is hard

> technology, excessive energy consumption and above all estrangement of man from nature.[29]

Planning for winter livability in an urban context is an attempt to ease the tension created in the last scenario with an overall goal of achieving the second. As mentioned in the previous chapter, the most formidable force to be confronted in this endeavour is not environmental but socio-cultural -- it involves a restructuring of our value system.

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[29] Periainen, "Some Visions of Arctic Design," ENVIRONMENTS, p.38.

Chapter III
ISSUES

Chapter III

ISSUES: FROM ANALYSIS TO SYNTHESIS

> We have the technology, we know the problems; to arrive at solutions we need a new orientation and will.[1]
>
> -- Walter H. Kehm

Improvements in technology, especially the "quantum leaps" that have taken place in the field of computer science, have vastly improved our ability to analyze information. We are able to study behaviour, situations, and data like never before. These advances are particularly beneficial to the goals of winter livability. Detailed and intricate calculations are now possible in many climate related fields which permit the testing of design proposals that pay special attention to the natural forces of the elements.[2]

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[1] Walter H. Kehm, "The Landscape of the Livable Winter City", RESHAPING WINTER CITIES: CONCEPTS, STRATEGIES AND TRENDS, Livable Winter City Association, University of Waterloo Press, 1985, p.60.

[2] For example, Dr. Michael A. Persinger has stated that: "The last ten years have been a major inflection point for the science of biometeorology (study of the effect of climate on living organisms). Four important findings have emerged. First, day-to-day variations in weather and the cumulative effects of season have profound impacts upon psychological processes. Second, precise differentiation of weather into realistic categories (such as weather phases) allows specific types of behaviours to be predicted. Third, the interaction between season (climate) and weather (short-term changes), although complicated is even

Yet, this emphasis on analysis has also created a deficiency -- the increased need for synthesis. Analysis inevitably leads to conclusions and/or recommendations which must be examined from a broader perspective if a sense of coordinated direction is to be the outcome. Quite simply, analysis of winter related problems and issues is not enough. The results must also be synthesized, and the objective of this chapter is to suggest one way of doing just that. It will do so by organizing and categorizing the concerns expressed by various individuals who have spoken or written on winter related issues. By sorting out the concerns in such a way, criteria will be established for the formulation of a "blueprint for action" which can address the issues in a systematic fashion.

The chapter will begin with an examination of the goals that have been put forth and the corresponding variables which must be addressed. The scale of application, be it anything from building design criteria to federal policy, will then be assessed. This will be followed by a categorical look at the focus of intervention such as physical design or social programming. Finally these various approaches will be structured into a matrix format which will then allow winter livability suggestions to be sorted

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more powerful than previously expected. Fourth, central neural disorders similar to those that influence emotional disorders, may also mediate weather effects in the average person." See "Climate Has Profound Effect On Human Behaviour", Livable Winter City Association NEWSLETTER, vol.3, no.2, April 1, 1985, p.7.

out and listed.

There remains to briefly outline two qualifiers. Firstly, to reiterate a point made in Chapter I, the concentration of attention is on the urban context. Consequently, important studies which are not directly related to the city, such as those that key on Arctic adaptation,[3] will not receive the full attention they deserve. Secondly, the bane of all works of synthesis must be acknowledged -- the penchant for oversimplification. When sorting and classifying pieces of information one often encounters "unwilling participants" -- certain data which do not fit neatly into the prescribed boxes. The result may be forced compliance and oversimplification. Allowances must be made for this when examining the results.

3.1 Goals and Variables

While the preamble has stipulated the need for broad-scale synthesis of winter livability ideas it did not mean to suggest that no such efforts have been undertaken. In his contributing chapter to the book entitled RESHAPING WINTER CITIES, the editor, Norman Pressman, has pooled together current thoughts on winter's dilemmas into what he has labelled as five "state of the art" propositions:

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[3] See for example, Guy Gerin-Lajoie, "Livable Winter City: The Arctic" in RESHAPING WINTER CITIES, p.93; and Howard Magid, "Shelter Design in Remote Settlements -- An Examination of Inuit Shelter Design Experiences in the Canadian Arctic", ENVIRONMENTS, A Journal of Interdisciplinary Studies, University of Waterloo, vol.15, no.2, 1983, p.45.

1. Winter must be regarded as being at least of equal importance -- if not more so -- compared to other seasons.

2. It is the cumulative effect of small-scale interventions and incremental responses embodied in policies and designs which will contribute to the achievement of the livable winter city.

3. Analysis and identification of the unique spectrum of problems arising out of winter's demands are imperative. Appropriate and responsive solutions must be developed.

4. Solutions which are developed must be tested for effectiveness through quasi-experimental research.

5. Climate should be regarded as a significant modifier of urban structure and development policy. Proper macro-climatic planning, use of vegetation and choice of appropriate materials can assist in improving the outdoor comfort zone.[4]

In order to reinforce the direction established by this thesis, the third proposition can be expanded to account for the importance of developing a plan of action. As a result, the last line of proposition 3 could read: "Appropriate and responsive solutions must be developed **with due consideration to the method of application.**"

These five propositions are intended to constitute a synthesis of direction for the winter city movement. Although they recognize the importance of cumulative development, they do not acknowledge outright that a unity of direction and a coordinated approach (through synthesis) is important. Consequently, a sixth proposition may be added.

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[4] Pressman, "Developing Livable Winter Cities", RESHAPING WINTER CITIES pp.44-46.

6. **While singular efforts on individual fronts can be effective and should not necessarily be discouraged, energies must also be extended toward synthesizing strategies, developing joint action, and coordinating efforts that strive to increase winter livability.**

The accumulated thrust of these six propositions establishes what can be called a "credo for winter livability". The realization of this credo into policy and design which bring man and nature into closer harmony by promoting enjoyment of, and protection from, the elements, is the goal of the winter city movement.

As these propositions attest, two developments must occur before this vision of a true winter city can be realized. One deals with a change in attitude and the other with the manifestation of that new attitude in planning and design. The two are inextricably bound in a symbiotic relationship, that is, they can influence each other with mutually beneficial results. A climate-sensitive design of a public space for example, can help change attitudes toward the climate and, conversely, a change in attitudes can produce more climate-responsive design solutions. The challenge is to set the cycle in motion.

As was mentioned in the first chapter, efforts to achieve these developments must address three broad classes of variables:

1. the specific climatic or weather-related factors, (forces);
2. the particular user and activity, (needs);
3. the process of implementation, (method).

At the risk of oversimplification, it may be stated that solutions result from an applied method that responds to needs created or influenced by specific forces.

Yet, while these may be considered as the categories of variables, there are numerous ways within which they vary. This is mainly due to the fact that increasing livability is such a broad-based goal -- the possible approaches to solving winter livability dilemmas are numerous and the specific solutions or proposals are virtually endless. Pressman affords us a glimpse of the formidable range of possibilities that exists even with respect to only one aspect of winter livability -- protection from the elements -- when he states that:

> Some of these principles refer to elements such as favourable orientation of structures, wind protection, introduction of climate modifying plant life, clustering of dwellings, mixed land use, urban infill, more rational distribution of jobs and places of residence, provision of more energy-efficient public transportation systems, and high quality sheltering techniques such as covered sidewalks, enclosed streets and underground development.[5]

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[5] Idem., "Introduction", RESHAPING WINTER CITIES, p.16. This list represents some of the topics covered in the book but it is by no means all-inclusive. There exist many other possibilities as well, not the least of which is the exploitation of the recreational opportunities afforded by the winter season.

This array of possible approaches is indicative of the inherent complexity of the winter city concept, and why some system of classifying issues will be a useful tool.

Two of the most obvious and immediate ways in which the issues vary are in scale and focus. The scale can range from national policy to building detail while the focus may be on protection from, or enjoyment of, the elements and may involve physical or non-physical considerations. Scale and focus will now be examined in more detail.

3.2 Scale of Application

Pressman has stated that "...if a systematic, comprehensive solution is desired, this must encompass the entire field of **settlement patterns** (provincially and nationally), and the **social, political and economic structure of cities**..."[6] Such a mandate clearly outlines the magnitude and complexity of the issues and the need for an organized approach. One way of beginning this effort at organization is to consider the varying degrees of scale. Jack Diamond has proposed that the issues of winter livability be broken down into three scales of consideration:

- **The macro level** -- which has the total city as its field. At this level the appropriate instruments to affect design are the policies formulated at all government levels - Federal, Provincial and Municipal.

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[6] Ibid., p.36.

- **The urban sector level** -- which has the neighbourhood, or district as its field. In addition to questions of policy, it is appropriate to deal with the physical aspects of this level at the urban design scale.
- **The individual building level** -- where it is specific design that is the appropriate means of effecting an improvement to the collective environment as well as the welfare of each building's users.[7]

This appreciation of scale is crucial to an understanding of the application of winter livability proposals. Therefore it may prove useful to elaborate upon and refine these categories.

The next sub-section will examine the difference between the physical and the behavioural or psychological effects of winter, that is, the difference between what will be called spatial and aspatial factors. This reflects the separate nature of winter livability proposals which deal with actual physical manipulations and those that do not, (or do so indirectly). To conform with this differentiation, the three instruments of implementation mentioned by Diamond as government policy, urban design and building design might more appropriately be labelled as city planning, urban design and design detail (landscape or building design details). By changing "policy" to "city planning" the same spatial quality of physical manipulation is maintained

[7] A. Jack Diamond, "A Critique of the Planning and Building Design of Winnipeg", in THE WINTER CITY, Canadian Housing and Design Council, Ottawa, 1982, p.5.

throughout.[8] (The aspatial component can then be examined separately.) In addition, the concentration on the urban context is more strongly established. This is not to say that policy is divorced from planning, only that policy, when it is used as a tool of city planning, is closely tied to spatial action.

At other times however, policy is not so closely tied to physical manifestations. Here, we can speak strictly of policy as a separate entity. It will be regarded as the aspatial component of methodology. Eventually the indirect effects of these policies may be manifested spatially at any or all scalar levels of planning, urban design and building detail, although there are times when these policies will have no spatial consequence at all. Furthermore, these policy implications need not be assumed as strictly large scale -- they may effectively be responsible for small scale manipulations as well.[9] This non-physical component will be elaborated upon later.

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[8] The city planning profession is multi-faceted, at times almost defying description. City planning, as it is used here, is not meant to encompass all of the subtleties of the profession, but rather, is aimed at a more generic interpretation which would view it as the planning of the physical components of the city.

[9] Many firms, for example, have adopted a climate-responsive office policy of "summer hours" which allows for a four-day work week and three-day weekends through the summer months. A precedent therefore exists for winter counterparts to this approach.

Physical solutions then, can be implemented at three levels of consideration and this varying scale of application can serve as a useful categorization for the other two groups of variables as well (the climatic factors and the user needs).

