

**LOCATION CRITERIA
FOR SPECIALIZED RECREATIONAL FACILITIES:
A CASE STUDY FOR UNSTRUCTURED LEISURE POOLS**

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

Master of City Planning

Department of City Planning
University of Manitoba
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ABSTRACT

Emphasis on leisure and recreation has grown over the decade with increased demand for recreational programs and facilities. Recreation planning methods and techniques have addressed the demand by providing new alternatives reflecting the evolving concepts of leisure and recreation. Once a need or demand is identified, planners focus on the type of facility, its location, its cost and its effect on existing amenities and social welfare of a community..

This practicum addresses general location criteria which will help identify optimum locations for aquatic facilities in Winnipeg with particular emphasis on the location of a Leisure Pool. Factors which influence recreation and leisure attitudes in the community are identified and a model constructed. Identifying preferred locations for a recreational facility is a complex process. The need for a simple method will assist the recreation planner in the analysis of potential sites.

The practicum illustrates the application of a location criteria for Winnipeg and proposes a method for calibrating the model to meet local conditions.

PART I:

RECREATION PLANNING FOR RECREATIONAL FACILITIES

CHAPTER 1

INTRODUCTION

This is a practicum about locational criteria, specifically focusing on the development of large recreational facilities. The document provides a rational basis for decision making, a framework for developing locational criteria, and a general set of determinants which should be taken into consideration when developing such criteria.

It is the desire of the author to ensure that the reader comes away with a better understanding of several things:

1. What locational criteria are involved;
2. What role planners have in developing locational criteria;
3. What techniques for developing recreational facilities exist in the field of recreational planning.

The practicum is set out in two parts. Part I, deals with general aspects of Recreation Planning and the development of a locational model for recreational facilities. Chapter 1 examines the concepts of both Recreation and Leisure, by providing a working definition for these terms in relation to recreation planning. Chapter 2 is concerned with establishing the Social Determinants of leisure behavior in the community. This touches upon urban recreation needs and the recreation needs of special

demand in the community. This includes the financial aspects related to the delivery of recreation facilities, as well as the planning process involved in carrying out the development of recreational land uses or facilities. Chapter 4, focuses on both the Model Development and establishment of Location Criteria which is to be applied to the chosen model.

Part II is concerned with applying, to a case study, the information presented above. Chapter 5 presents the Case Study which focuses on the development of a proposal for the establishment of a Wave Pool in the City of Winnipeg. Chapter 6 is devoted to the discussion of the model and recommendations for its implementation. Finally Chapter 7 presents a Summary and concludes this research.

From the outset it should be stressed that planning is a profession which "is a part of the organization of society and that some control over the use of land is, and will continue to be, an important component of that organization"¹. Areas of open space designated for outdoor parks or for the construction of indoor recreation facilities have to address the needs and desires of the community with which it is placed. The main issue which has to be taken into consideration in initiating a proposal for a recreational facility is the identification of the

1 Margaret Roberts, "An Introduction to Town Planning Techniques", p.3.

"need" or "demand" for a specific facility. The planner, through the use of planning techniques, will use his/her ability to discern which variables determine the "need" or "demand" of a facility. The recognition of "need" in a community is derived from excepted standards within a community which are identified through the use of surveys and demographic studies which are then analyzed by the planner and recommendations presented.

This being said, the bulk of this practicum is concerned with establishing a set of locational criteria and designing a model which can be used in formulating development proposals for large recreational facilities. The practicum addresses environmental concerns through zoning and the assumption that a completed project design will be subjected to an Environmental Impact Assesment. Similarly, a rational basis for decisions need to be made prior to political consideration and recognition of vested interests, thus the issue of politics in not represented in the study.

This practicum is not a "needs" study, but rather a location study. The emphasis is on two areas; first, the aspects related to the formulation of Locational Criteria and Model Development; and second identifying the relationship between the public interest and how the planner should incorporate that public interest, into the final proposal.