At the large scale, the macro level, the climate varies **regionally** from city to city depending on the particular geographic characteristics. Consequently, a maritime city will be influenced by a very different climate than will a prairie city. Yet even prairie cities or maritime cities will vary **locally** amongst each other according to more specific criteria, a second, or meso level of consideration. Also at this level, within a given city the climate may vary, for example, from downtown to the suburbs.[10] And yet, to the average person, these two climatic levels mean little, "they are largely statistical abstractions" according to John Welch.[11] It is what he calls "the experiential reality" which takes precedent. In other words, it is the manifestation of **micro-climatic** effects generated on the street or between buildings, etc., that become the prevaling consideration. Micro-climate forces involve effective conditions that are very site-specific and impact on the indi-

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[10] John D. Welch, in "The Effects of Sun, Wind and Snow on Urban Design", (THE WINTER CITY, p.30) explains how, for example, "heat islands", which are the result "of the concentration of heat sources..." such as is found in city cores, can "raise the urban air temperature as much as 5 or 6 degrees C. above that in small surroundings."

[11] Ibid.

vidual directly.

As mentioned, these three varying scales of application can pertain to the user as well. At the macro level, consideration is given to large sections of the urban **population**. For example, the transportation requirements of the working suburbanites who must migrate daily to the core. The meso level concerns itself with the specialized needs of specific **groups** such as the mobility requirements of senior citizens. The micro level user, as would be expected, represents the smallest entity, the **individual.** While design or policy will necessarily encompass more than one person, it is governed by the needs and activities of the individual, say, for example, the need for bus shelters.

This scalar breakdown of variables, as represented in matrix format in Figure 2, will serve as a useful tool for handling winter related issues. Scalar change, however, represents but one dimension of the problem variables. Let us consider another.

		VARIABLE		
		CLIMATE	**USER**	**METHOD**
SCALE	**MACRO**	regional	population	city planning
	MESO	local area	groups	urban design
	MICRO	micro-climate	individuals	design detail

Figure 2: SCALE OF APPLICATION

3.3 Focus of Intervention

The winter city movement, by definition, is concerned with the development of the city. Yet within this urban context there are numerous areas of potential focus for winter livability improvements and a host of ways to classify them. For example, Hans Blumenfeld has quite simply suggested that there are two fronts (as has been mentioned before). "Specific measures to enhance livability in winter can be sought in two directions: increase in the enjoyment of winter's positive aspects, and protection from the neg-

ative ones."[12] Another possible approach was utilized by the second prize winners in the national student competition on the winter city. Here, a division was made between social, economic and physical areas of intervention.[13] A further possible breakdown has been used by Norman Pressman when he differentiates between spatial and aspatial factors. Aspatial factors, he says, represent "yet another dimension to the user side of what is referred to as 'quality of life'. This deals with rules and codes of behaviour from **socially desirable** and **legally acceptable** frameworks."[14] One can also focus on the variety of land uses within the city. The options are many and each approach has its merit.

Because this groundwork is intended to lead eventually to greater insights into the application of solutions, this should form the governing factor in deciding which breakdown(s) should be further explored. The enjoyment/protection breakdown is an important one but is really just a means of sub-dividing user needs. The breakdown of spatial versus aspatial considerations is also very important since the shift in focus from concrete to abstract will almost certainly necessitate a parallel shift in methodology. Similarly, the classification of issues into physical, economic,

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[12] Hans Blumenfeld, "Problems of Winter in the City", RESHAPING WINTER CITIES, p.47.

[13] This approach was put forth by a group of six students in Urban and Regional Planning, University of Waterloo. See RESHAPING WINTER CITIES, p.124.

[14] Norman Pressman, "Developing Livable Winter Cities", RESHAPING WINTER CITIES, p.41.

and social parameters warrants special attention for the same reason. Yet, the spatial/aspatial breakdown, being more general, encompasses these three. In fact, stipulating spatial and aspatial factors creates and all-inclusive or open set of groupings while stipulating physical, economic and social factors does not. An open-ended system is better for our purposes.

Looking, then, at the three classes of variables in relation to this manipulation some interesting considerations emerge, considerations which may not normally be associated with the winter city concept. The aim of increasing winter livability is often mistakenly considered to involve strictly physical modifications with an emphasis on design-oriented solutions. Examining the aspatial component of winter livability presents an altogether different picture. The results can be seen in Figure 3.

To illustrate by way of example the difference between the various planes, consider one of the negative characteristics of winter -- the extended hours of darkness. The spatial component might involve such things as dealing with the darkness through increased street-lighting hours. The added aspatial dimension however, brings into play such things as coincident safety and security requirements which might call for increased police patrol. As well, consideration might also be given to the behavioral changes such as "cabin fever" and depression which flourish at such times.[15]

[15] Dr. Michael A. Persinger has stated that "the winter sea-

		VARIABLE		
		CLIMATE	**USER**	**METHOD**
FOCUS	**SPATIAL**	physical constraints & opportunities	protection and enjoyment	design and planning
	ASPATIAL	psychological effects & attitudes	comfort, safety, equity	policy and programs

Figure 3: FOCUS OF INTERVENTION

When looking at another example of a winter characteristic, heavy snowfalls, one spatial response might be to explore the possibility of added recreational opportunities while the aspatial component might concern itself with the equitable distribution of such amenities.[16]

son has a profound impact on behaviour because of the coerced changes in spontaneous activity, stimulus redundancy (snow everywhere) and the general negativity of the season. They lead to a collection of diffuse symptoms by early January that continue through March." See "Climate Has Profound Effect on Human Behaviour", Livable Winter City Association NEWSLETTER, vol.3, no.2, April 1, 1985, p.8.

[16] This point is well made by Novia Carter in "Urban Envi-

It becomes easy to appreciate that the method used to combat these disparate focuses must vary accordingly -- spatial considerations being dealt with predominantly through planning and design and the aspatial component requiring program development and policy.

Should it not be clear that a need exists to expand winter city ideals into this aspatial realm, the argument is strengthened when we consider the point made by Culjat and Erskine in reference to Jan Gehl.

> Jan Gehl points out that there are two distinct groups or types of activities: **necessary activities** which take place under any circumstances (work, goal-oriented movement, etc.) and **optional activities** which take place only if the external conditions are favourable.
>
> Most of the social and recreative activities can be considered as optional activities, and if the physical environment does not accommodate and support them they simply disappear from the total activity pattern.[17]

In other words, aspatial factors are important to consider because they can strongly influence behavioural and social patterns, which, if allowed to diminish, will greatly reduce the quality of life that the winter city concept is attempting to augment. One need not be concerned that aspatial considerations broaden the goal of winter livability into areas only indirectly related to the winter climate. After all, it may be stated as by Eberhard Zeidler that "...the

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ronment and the Quality of Life", THE WINTER CITY, p.18.

[17] Boris Culjat and Ralph Erskine, "Climate-Responsive Social Space: A Scandinavian Perspective", ENVIRONMENTS, p.14.

livable winter city must be, first, a livable city before it may attempt to address itself to the seasons."[18]

3.4 Organizing the Issues

It was mentioned at the outset that the purpose of the chapter is to progress from analysis to synthesis. We are now in a position to do just that. It has been stated (over and over again) that winter livability issues must address three sets of variables, namely, climatic factors, user needs, and method of implementation. Furthermore, it has been established that these vary both in scale and focus. It remains now to synthesize this information into a workable format which will facilitate the documentation of winter livability proposals. To do so requires the combination of the previous matrices, bearing in mind that the intent is not to produce statistically-formatted multi-variate analysis, but rather, to produce a manageable framework for organizing current winter city ideas. As called for by Norman Pressman:

> -- guidelines must be developed for the sensitive planning and design of winter cities at a range of scales and considerations which must include both spatial as well as aspatial components.[19]

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[18] Eberhard Zeidler, "Creating a Livable Winter City", RESHAPING WINTER CITIES, p.80. While the direction taken in this thesis does not fully espouse Zeidler's "first livability, then winter livability" view, neither has it been fearful of broadening its scope beyond direct winter-related concerns.

[19] Pressman, "Developing Livable Winter Cities", RESHAPING WINTER CITIES, p.46.

The result of the amalgamation process can be seen in Figure 4.

By structuring the component parts in such a way, a framework is established which is comprised of six different levels of consideration (from macro-spatial to micro-aspatial) each of which can be subject to specialized deliberation before translation into action. There will be overlaps to be sure, but the overall goal of structuring a procedure which is complementary to the focus and scale should nevertheless be facilitated. These six levels can now be explored in more detail.

		VARIABLE		
FOCUS	**SCALE**	**CLIMATE**	**USER**	**METHOD**
SPATIAL	**MACRO**	regional patterns	population trends	city planning practise
	MESO	local variations	group requirements	urban design principles
	MICRO	micro-climate fluctuations	individual needs	landscape & arch. details
ASPATIAL	**MACRO**	attitudinal responses	societal adjustments	fed. & prov. public policy
	MESO	behavioural changes	localized concerns	municipal public policy
	MICRO	psychological effects	associated needs	public & private policy

Figure 4: ISSUES MATRIX

3.5 Livability Inventory

Suggestions for improving livability have ranged from the general to the specific. At times this duality is merely a reflection of the ranging degree of scale -- from city-wide to very localized concerns. At other times however, even suggestions for improvements at the same scale can be general or specific. For example, at the residential unit scale one might suggest incorporating passive solar energy principles in general, or one might be more specific and outline the proper orientation angle, the size of overhangs, the ratio of wall to window, etc. In these instances, the more generalized approach will suffice since it is indicative of a suggested direction and this effort of classifying winter livability proposals is meant to outline current directions. Nevertheless there are instances where very specific proposals cannot be avoided since they do not all lend themselves well to broader classifications. Without further qualification, let us examine some of the current issues and concerns at each of the six levels formulated in Figure 4.

1. Macro-spatial

At the macro-spatial level, foremost consideration is given to land-use planning, transportation planning, and recreation planning. The predominant climatic factors considered at this level are the temperature ranges and precipitation levels. In terms of land-use planning, climatic considera-

tions (as well as economic) have generated proposals which discourage urban sprawl and encourage containment. For example, increasing development densities would help stimulate infill and compaction. The overall thrust is on urban revitalization. There is also an emphasis on mixed-use developments which includes a more rational distribution of jobs and places of residence. Peter Broberg has strongly supported enclosed urban spaces which leads him to suggest that:

> When we take on the creation of local enclosures of squares and streets in order to create cores of activity in the urban landscape, it is reasonable that we plan according to the urban concept **"cities within cities"**. This will mean that we must restructure our urban landscape into **a system of local urban mini-cities** integrating the functions of living, working, shopping, studying, etc.[20]

In terms of transportation planning, the emphasis is on public over private means. Transit ridership can be promoted through such things as reserved bus lanes in peak traffic hours and by offering better service to the suburbs. The latter may be accomplished by having the location of bus routes and stops incorporated in the subdivision design process. As well, the transit authority might be given a role in the approving of subdivision layouts perhaps to the point of veto power. Downtown developments might reduce parking requirements for proposals which accommodate transit

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[20] Peter Broberg, "All-Year Cities and Human Development", RESHAPING WINTER CITIES, p.10.

[21] These suggestions have been gleamed from Xenia Zepic in "Winter Cities: Restructuring the Transportation-Land Use Relationship", RESHAPING WINTER CITIES, p.73.

stops.[21] In general, transportation responses de-emphasize the automobile.

Recreation planning, quite simply, promotes winter recreational opportunities. At the macro scale the emphasis has been on better winter use of city parks and, since many Canadian cities are built on waterways, on the exploitation of the vast recreational opportunities afforded by them. The Rideau Canal in Ottawa represents a successful application of this concept. Also, large winter festivals such as the Carnival in Quebec and the Festival du Voyageur in Winnipeg are indicative of a further direction in winter recreational potential.

2. Meso-Spatial

Meso-spatial considerations concern themselves with interventions at the urban sector or neighborhood level. It is perhaps most appropriate to refer to this level as consisting of urban design proposals. The thrust is toward responses that combine planning and design considerations emphasizing protection from, and promoting enjoyment of, the winter season. It is at this level that the people generally expect transformations into winter livability to occur.

Common responses include interconnections between buildings (above ground, below ground or through massing), atrium spaces, and enclosed public spaces. A good example of how these can be combined is the I.D.S. Center and skywalk com-

plex in Minneapolis. In the same vein but perhaps not quite so common are continuous pedestrian protection systems such as covered walkways, arcades, and perhaps even the selected roofing-over of existing streets. One stipulation involves the allowance for freedom of choice. Therefore both open-air and protected, climate-controlled spaces should be made available. Jack Diamond speaks for most winter city advocates when he states that "man is a biological organism and cannot be isolated from his natural environment without suffering the consequences of such deprivation."[22] Observation of this principle has led Peter Broberg to suggest the creation of urban climatic zones (half-warm, half-cold, and frost-free).[23]

Also recommended at this level is the adoption of passive solar energy principles in the planning of subdivisions, the orientation of streets, and in the site planning of developments. The most important climatic factor considerations in this regard are the optimal use of sunlight and the protection from winds.

The principles of mixed land-use and higher densities should also carry through at this level which would see a strong integration of elements such as, for example, transit nodes and commercial facilities. Residentially, the compact and functionally integrated "Woonerf" concept adopted in

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[22] Diamond, "A Critique of the Planning and Building Design of Winnipeg", THE WINTER CITY, p.7.

[23] Broberg, "All-Year Cities and Human Development", RESHAPING WINTER CITIES, pp.8,9.

Holland has been recommended by M.C. Poulton.[24] Principles of landscape architecture such as the "urban woods" proposal for wind absorption suggested by Garry Hilderman also come into play .[25]

In terms of enjoyment, indoor parks and winter gardens are one possible direction while outdoor community festivals, inter-neighborhood cross-country ski trails and the use of retention ponds for skating represent another. Local community centers can provide the focal points for winter recreation.

3. Micro-Spatial

The micro-spatial level deals primarily with specific, small-scale design solutions that respond directly to particular climatic or micro- climatic factors. The list of ideas at this level is virtually endless -- limited only by the imagination. Nevertheless, general directions can be discerned.

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[24] According to Poulton, "In 1976 Holland introduced traffic legislation to create a new type of city street. This street called a "woonerf" (literally, "residential precinct"), is designed to allow **joint** use of the street space by vehicles and pedestrians. The pedestrians have priority over vehicles and existing street space is redesigned to create an appealing environment for their activities." See "Replanning the Residential Street System: Adapting the Dutch Revolution to the Canadian Context", PROSPECTS FOR PLANNING: COMING TO GRIPS WITH NEW REALITIES, (Proceedings of the 1982 CIP Conference), Barry S. Wellar, ed., Hull, Quebec, 1982, p.224.

[25] Garry Hilderman, "Mosquitoes Don't Bite in Winter", THE WINTER CITY, p.44.

Many suggestions attempt to reduce the effect of winds at pedestrian level. For example John Welch has recommended that slab buildings facing prevailing winds should be avoided; that circular or hexagonal plans for high-rise buildings can reduce ground level turbulence; that podiums be provided at the base of tall buildings; that canopies or roof enclosures be used to protect sidewalks at building base; that vertical fins on buildings channel the wind downward and should therefore be avoided or guarded against; that passageways through buildings not align themselves with prevailing winds; that heavily used street crossings or subway entries be located in wind protected areas; and that horizontal winds at ground level be modified by the use of trees, walls and screens.[26] In particular, groups of trees strategically located at intersections can act as wind sponges.

Other suggestions relate to the build-up of ice and snow (and the ensuing puddles). Examples include "building parapets (that) can catch snow, rather than dumping it at entrance doors or on paths or drives. The positioning of underground sub-stations, which lose heat, can be placed at bus stops to keep the sidewalk dry and free of ice."[27] Other examples include locating catch basins away from crosswalks; placing removable splash guards along curbs; paving

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[26] John Welch, "The Effects of Sun, Wind and Snow on Urban Design", THE WINTER CITY, p.31.

[27] Diamond, "A Critique of the Planning and Building Design of Winnipeg", THE WINTER CITY, p.8.

with "iceless" material;[28] heating sidewalks (especially at bus stops); limited slope allowances on ramps; and developing snow drifting studies in order to manipulate or accommodate the deposit of snow.

Of course, efforts have also been extended toward reducing the effect of the cold temperatures. Enclosed sidewalks, for example, which can be opened in summer have been used successfully. As well, supplying radiant heat over sidewalks; heated bus shelters; bus stops oriented to the sun; and generally incorporating the principles of passive solar energy, will help negate the cold.

Visually, efforts can be extended to enhance the beauty of ice and snow by purposefully creating patterned snow drifting, by spraying trees, by building ice and snow sculptures, etc. Environmental art can spruce up a monochromatic landscape as can a variety of colours and materials on the face of buildings (while reducing glare and increasing heat absorption). Banners and appropriate street lighting are also effective ways of adding vitality to the environment at this scale of consideration.

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[28] According to Xenia Zepic, "The most recently developed product is Verglimit, a pavement mix developed in Switzerland to prevent the formation of ice on bridge decks, overpasses and accident-prone stretches of road." The use of this type of paving material would greatly reduce the need for large dosages of salt and sand which are presently prescribed. See "Winter Cities: Restructuring the Transportation-Land Use Relationship", RESHAPING WINTER CITIES, pp. 70,71.

4. Macro-Aspatial

As the label suggests, this level of consideration is generally concerned with social and economic issues that can affect entire urban centres. With respect to the economy, John Royle cites a policy statement by the Science Council of Canada which attempts to take advantage of our northern climate: "We must encourage the indigenous development of those technologies where we have a geographical advantage."[29] This would imply initiatives as diverse as the promotion of research into winter related phenomena or the promotion of winter tourism.

Leaning more toward social issues would be suggestions such as winter employment and training programs, winter health care and safety, and winter subsidies to lower income groups for heating allowances, winter clothing needs, etc. Still focusing on the disadvantaged would be efforts to ensure the equitable distribution and availability of recreational opportunities (free skating is meaningless if you do not own a pair of skates) and transit assistance with respect to winter-oriented activities. Another direction includes the development of winter fitness and sports programs.

As well there have been aspatial responses which can best be labelled as new directions in urban management. The chief thrust is toward time management of facilities and

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[29] John Royle, "The Challenge of Being Northern", RESHAPING WINTER CITIES, p.59.

services which corresponds to the seasons. For example, the scheduling of transit service is presently time-structured according to the hour of the day (increased service at rush hours) and the day of the week (reduced service on Sundays). This could extend into seasonal consideration as well, allowing for more responsive service during the severest winter months. Also along this line, seasonal consideration should be incorporated when apportioning municipal funds, particularly with respect to recreation budgets.

5. Meso-Aspatial

At the neighborhood or urban sector level, aspatial responses to winter livability can support or encourage spatial goals. For example, to facilitate the clustering of buildings within a development, set-back regulations might be replaced by "build-to" requirements. As well, guidelines might be developed for optimizing relationships to the elements such as access to light, wind impact studies, and shadow pattern studies. Residentially efforts to make better winter-use of summer playgrounds is one direction that can be taken.

On a more social plane, not enough has been done to evaluate the aspatial needs of special interest groups. The elderly in particular, whether in senior citizen centers or in their own homes, are often terribly restricted in mobility during the winter months. The interconnection of service

and amenity facilities around care homes would be a boon to their needs. Likewise, the requirements of the poor and disadvantaged can become more acute in winter -- to be homeless in winter can be fatal. Emphasizing home comfort, an agreement with the utility companies to disallow power cut-offs in winter is one step toward ameliorating the situation. After all, Hans Blumenfeld is right when he states that "...a livable home is by far the most important ingredient of a livable city."[30]

6. Micro-Aspatial

The micro-aspatial level relates to the individual and individual needs. Consequently suggested responses vary enormously, most aimed at public policy, but some at policies in the private sector. Designated working hours is an example of the latter. It was mentioned in an earlier footnote that many firms resort to "summer hours". An office policy of "winter hours" might attempt to offset the reduced daylight hours of winter by offering two-hour lunch breaks so that employees could take advantage of the limited daylight. A complementary office policy might involve concurrent fitness or recreational programs.

Another direction which is often overlooked (perhaps because it is too obvious) is what Len Vopnfjord calls a "fundamental change in attitude toward what is acceptable in

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[30] Hans Blumenfeld, "Problems of Winter in the City", RESHAPING WINTER CITIES, p.50.

winter attire."[31] Sensible outerwear, in itself, can make the winter more bearable. Of course the question of equity for the poor and disadvantaged emerges in this regard as well. Further along this idea, Vopnfjord states that "such outerwear would require more extensive lobbies in buildings with public locker rooms to enable the transition to indoor temperatures."[32]

Further responses which emerge include winter driving tests which could be made mandatory and be accompanied by education on safety and emergency measures. Also, and this relates to time management mentioned earlier, the length of street-light crossing time for pedestrians could be increased in winter. As well, to encourage transit use, standards which set maximum walking distances to stops could be adopted, and transit routes and bus stops could receive priority for snow removal (as they presently do in many cities).

In short, attitudinal changes to the winter, if they are to occur, must eventually have ramifications at this level. Any response which moves toward that goal must be considered. Thus when Walter Kehm suggests that "consultants should be made to present grey and white winter plans as well as the usual 'green' scheme"[33] the intent is to effect

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[31] Leonard W. Vopnfjord, "The Planner's Role", THE WINTER CITY, p.9.

[32] Ibid.

[33] Walter H. Kehm, "The Landscape of the Livable Winter City", RESHAPING WINTER CITIES, p.59.

changes in attitude and ingrained habits. Such efforts cannot be trivialized.

While this concludes the listings, it should be reiterated that the six levels of consideration just presented have been introduced as a possible classification system. Within each category there is room for an infinite number of suggested responses. Those listed have, for the most part, been indicative of general trends and the types of considerations which relate to them. Certainly numerous additional alternatives exist which, by design, have not been listed. These are limited only by the imagination. With some additional effort this categorical amalgamation can be extended to develop a true winter livability inventory for any specific case and which can be referred to when strategic options are to be formulated.

3.6 Conclusion

Although there is much yet to be done with respect to transforming our cities into more livable winter environments, there have to date been a significant number of accomplishments. There is in fact, an expanding body of case work that can serve as useful reference to further progress. As well, short of actual accomplishments, there exists a wide array of innovative ideas, creative proposals, and suggested approaches to existing problems which offer

even greater hope for the future. As Norman Pressman states:

> We have accumulated a significant body of literature and know-how dealing with technological, social and environmental issues and impacts of development in the winter latitudes. The critical work will be the translation of the criteria into urban designs, community organizations and development policies...[34]

Surely one of the keys to success must lie in our ability to retrieve this acquired knowledge and information and to put it to good use. It is hoped that the classification system devised here will help in this regard.

One of the advantages of sorting out proposals in this way is to gain insights into points of major emphasis and areas of greatest concern. For example, devising methods to neutralize the ill-effects of winter winds at grade level appears to be one of the main priorities both in terms of policy and design solutions. Conversely, little has been done with regard to determining the role of the private sector, particularly in terms of office policy measures. It appears that the position adopted by most writers seems to be that little will happen privately without some form of public involvement (be it through incentives or regulations). The fact is, much can be done without incurring economic deficits and with minimum effort. Time management which varies seasonally has already been mentioned and is but one example. Efforts should be expended to develop

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[34] Pressman, "Developing Livable Winter Cities", RESHAPING WINTER CITIES, p.27.

more.

Yet it must be borne in mind that because six levels of consideration have been formulated does not necessarily mean that each level should receive equal attention. In actuality, there is no formula of apportionment, nor should there be. These decisions must necessarily vary with the application. The validity of the categorization lies in the **conscious** determination of where the efforts should be directed as opposed to formulating random strategies with no discernible pattern. The intent is to optimize the effects of planning for winter livability.

Chapter IV
PROPOSAL

Chapter IV

PROPOSAL: A BLUEPRINT FOR ACTION

> Men develop strategies in order to chart paths of least resistance toward their objectives.[1]
>
> -- Alan Altshuler

As mentioned at the outset, this thesis has a dual purpose. To this point it has fulfilled but half of this objective -- explaining the winter city concept. It has done so by summarizing the views expressed by others, offering insights into the philosophical standpoint concerning the man/nature relationship, and proposing a classification system for issues related to increasing winter livability. This work forms a base for the next step, namely -- the establishment of a methodology toward an implementation strategy. The use of the phrase -- **toward** an implementation strategy -- is deliberate and appropriate since the outcome is not intended to produce an ultimate solution but rather, a first step in an important direction. A study of the **process** of implementing winter livability schemes, as well as the **means** that are available, is crucial to the successful promotion of the winter city and this chapter will outline

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[1] Alan Altshuler, THE CITY PLANNING PROCESS: A POLITICAL ANALYSIS, Cornell University Press, Ithaca, 1965, p.375.

what this entails.

In short, the implementation strategy will be regarded as the process adhered to in the translation of a plan into action. However, a plan must exist before it can be implemented, therefore the first step in the "blueprint for action" will be to outline the methodology which should be followed in the formulation of a winter livability plan. It is hoped that this effort will stimulate further study in the area of implementation.

The chapter will begin with a brief look at the proposed general direction which essentially justifies the focus on planning. This will be followed by a more detailed look at the planning process involved -- specifically, the two-tiered approach to planning comprised of **guidance** and **program** which naturally leads to a suggested procedural strategy. A point of consideration in this strategy is the selection of appropriate means of implementation. Consequently, the following two sub-sections will classify the available options and relate them to an actual case study. Finally, the chapter will conclude with an examination of the possibilities for the functional application of this strategy with consideration given to the existing Livable Winter City Association.

4.1 General Direction

Winter livability proposals can be applied within the urban context in a variety of ways. In general terms, the favoured methods appear to be:

- **the master plan approach** -- wherein provisions for winter livability measures are incorporated within a planning document which then becomes legislated,[2]
- **the design review board** -- wherein proposals for physical intervention within the entire urban context or selected parts of it must be approved by a review panel;[3]
- **the "ad hoc" approach** -- whereby winter livability is achieved through the independent actions of architects, planners, engineers, politicians, etc.[4]

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[2] For example, John C. Royle in an article entitled "How to Make Cities More Livable in Winter" (CANADIAN GEOGRAPHIC, vol.104, no.1, Feb./Mar., 1984, p.22) has stated that "Regina and Saskatoon have master plans to make themselves model winter cities. Their intent is to turn the year around, putting heavier emphasis on outdoor winter activities. Henceforth, summertime parks and playgrounds would get a smaller proportion of their recreation budgets."

[3] In the LWCA NEWSLETTER, vol.3, no.3, June 1, 1983, pp.11-13, William C. Rogers explains how such a system has been used with some success in Minneapolis. Called the Committee on Urban Environment (CUE), it has served as an advisory committee to council since 1968. Although its powers are limited, it is presently attempting to develop a Design Review Committee "with real teeth". In Winnipeg, design review has been legislated within the HW zoning by-law which covers the Historic Winnipeg Restoration Area of downtown (see this chapter, footnote 26).

[4] Included in this list of independent actions are the expected cases of individual building design, landscape design, etc. and also the independent government actions expressed through singular programs and regulations which do not form part of a larger scheme.

While "ad-hocism" may achieve limited success, significant advancements will necessarily require a more organized approach, especially if the results are expected to display some degree of cohesiveness. Review boards are limited as well in that they have been applied exclusively to physical interventions and are virtually ineffective in terms of aspatial considerations. Consequently, this chapter will concentrate on planning methodology as the appropriate tool to instigate winter livability proposals.

As was evidenced in the last chapter, winter livability encompasses a vast array of possibilities from small to large scale, and physical as well as non-physical responses. This expanse of winter-related concerns coincides with the broad base of planning concerns generally addressed in a master plan. If the successful application of such a wide range of ideas is to be realized in a formal, rational manner, then the most appropriate instrument would appear to be this form of long range comprehensive plan.

Yet long range comprehensive planning and its product, the master plan, have been criticized in the past as ineffective. One of the chief critics, Alan Altshuler, states, for example, that comprehensive planners overstep their limitations when striving for comprehensiveness. Planners, he argues, are committed to a synoptic view which purports not only to comprehend the workings of all the specialist groups involved in the planning process, but also to understand the

overall public interest and the impact of actions upon it.[5] In other words, as encapsulated by Ira Robinson, the master planner is presented "as the man whose job it is to tell the other specialists how to do their jobs because he knows so much about them and can coordinate them into a master plan which is based on a superior view of the public interest."[6] Having deified themselves in this way, master planners were certainly doomed to failure. The repercussions of this approach have, over the years, resulted in a general suspicion toward master plans.

Nevertheless, comprehensive planning (and the master plan) may still be the most appropriate instrument in the struggle to add legitimacy to the goals of winter livability. What is required beforehand however, is a redefinition of the planning methodology, to account for the shortcomings.

As a response to Altshuler's criticism, John Friedmann has offered such a modification. He maintains that comprehensiveness can still be achieved if the focus of planning is shifted from a static end product to a dynamic process-oriented activity. To accomplish this he draws a distinction between what he calls policy and program. This allows planning to proceed at two different levels. Policy plan-

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[5] Altshuler, THE CITY PLANNING PROCESS, p.299.

[6] Ira M. Robinson, DECISION-MAKING IN URBAN PLANNING: AN INTRODUCTION TO NEW METHODOLOGIES, Sage Publications, Beverley Hills, 1972, p.35.

ning[7] offers long term coverage through a guidance framework following what Friedmann calls "performance goals" while program planning is based on incremental, short term plans based on "achievement goals" that correspond to the guidance plan.

The general direction recommended in the formulation of a blueprint for action is toward this type of two-tiered planning. As stated by Robinson, the intent is "...to bridge ad hoc, project-type planning, and long range comprehensive planning in order to bring planning, policy and action closer together."[8] The process involved will now be elaborated upon.

4.2 The Planning Process

Although planning may take place at the two levels of guidance and program, the process of planning at both these levels may be the same. In order to gain a better appreciation of what this process entails, it is necessary to select a planning model as a frame of reference. One that is commonly referred to is the traditional model put forth by Ira Robinson. Although Robinson examines new planning methodologies, he examines them in reference to what he calls "the now familiar and well-established model of the rational

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[7] To avoid confusion with policy as it has been used previously, this type of planning will be labelled as guidance planning.

[8] Robinson, DECISION-MAKING IN URBAN PLANNING, pp.311,312.

planning process."[9] It involves five interrelated steps:

1. Goal-setting
2. Plan-formulation
3. Plan-evaluation
4. Plan-implementation
5. Plan-review and feedback

These stages outline the procedure that is generally followed in the course of any planning strategy. They therefore apply equally well to both the guidance plan as well as the program plan.

Friedmann, to reiterate, has stipulated that the goal-setting stage be sub-divided into performance goals and achievement goals. The first stage involving the formulation of performance goals is concerned with the city as a whole. The result is guidance planning which "looks toward maintaining the city as a delicately balanced socio-spatial system in a state of dynamic equilibrium."[10] The next stage involves achievement goals which are concerned with maintaining or reaching acceptable levels of achievement in a variety of functional activities or sectors (transportation, education, recreation, etc.) According to Friedmann then, it should be possible to incorporate the performance goals for a city into "an urban development framework or **policies** (guidance) plan and to derive from this plan specific **pro-**

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[9] Ibid., pp.27,28.

[10] Friedmann, "Performance Goals and Achievement Goals", DECISION-MAKING IN URBAN PLANNING, p.44.

gram guidelines in all the subject areas that are of concern to the city for a period of five to ten years."[11]

The result of this type of planning is comprehensiveness without the rigidity of the master plan. Planning becomes process-oriented rather than product-oriented. Ira Robinson has commented on Friedmann's proposal with this summation:

> As long as the planner defines the units, components, and goals of his system (the city as a whole) in such a way as to maximize the freedom of the public and private decision-makers to optimize their systems within his framework -- and as long as both he and the public and private specialists realize the nature of their inter-relationships -- it is possible to consider comprehensive goals for a city which, in essence, represent performance criteria or requirements for the whole city-system.[12]

The planning process outlined here is well suited to the goals of winter livability, particularly in light of the desire for comprehensiveness that has been expressed by winter city advocates as demonstrated in the last chapter. Unfortunately, there appears to be little momentum toward following such a course of action.

The winter city concept can lay claim to some explicit goals (as referred to in Chapter I), goals which in many cases have been followed by a series of elaborate objectives. In some cases, these have even been incorporated into plans which have been formulated and implemented. These accomplishments however, have largely been isolated efforts. The reason being that the separation between gui-

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[11] Ibid., p.45.

[12] Robinson, DECISION-MAKING IN URBAN PLANNING, p.36.

dance and program has never been expressly articulated. The two have always been meshed together. There exists no generalized guidance plan for winter livability which could serve as a basis for the smaller, better-defined program plans.

Yet, consciously or not, there has been a desire to develop such a two-tiered planning process. Norman Pressman in discussing the purpose of the book RESHAPING WINTER CITIES alludes to a coincident breakdown of stages:

> The aim of this book is not to provide "ultimate" solutions for specific communities or countries. Instead, it is to describe a **general and broad-based approach** toward improving livability in cities from which various localities with their respective site and culture specific issues can derive **guidelines for developments and policies.** It is this more generalized conceptual basis which can serve as a framework for enhancing the quality of community life.[13]

Pressman is thus advocating a system similar to the guidance plan and program plan promoted by Friedmann, acknowledging that site-specific guidelines cannot be formulated at a national level. And although the book is intended to be something of a guide in itself, it falls short of this aim by not clearly delineating the two levels involved.

What would clarify the intent and help in its realization is adherence to the five-stage planning process outlined by Robinson. It must first be accomplished in reference to performance goals before a coordinated front can be estab-

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[13] Norman Pressman, "Introduction", RESHAPING WINTER CITIES: CONCEPTS, STRATEGIES AND TRENDS, Livable Winter City Association, University of Waterloo Press, 1985, p.16. (The highlighted phrases have been added for clarity.)

lished toward achievement goals.

4.3 Methodological Strategy

As might be expected, the recommended strategy is one which follows the planning process just outlined. The complexity of planning for winter livability warrants this type of approach. To reiterate, it involves two levels of planning -- guidance planning for the city as a whole, and program planning for specific developments. The intent is to ensure compliance between small scale interventions and overall goals.

As it stands, independent small-scale planning and design strategies will result in minor successes with haphazard application. Yet, this criticism is not to be viewed as contradictory to the second proposition postulated by Pressman (as outlined in Chapter III). Once again:

> It is the cumulative effect of small-scale interventions and incremental responses embodied in policies and designs which will contribute to the achievement of the livable winter city.[14]

The key to the successful realization of this proposition lies in the nature of the accumulated product. The cumulative effects should not produce a random pattern but rather a recognizable, coordinated plan if they are to have maximum impact. The whole can be more than the sum of its parts and the proposed two-tiered planning model can facilitate the required coordination by establishing a guidance plan at the

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[14] Idem., "Developing Livable Winter Cities", RESHAPING WINTER CITIES, p.45.

municipal level which encompasses the entire spectrum of winter livability goals, and offers a framework for the development of specific objectives.

Even with this form of comprehensive planning the emphasis of the program level can still be on "small scale interventions and incremental responses". The fact that planning for winter livability is ultimately concerned with human comfort makes it imperative that each intervention eventually impact upon the individual. And incrementalism as a planning strategy makes sense in light of the economic realities of our time. These strategies at the program scale are indicative of the fact that one of the immediate planning requirements will be a strong link between the guidance plan and the program plan. Let us examine what is involved in each.

- **Guidance plan**

  The major emphasis of a planning strategy must be on the development of performance goals and the corresponding guidance plan since it must define the general lines that subsequent planning and policy-making activities should follow. The role of the guidance document is to frame the range of choices that are open to planners by setting forth, in explicit terms, information regarding:[15]

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[15] Derived in part from John S. Willson, Philip Tabas, Marian Henneman, COMPREHENSIVE PLANNING AND THE ENVIRONMENT: A MANUAL FOR PLANNERS, Abt Books, Cambridge, Massachusetts, 1979, p.92.

- the overall goals and the basis for their formulation, be it the result of preference expressed through citizen input, objectives derived from technical studies, etc.
- planning principles and assumptions applied by planners
- guidelines for the design of alternative solutions and evaluation procedures
- some indication of priorities, emphases, and policy implications

The degree of detail and range of policy topics addressed must align themselves with the scale of consideration which has been stipulated as the municipal level. The difference between this type of document and what is usually prepared for the consideration of municipal decision-makers is that it deals with values. It should be a statement of desire for the future. According to Willson, et al.:

> -- guidance framework plans of recent years have emphasized ... more explicit documentation of the philosophic basis and assumptions underlying the policy rules; when these are made explicit, they can be more readily reviewed and revised in light of changing circumstances.[16]

The advantage of a guidance plan then, is that it forms a basis for evaluation. While it will certainly also provoke some contention, there is established a focal point for dialogue and when the guidance plan is eventu-

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[16] Ibid., p.93.

ally decided upon and accepted other advantages emerge:

1. the specific planning alternatives which result will have a far greater likelihood of being valid options
2. agencies and departments engaged in functional planning are in a better position to coordinate their individual actions
3. the information provided gives private citizens and public officials a basis for making informed choices among alternatives put before them by planners.[17]

These advantages coincide with opinions which have been voiced in relation to an actual working document which can serve as a reference. The "Goals for Vancouver" document (Vancouver City Planning Commission, February 1980) embodies much of what has been outlined here as the requirements for a guidance plan (although not in relation to the winter livability concept). In it, the goals for the city have been grouped into ten elements -- eg. The Economy of the City, Movement in the City, etc. Each of these elements is subdivided into a series of goals. For example, under Element IX -- Special Concerns of the City, are listed one or two goals related to each of the five categories of heritage, energy, farmland, character and identity, and quality of life. Under "quality of life", for example, the goal is:

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[17] Ibid.

> To manage growth and change so as to ensure a high quality of life for all citizens of Vancouver, and to recognize that there can be no one quality of life for everyone, by allowing freedom to choose.

Following the stated goal are suggested implications for policy such as, in this case, the identification of a list of social and quality of life indicators. The document thereby plots not only the intended direction, but the implications of that choice as well.

This guidance document is intended to form the basis of all subsequent planning decisions made in Vancouver while avoiding pitfalls through an ongoing system of monitoring and evaluating. Such a model is well suited to the needs of the winter city movement.

The classification system for winter related issues established in the previous chapter is meant to facilitate the transformation of winter livability information as it presently exists into a document formatted along similar lines to the "Goals for Vancouver". The basis for establishing winter livability goals can follow the macro-spatial to micro-aspatial categories gleaning goals from the summary of issues and concerns that have been amalgamated within each section.

The guidance plan, however, means nothing in itself. It must lead to a further stage in the planning strategy if it is to fulfill its purpose. That next stage is the program plan.

- **Program plan**

  Whereas the guidance plan is site-specific in its relation to a particular municipality, it is general enough to encompass the entire spectrum of winter livability goals. The program plan meanwhile, can be either site-specific in relation to a particular district or neighborhood within the given city, or issue-specific in that it focuses on one particular facet of the guidance plan. In other words, the program plan is really any planning action taken within the urban context that fashions itself to the guidance plan. The range, focus, and level of detail can vary to suit the instance, and consequently, cannot be elaborated upon in terms of specific requirements. It should however, be evaluated in accordance with its conformity to the guidance plan.

The original concern expressed at the outset was to gain insight into the linkage between idea and action and thereby increase the likelihood of winter livability suggestions being manifested in urban programs and design. The suggested planning methodology which has been elaborated upon here represents one facet of that linkage. The two-level planning strategy however, must itself follow due process at each of the levels as stipulated earlier in the Robinson planning methodology model. Within that process of goal-

setting, plan-formulation, plan-evaluation, etc. comes the point where the agreed upon plan must be implemented. This involves further exploration into the translation of plan to action. Obviously the implementation of a guidance plan will represent a different level of action than will the implementation of a program plan. But the **means** available to achieve the implementation may be the same.

The following sub-section will examine the options available in determining the most appropriate means of implementing a particular plan.

4.4 Implementation Options

In a book which links planning to environmental concerns the authors have stated that "the implementation of a plan is really an attempt by the public to influence public and private activities in a way that is consistent with a plan's policies and recommendations..."[18] Consequently, developing an implementation strategy represents an attempt to bridge the gap between plan and action, which is, arguably, the weakest link in the winter city movement. In order to strengthen this linkage it is important to review the options.

The methodology that is being examined calls for a differentiation between what can be called the **method** of implementation versus the **means** of implementation. As an illus-

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[18] Willson et al., COMPREHENSIVE PLANNING AND THE ENVIRONMENT, p.155.

tration, certain urban design principles may be the appropriate method chosen to apply specific winter livability suggestions but it may be a government-initiated development incentive which supplies the means by which it becomes realized. The difference, as explained here, is that the chosen method is a component of the guidance plan while the means supplies the necessary link for transformation into action as part of the program plan.

Willson et al. have suggested that these linkages or means may be classed as formal or informal.[19] Informally, a plan, or parts of a plan, might be implemented simply by persuasion, by supplying the right information, or by applying political or popular pressure. Formal means of implementing plans on the other hand, may be categorized as legislative, administrative, and regulatory. Through these three, "local governments have available a wide range of implementation instruments ... that can guide both public and private development toward a good urban environment."[20] It becomes obvious at once that the power of implementation rests with the government, (formal means). If an interest group or organization such as the Livable Winter City Association, having assembled a plan for improving winter livability, wishes to implement it, they must resort to persuasion, education or pressure through lobbying. If such a plan is devised within the bureaucracy however, its imple-

[19] Ibid.

[20] Ibid. p.5.

mentation can, in the extreme, actually become a legal requirement. Clearly, if more than just mild success is to be realized, the winter city advocates must work with government toward a common goal. It may be unavoidable not to, and the combination of formal and informal means should enhance the chances for success.

> The best results are likely to be achieved by some combination of two or more approaches because implementation is rarely a single-purpose affair -- which is usually the case in the pursuit of multifaceted environmental, economic, and social objectives.[21]

The informal means of persuading, informing or applying pressure (lobbying) are self-explanatory. The formal means (public involvement) requires further elaboration.

Willson et al. have classified these means as 1) direct implementing actions, 2) regulatory approaches, and 3) indirect incentives and disincentives.[22] Each will now be looked at in more detail.

- **Direct Implementing Actions**

  "When government itself spends money for various purposes or projects, it implements plans directly. The forms of government spending range from outright grants to various forms of subsidization."[23] It must be borne in mind that in these instances the government is not simply supplying incentives but is getting directly

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[21] Ibid. pp.155,156.

[22] Ibid. pp.156-205.

[23] Ibid. p.156.

involved in the implementation of a particular scheme. Three of the most common ways this may be achieved are:

1. Public Acquisition of Land

This can involve outright purchase of the land either as a market property or by expropriation, or may involve a long-term leasing contract, or the imposition of easements on a particular property.

2. Public Construction of Improvements

This may involve the installation of basic utilities such as sewer, water, roads, etc. or may be larger services such as airports or dams. These projects can affect the placement, type, and timing of development. Closely related to this is the capital improvements programming which is the proposed schedule of public works. It is generally based on an accepted plan and is inextricably related to fiscal capacity. One of the main advantages of such programming is that it "...affords a basis for bringing order out of the complex relations that exist among neighboring and overlapping units of local governments."[24]

3. Public Assistance to Development

This involves direct assistance to the private sector channeling development toward a desired end. Many examples are available such as the recently expired Canada Rental Supply Program (CRSP) where the federal government subsidized the developer per housing unit con-

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[24] Ibid. p.163.

structed in order to compensate for rent controls. Public assistance has played a major role in historic preservation as well.

- **Regulatory Approaches**

Plan implementation can also follow a regulatory route operating within a legal framework and administered as a form of "police power".[25] In such instances the results are land use controls. As stated by Cameron Harvey:

> -- although some land use control can be and is exercised through our tort law and through a combination of our contract and real property law in the form of restrictive covenants, land use is controlled for the most part now through municipal legislative action. The primary land use control tools are development control (used extensively, if not exclusively, in Europe) and zoning (the favourite device in North America), supplemented by various building, health, and pollution control by-laws, and by subdivision control.[26]

Consequently, the objectives of a particular plan can become mandatory through legal imposition, often in the form of a bylaw. Zoning for instance, can be a powerful tool applicable in a variety of ways. It may, on the one hand, be simply a land use designation such as R-1 (residential) which lists certain land uses that are acceptable within the classification. On the other hand, it may become very detailed to the point of con-

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[25] Ibid. p.168.

[26] Cameron Harvey, AN INTRODUCTION TO LAW AND LOCAL GOVERNMENT FOR UNIVERSITY OF MANITOBA CITY PLANNING STUDENTS, Volume Two, 1979, p.159.

trolling renovations, colour use, signage, etc. as seen in the Historic Winnipeg Restoration Area, (HW zoning).[27] The effect here is of a design control board which oversees virtually all the construction activity within the designated area. This approach is often viewed as dictatorial but is nonetheless very effective in realizing the objectives of a detailed plan. Zoning, therefore, can stipulate performance standards. Flexibility can be introduced through variances.

The limiting factors to regulatory approaches are constitutional issues which require that such actions be in the public interest, involve no discrimination, compensate for private losses, etc. Plans, in short, must be just in order to achieve legal status and be implementable.

- **Indirect Incentives and Disincentives**

The implementation of a plan can also be facilitated by "...public policy actions that influence private development indirectly."[28] This approach in fact is not only the most common but may be the most effective as well. Willson et al. suggest that:

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[27] The HW zoning controls:
- the use (allows commercial, residential and "compatible" uses);
- the height (8 stories maximum, 2 stories minimum);
- the materials (colour, type, signage, etc.).

Any change requires a "certificate of appropriateness" from the Historic Winnipeg Advisory Committee before a building permit can be issued.

[28] John Willson et al., COMPREHENSIVE PLANNING AND THE ENVIRONMENT, p.199.

> Because of the constitutional shortcomings of government's regulatory authority and because of the financial constraints in which governments often find themselves, indirect public incentives and disincentives often are more effective in implementing plans and shaping private behaviour than regulatory and/or direct governmental actions.[29]

There are three main ways to institute indirect public influence over plan implementation.

1. Public Investment Policy

Public expenditures such as those mentioned earlier as "direct actions" often have ramifications which extend beyond the immediate objectives. An example is the development that follows the construction of highway interchanges. A strong investment policy should anticipate such actions and become the shaper of new development rather than being reactive to it. It can, for example, give preferential treatment to development which accommodates the climate.

2. Public Fiscal and Tax Policy

Taxation has been, and still is, used primarily to raise revenues. Recently however, unwittingly or by design, it has expanded its function. Taxation is increasingly being used as a form of land-use control through such methods as tax deferal, preferential assessment, capital gains tax, transfer of development rights, and compensatory regulations which are a form of atonement to land

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[29] Ibid. p.199. Although the authors here are referring to the American situation, the conclusion is equally valid in a Canadian context.

owners for restrictions on use.

3. Development Incentives

Municipalities can indirectly encourage private action in favour of public objectives through regulatory mechanisms. For example, impact zoning "...in which development is evaluated in terms of its effects on a particular site and a particular community rather than on the category of use." Also, incentive zoning wherein "under the special permit process, a municipality may approve particular uses contingent upon the developer's agreement to incorporate certain design considerations in the development."[30] This system of trade-offs is becoming common practice in many urban centers because of the simple manner in which it combines police power with some form of compensation.

These then constitute the means available to implement plans through the political and bureaucratic system. Not only is there room for expansion and innovation within the three categories of direct, regulatory, and indirect means but there is also the possibility of combining these approaches. To gain a better appreciation of how these options can become manifested into an actual implementation strategy, it will be beneficial to examine a case study.

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[30] Ibid. pp.204,205.

Before doing so however, one final point should be made. Because many of the approaches mentioned can involve more than one level of government, intergovernmental mechanisms for coordinating implementation activities are essential. A system of cross-level mandatory reviews and notifications should be an integral part of the implementation system.

4.5 A Case Study of Implementation

Although many good examples exist, the development of the Plus 15 system in Calgary is worth studying because of the way in which available means were fashioned to suit the existing context.

The Plus 15 system is a pedestrian network of enclosed walkways elevated one storey above grade.[31] While the system's effectiveness is largely due to public accessibility through the individual buildings, the most visible part of the system is comprised of a series of pedestrian bridges between buildings. There are presently over 30 such bridges in downtown Calgary. As a winter livability response this is an effective solution although it represents an extreme position by offering total protection from the elements. Yet the solution still offers visual contact with the outdoors which is an important consideration.

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[31] The system is called "Plus 15" in reference to the original clearance over the roadway which was designated as 15 feet. A plan of the network is supplied in Appendix "A".

The translation of idea into action was remarkably quick with the system taking conceptual form in 1969. It was in the course of a planning study, according to D. Collins et al., when "the City recognized that the successful development of the Core was considered dependant in large part upon its capacity for handling large volumes of pedestrians effectively."[32] It chose to pursue an above-grade system of connections for the follwing reasons:

- a more acceptable walking environment is created visually and psychologically;
- relocation of costly underground utilities and the costs of excavation are avoided; and
- improved accessibility between buildings and facilities is achieved by removing the conflict of at grade vehicular traffic.[33]

The planners also recognized that the Plus 15 should be more than just a skywalk system. Their intent was also to create interesting public spaces to complement the pedestrian network. The system was to be achieved through a land use by-law utilizing a bonus structure designed specifically to encourage it.

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[32] D. Collins, D. Sinclair and C. Tennant, (Development Division, Planning Department, City of Calgary), "The Plus 15 In Downtown Calgary: An Innovative Grade Separated Pedestrian Movement System", PROSPECTS FOR PLANNING: COMING TO GRIPS WITH NEW REALITIES, Proceedings of the 1982 National Conference of the Canadian Institute of Planners, Barry S. Wellar, ed., Hull, Quebec, 1982, p.209.

[33] Ibid., pp.209,210.

The By-law stipulates that new development in the downtown area is restricted in size by a designated maximum floor area ratio (F.A.R.) of 8.[34] The bonus system however, allows the developer to create larger buildings by trading increases in F.A.R. for the creation of public spaces, amenities, and pedestrian connections which might not otherwise be supplied. The bonus scheme supplies a maximum reward for the creation of a pedestrian bridge, but the system is incremental, therefore, in order to get this maximum bonus, certain prerequisite standards must be met.[35] These ensure the creation of the complementary public plazas. According to D. Collins et al., "...in theory, by the time a developer and his architect have worked their way through the bonus system to get to the plum -- a bridge they want for bonus purposes, -- they should be producing a series of attractive urban spaces."[36]

Referring to the implementation options reviewed earlier, the bonus system devised here exemplifies the "incentives" approach, although, upon closer examination, the total strategy involves all three formal implementation approaches of direct public sector involvement and regulatory imposi-

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[34] A designation of 8 F.A.R. means that the overall floor area of a new building cannot exceed 8 times the area of the site. In this case, a building which occupies 100% of the site is consequently restricted to 8 stories. Similarly, a building which occupies 50% of the site is restricted to 16 stories. Etc.

[35] A copy of the bonus schedule is supplied in Appendix "A".

[36] Ibid., p.210.

tions, as well as the incentive scheme. While the means of implementing the Plus 15 network emphasizes the incentive strategy of the bonus system, there exists some regulatory support and direct public involvement alternatives should the developer choose not to follow the bonus route. In these cases, the By-law nonetheless requires mandatory **provision** for +15 connections and the necessary access through the building would be made possible via a registered public easement.

To take the process of implementation even one step further, the City has found that in order to eliminate some of the inconsistencies in the actual built form, it must express its policies in greater detail by adding design guidelines to the existing By-law.

What is interesting to note about the Calgary experience is that:

- It did not begin with the infusion of public sector capital although public monies were later expended to fill the gaps in the Plus 15 network which the City felt were desirable and essential but might not otherwise be built.
- The process originated as a planning vision clearly articulated as one of the goals for the Core and expressed in THE CALGARY PLAN released in 1970 (approved in 1973).[37]

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[37] The statement expressed in THE CALGARY PLAN read: "It is recommended that the Mall (the 8th Avenue Pedestrian Mall) be complemented by an elevated pedestrian system

- The implementation strategy involved a combination of approaches complementary to each other requiring a solid understanding of the available means to effect the desired change.

One last point concerning Calgary's Plus 15 should be made although it is not not germane to the implementation strategy. The economic boom Calgary experienced in the 70's greatly facilitated the rapid materialization of the concept. In another city or at another time the development of the network would have occurred at a much slower pace. In fact, the system developed and expanded so rapidly that the Plus 15 level was soon thriving to the detriment of grade level. In recent years there have been efforts to rectify this situation. Both the AREA REDEVELOPMENT PLAN prepared by the Planning Department and the CORE AREA POLICY BRIEF (1982) prepared by an industry/citizen/city committee attempt to re-emphasize grade while still retaining a strong emphasis on the Plus 15. They do so by strengthening the requirements for linkages between the two.

While practical application of schemes such as Calgary's Plus 15 must necessarily vary according to site-specific conditions, a generalized strategic formula can nevertheless be devised which can serve as a useful, procedural guideline. This can now be developed.

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comprised of open plazas, and enclosed or partially enclosed walkways, linking 8th Avenue with planned parking facilities, transit stations, residential areas and areas of interest throughout the downtown."

4.6 Functional Application: A Model

To recap, it has been proposed that the winter livability concept, if it is to be recognized as a legitimate concern, should present its goals as a planning strategy which encompasses the same degree of comprehensiveness that has been demonstrated by the six-level breakdown outlined in Chapter III. Structuring the resulting guidance plan in such a way offers a framework for the formulation of specific program plans or projects. If they are to be effective, both levels of plans must align themselves with appropriate means of implementation. Since the power of implementation rests within the public sector, the guidance plan in particular should originate within the bureaucracy. It is important to consider now how this might come about.

- **Integration**

Most cities prepare master plans that, in effect, articulate some vision of the future and the method by which that vision may become reality. To this point, the winter livability concept has been discussed in the same manner. Yet the goals of winter livability permeate the urban fabric to such an extent that the degree of comprehensiveness is virtually the same as most cities' master plan. The key to implementing climate-responsive solutions therefore, is not to think of a winter livability plan as a separate entity, an end in itself. Its goals must automatically be associated with the overall goals of a city and be inseparable from

them if a true winter city is to be the vision. Planning for winter livability and planning for a city must ultimately be the same thing. The crux of this strategy, therefore, lies in the integration of goals. The manner in which this approach relates to the planning process and methodological strategy discussed earlier can be seen in Figure 5.

- **Process**

This model represents in a simplified graphic form how the overall process might come about. It represents a sequential progression from idea to plan to action. In the idea stage, it amalgamates the goals of winter livability with the general goals of a particular municipality. In the plan stage, it redivides these goals into performance goals and achievement goals according to the methodological strategy prescribed by Friedmann as outlined earlier. The action stage meanwhile, represents the manifestation of the program plan in implemented responses to be followed by some evaluative measure of feed-back.

To elaborate upon this process, the six levels of consideration of winter livability issues described in the previous chapter (macro-spatial to micro-aspatial) can form the basis for determining general winter livability goals. A municipality, in the preparation of its master plan, likewise determines its goals according to a prescribed set of considerations. The key to success is the integration of goals at this "idea" stage. If the winter livability con-

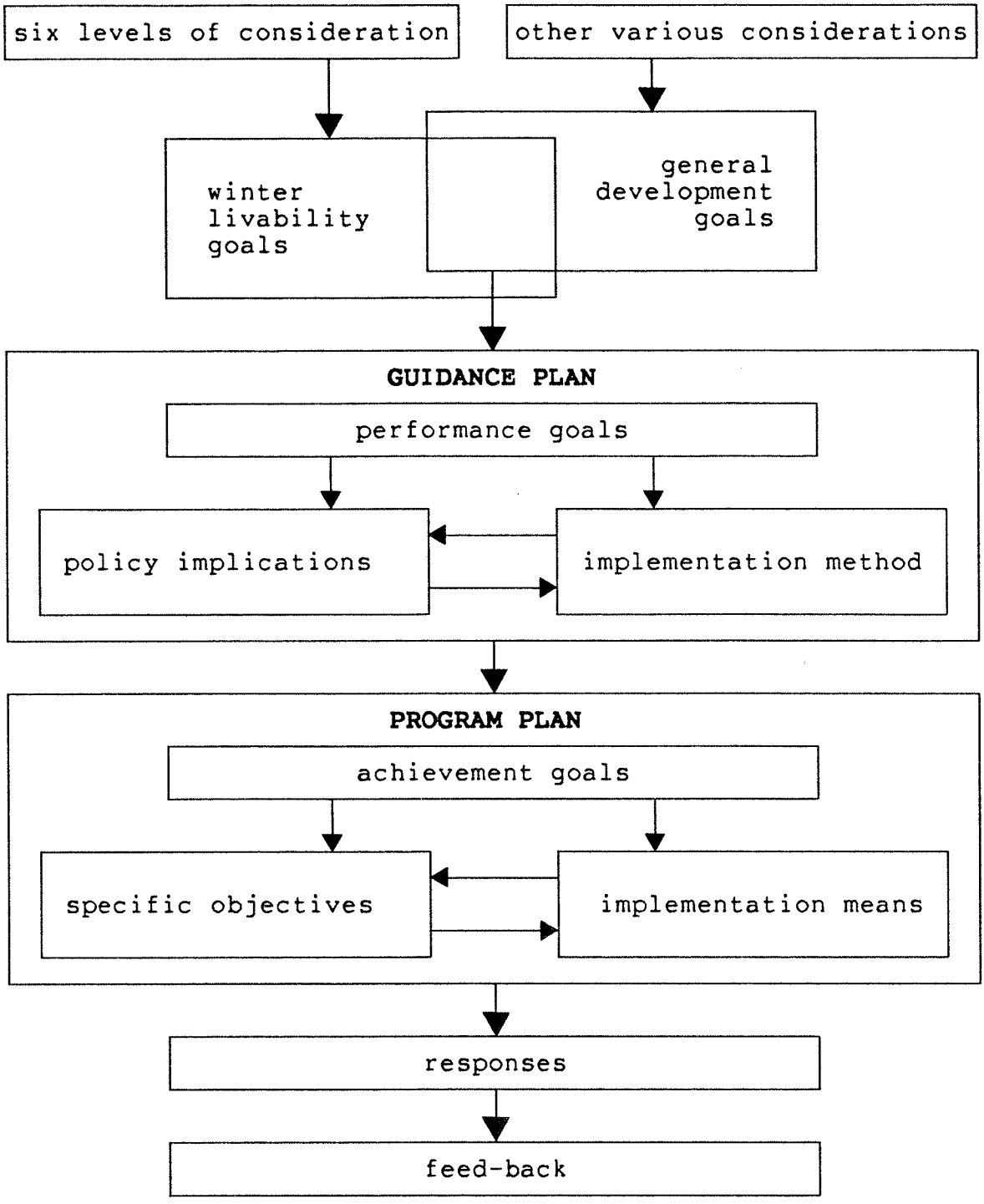

Figure 5: STRATEGIC MODEL

cept is to achieve more than just mild success, if it is to display a unity of direction and coordination between projects, it must have its goals accepted as an integral part of the municipal planning process. Once a concensus between goals is achieved at this conceptual stage then the formulation of a guidance plan will truly reflect the goals of a "winter city".

This then is the start of the "plan" stage whereby the amalgamation of goals becomes articulated in a guidance plan which forms the basis of all the ensuing action through the program plans. The guidance plan should emphasize **process** of development by outlining policy implications that correspond to the stated goals and by also indicating suggested **methods** of implementation (ie., an expansion of building codes, a revamped housing policy, etc.).

The ensuing program plan is the next step toward action. Program plans represent any planning scheme that follows the guidance plan (indeed, **every** plan should). The scale may vary greatly from a five-year plan for the city as a whole to a short-term community development plan to a site-specific project. In any case, the methodology should be one which prescribes detailed achievement goals and specific objectives while aligning these with appropriate **means** of implementation. If the program plan originates in the public sector, it might itself formulate appropriate means to suit the plan (say, an incentive program or by-law). If the

program plan originates in the private sector however, it must select from existing means (say, the availability of funds through an existing goverment program). In any case, the selected means of implementation at this stage is the crucial link to the necessary action.

The action stage therefore represents the application of the program plan which results in the desired responses. And as is always the case in any sound methodological strategy, the actual response should not be the final action, it should be followed by evaluation and feed-back.

- **Initiative**

There is no doubt that the process outlined here represents an idealized situation. It cannot become reality without considerable effort and patience. Where the initiative might come from is subject to debate. The model has suggested that the goals of winter livability become integrated into the municipal planning process since it is here that the power of implementation is held. This will not occur without intensive lobbying and public support. It is here that the Livable Winter City Association (LWCA) can play a vital role, in spite of the fact that it is a national organization fighting for change at the municipal level.

The LWCA can, in fact, support lobbying groups at the city level. It has already committed itself to this task stating that one of its aims is to "...influence the public and politicians alike to seek changes in urban designs and

municipal policies..."[38] Since, as has been mentioned, the key to success is in the integration of goals, the LWCA can help this cause tremendously by formulating a set of national goals which lay out future directions which must be followed if a true winter city is to be the result. Such a statement would serve a dual purpose. On the one hand it can form the basis for public education, a beacon by which the LWCA might champion its cause. On the other hand, such a statement can form the basis by which local groups (municipal chapters of the LWCA, university groups, etc,) can lobby local governments and by which they may even formulate a more detailed and refined goals statement suited to the particular municipality. At any rate, if the process outlined in the model is to be followed, the initiative must come from somewhere and the LWCA, having already established itself as dedicated to this cause, appears to be the leading contender.

Before concluding this chapter, one final point need be made. It should be restated that there is still validity in planning for winter livability through independant projects. The model has been presented to display the ideal manner in which the goals of winter livability might permeate urban development and thereby ensure the coordination of all ensuing projects. While we must strive to achieve that situ-

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[38] Norman Pressman, "Developing Livable Winter Cities", CIP FORUM, 6: Nov., 1984, p.4.

ation, it will not happen overnight. In the meantime, significant progress can still be achieved working "from the bottom up". It was mentioned in an earlier chapter that successful projects can help change attitudes which, in turn, can be responsible for more successful projects. The ultimate point of the strategy is to effect a change in attitude at the municipal planning level. Successful projects can add necessary fuel to the argument in favour of such a change. Therefore, at this stage in the winter movement, independant actions still have merit. In essence then, the "blueprint for action" must entail efforts at both ends of the scale.

4.7 Conclusion

The "winter city movement" has resulted in a goodly number of accomplishments which have contributed to an increase in the winter livability of many Canadian urban centers. It is not a criticism of past accomplishments however, to say that much more can, and need, be done. Progressive approaches should be tried, innovative strategies should be implemented, and new solutions must be sought, in order to continually strive for maximum gain. Lessons from the past, both positive and negative, are valuable indices for the future.

It is in this spirit that this "blueprint for action" is presented. The winter city movement is yet in its infancy

and the LWCA is but a fledgling organization -- both must adjust as they develop. The proposed planning strategy is intended to aid and encourage this development. It cannot be viewed as a panacea that will create an instant flourishing in the success ratio of winter livability ideas. Rather, it should be regarded as a tool that will strengthen future direction.

In particular, the exercise of formulating clearly articulated goals will have internal benefits for the LWCA as well as external benefits for the winter livability cause. Internally, a greater sense of cohesiveness will be established between the national body and the local chapters. It will also provide the local chapters with a credo by which they may proceed. Externally, a documented statement of goals can be the basis by which the LWCA lobbies political decisions and makes its views known. As well, such a document can supply the necessary link to citizen input and public education, encouraging feedback and dialogue.

The more one studies the winter livability concept, the more one realizes the multitude of factors that impinge upon it. The concept has increased in magnitude to a point where a clear direction may no longer be discernible. Surely this must be rectified if consistent and coordinated results are to be expected. The planning strategy presented herein should help in this regard. It suggests how a unity of direction might be achieved while making the point that

planning for winter livability is not to be viewed as something divorced from general city planning. The concept will indeed have reached maturity when planning for winter livability becomes, in fact, planning for a winter city.

Conclusion

CONCLUSION

> New possibilities open up for architects, builders, economists and energy technicians. But most appealing of all is the prospect for a **renewed urban life."**[6]
>
> -- Peter Broberg

It is not unusual to become so engrossed with a topic as to lose one's sense of objectivity. As a safeguard, it is often necessary to play the devil's advocate in order to test the original premises. The outcome either helps to reaffirm the fundamental beliefs or, unhappily, casts a shadow of doubt over the project. At the risk of the latter, we might ask ourselves whether or not concern over the climate should play such a major role in the context of urban planning. Can it really lead to a "renewed urban life"? Is it necessary that it should? Are we not technologically advanced to a point where in fact we can minimize the role of climate and other natural forces in our lives?

The truth of the matter is that yes, we are. We can indeed function reasonably well while virtually ignoring the climatic forces around us. That is precisely why change is

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[6] Peter Broberg, "All-Year Cities and Human Development", RESHAPING WINTER CITIES: CONCEPTS, STRATEGIES AND TRENDS, Livable Winter City Association, University of Waterloo Press, 1985, p.8.

so difficult -- it seems to many to be so unnecessary. The question is not so much what we can and cannot do (although it does come into play). The crux of the matter is really what approach we **should** be taking. And the response is metaphysical in nature, it is based on values.

By stating that we **ought** to re-evaluate our relationship with nature and that we **ought** to adapt a strategy that brings us into closer harmony with the natural forces, we are suggesting there is something amiss in our value system as it exists. However, attempts to influence changes in values are inevitably met with resistance. This reaction is perfectly understandable since values are subjective and should be questioned. What one person accepts as a moral imperative may not necessarily be of any importance to another. This then, is the dilemma. How can we overcome natural resistance in order to effect value change?

Unfortunately, history has demonstrated that, more often than not, we cannot succeed by persuasion alone. Value changes normally become manifest only when a crisis state is reached or when it can be demonstrated unequivocally that the cost is too great not to change. It took the environmental disasters in the 60's to bring about some measure of pollution control standards and an enlightened attitude towards our habitat. It took the oil embargo in the early 70's to re-evaluate our energy consumption values.

Consequently, the implementation of winter livability concepts which propose a further revision in our value system based on a non-adversary position in nature, must be demonstrated as a critical necessity if it is to produce the required changes in values. This will not be easy, although the facts are clear. John Royle for example, has shown that there is a "warmward shift of the world's people".[7] This loss of population to warm-climate cities has enormous economic impact. We need to strengthen arguments of this type in order to demonstrate how critical it is to adopt a new attitude.

The proposed planning strategy is a tool that can help in this regard. It will certainly not be a tide-turning force, but it can help to articulate the requirements of a revised value system. And if it can help change our values, it can indeed lead to a "renewed urban life".

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[7] John C. Royle, "The Challenge of Being Northern", RESHAPING WINTER CITIES, pp.19-26.

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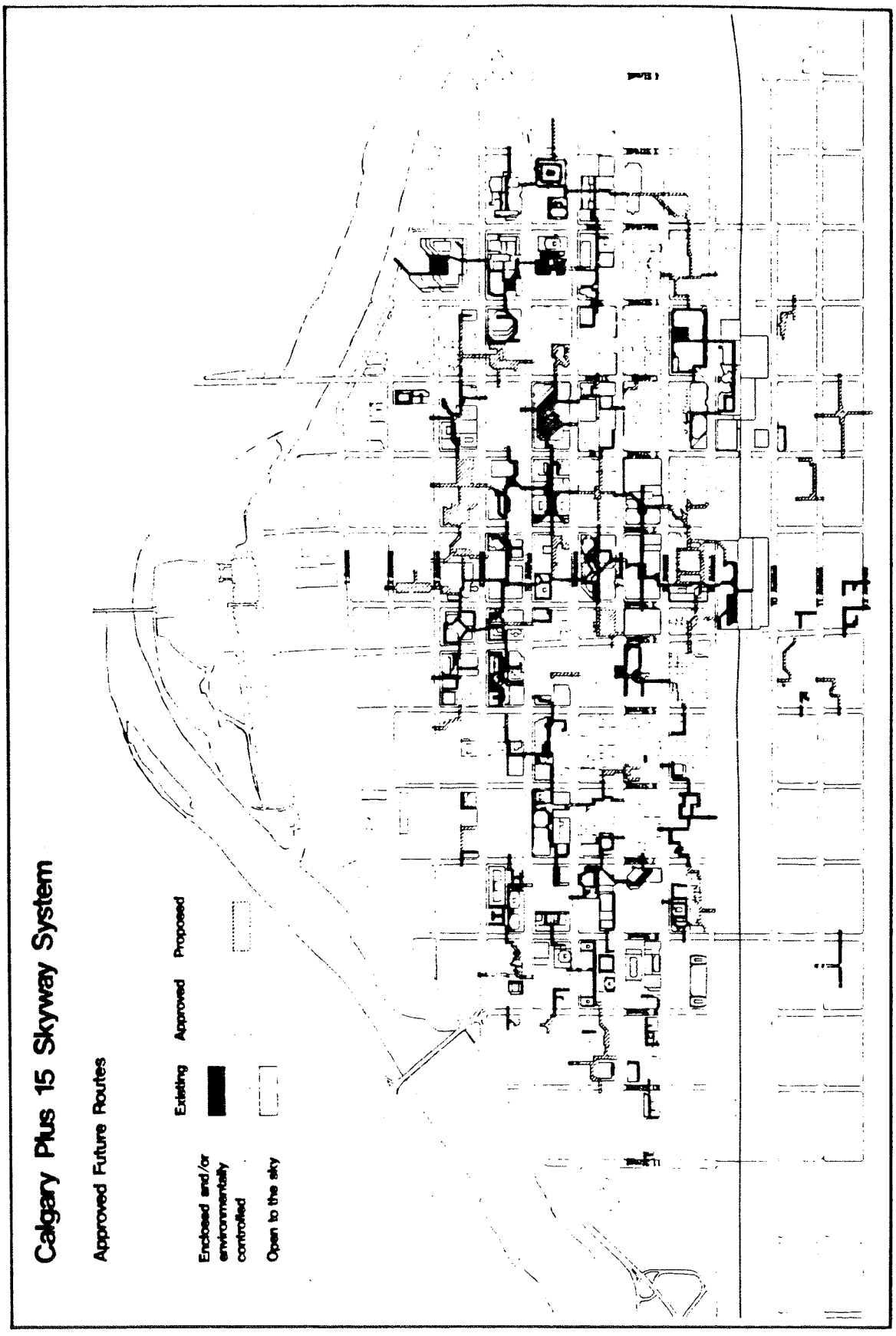
APPENDIX 'A'



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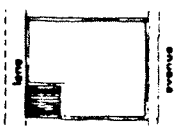
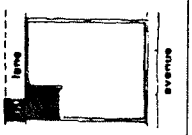
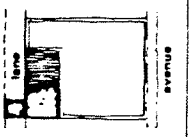
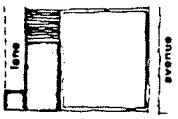
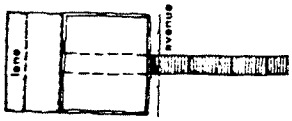
Downtown Bonus Standards

(9) BONUS AREA 'B'

	PUBLIC AREA TO BE DEVELOPED	BIZI	DEVELOPMENT FLOOR AREA BONUSES
AREA B STANDARD 1 MANDATORY 	Public plaza or walkway open to the sky at the +15 or at grade level	1C per cent of the site area	The provisions of Standards 1 and 2 permit a basic Floor to Site Area Ratio of 2.0F
AREA B STANDARD #2 MANDATORY 	Public plaza open to the sky but over the full width of the lane or access easement at the +15 level	An area of 18.6 square metres is required for every 15.2 metres or part thereof of site frontage	
AREA B STANDARD #3 Previous standards must be fulfilled 	Public plaza open to the sky at the +15 level or at ground level	Not more than 10 percent of the site area	1C square metres of floor area for every square metre of public plaza Ratio 10:1
AREA B STANDARD #4 Previous standards must be fulfilled 	Public or private plaza open to the sky at the +15 or at grade level	Not more than 10 percent of the site area	2C square metres of floor area for every square metre of public or private open space Ratio 2C:1
AREA B STANDARD #5 Previous standards must be fulfilled 	Public plaza built over the lane open to the sky at the +15 level	Remaining area of lane or access easement which has not been developed under previous standards	2C square metres of floor area for every square metre of public plaza Ratio 2C:1
AREA B STANDARD #6 Previous standards must be fulfilled	Arcades or public areas not necessarily open to the sky abutting the sidewalk at street level or at the level above	No restrictions	5 square metres of floor area for every square metre of public space Ratio 5:1
AREA B STANDARD #7 where in the opinion of the Calgary Planning Commission the facility is required to complete the system 	Pedestrian bridge connections at the +15 level across streets	Only the area of the walkways over the street including widening can be retained in this standard for bonus purposes	3K square metres of floor area for every square metre of overhead walkway Ratio 3K:1
AREA B STANDARD #8	Public spaces such as plazas arcades or public areas which may or may not be open to the sky at the +15 level	No restriction	1C square metres of floor area for every square metre of public area Ratio 1C:1
AREA B STANDARD #9	Public spaces at grade abutting 7 Avenue 8 Avenue or 3 Street West	Minimum diameter 15 metres	1C square metres of floor area for every square metre of covered public space Ratio 1C:1 15 square metres of floor area for every square metre of public space open to the sky Ratio 15:1

An additional bonus of:

(a) 5 square metres of floor area for every square metre of public open space will be allowed if the space is covered by a permanent transparent cover letting in natural light such as skylights space frames or domes

Ratio 5:1

(b) 5 square metres of floor area for every square metre of +15 walkway over streets when the walkway is completely enclosed and environmentally controlled

Collins, D.; Sinclair, D., and Tennant, C., "The Plus 15 in Downtown Calgary: An Innovative Grade Separated Pedestrian Movement System", PROSPECTS FOR PLANNING: COMING TO GRIPS WITH NEW REALITIES, Procedings of the 1982 National Conference of the Canadian Institute of Planners, Barry S. Wellar, ed., Hull, Quebec, 1982, pp.209-215.