1.1 What is Leisure: A Definition

Recreation Planning is a complex field which can only be defined by a combination of terms and concepts, one such concept, and by far the most important is the concept of leisure. The concept of leisure is dynamic and very flexible in nature, and defies a simple definition. Leisure consists of a number of behavioral styles with respect to an individual's use of leisure time. This in turn implies a variety of meanings for leisure inherent in the variations present in different individual leisure styles. Therefore, recreation planners must identify an individual's place in society with regards to their personal and social identities before contemplating planning decisions. Leisure is seen by recreation planners and social psychologists as a state of mind rather than a participatory act, therefore it demands particular skills from recreation planners to interpret a community's leisure desires. This, in turn forces the planning community to remain as flexible as possible in developing policies, recommendations, and plans for each community.

Leisure is seen to begin with the institutions of a society and an individual's ability to integrate into those institutions creating an efficient leisure system. This system is said to be "systematic", which is the variety of sociological leisure that the western society follows. In the minds of the western society, recreation planners see

the idea of leisure and participatory activities revolving around the purchasing of material objects to satisfy one's desire to carry out a specific leisure need. This seems to indicate that much of today's leisure thinking has fallen victim to the attempts of mass media to construe leisure as a concept of possession and acquisition rather than a concept of freedom to pursue an activity of one's choice.

Leisure behavior and attitudes tend to change as an individual's life roles change. Thus change within one's life presents an individual with different opportunities and expectations for leisure. Changes in leisure opportunities are related to an individual's change in income, age, employment access to facilities. The recreation planner therefore must be able to establish a definition of what leisure may consist of, based on these factors. The difficulty however comes in translating related survey and primarily statistical information into some firm decisions regarding the types of recreation programs, facilities and policies should be established within a given community.

The definition of leisure which this study follows comes from Seymour Gold who defines leisure as, "any portion of an individual's time not occupied by gainful employment or used in the pursuit of essential activities". However, as it has been stated, the concept of leisure is not static, and therefore demands that it be used in the most flexible manner possible. This should prompt recreation planners to

remain as flexible as possible when formulating recreation proposals.

1.2 What is Recreation?

The complexity of the concept of leisure revolves around the fact that it is a rather subjective state of mind state as opposed to an overt physical action; and because of their close relationship, so is, to some extent, the concept of recreation. There is however, a misconception that the terms leisure and recreation are interchangeable, this is not so. Each of these concepts have their own distinct definition: whereas, as seen above, Seymour Gold construes leisure as being "any portion of an individuals time not occupied by gainful employment or used in the pursuit of essential activities"; while he construes recreation as, "any leisure time activity which is pursued for its own sake or which happiness to a person as a result of a recreation experience"².

The nature of recreation planning is seen as a process that relates the leisure time of individuals to space. This therefore involves the creation of alternative ways for people to spend their leisure time by, means of planning techniques that combine environmental design and social concerns. These social concerns are related to the changing ideas of how one should spend one's leisure time, while

2 Seymour M. Gold, "Recreation Planning and Design", p.32.

environmental design will blend social science and public administration, to provide leisure services as part of a Human Services delivery system. This will create a wider view of recreation planning by eliminating the use of distinctions such as indoor space and outdoor space, and start integrating these areas as spaces and services.

The range of recreational pursuit has moved from traditional forms, to forms of recreation that revolve around a more material set of values. Today's materially orientated life styles require recreation to be seen as an economic activity because of the amount of material goods purchased for an individual to fulfil their recreational desires. This increased amount of economic activity with respects to recreation, brings to light the possibility of providing recreation realized through an economic process. By evaluating recreation through an economic approach, it is felt, that the changes in an individuals taste and more importantly the impact of new technology can be more efficiently addressed.

The effect of the use and provision of recreational facilities essentially follow three basic criteria. Firstly, there is the issue of accessibility, which is based on the knowledge of existence, location, availability, and drawing power of a facility. Secondly, there is the issue of time, and the continuing trend of changing work days from a traditional Monday to Friday work schedule, to one that is

based on a working schedule that includes both weekdays and weekends. This change will therefore spread out the traditionally crowded weekend leisure time over seven days, rather than just two. Finally, the relationship between income and recreation is one that sees expenditures on recreation increasing more rapidly than income increments.

Recreational actions or activities are related to the circumstances that an individual finds themselves in. This is related to such things as one's income, age, and social status. These factors, must therefore be taken into consideration by recreation planners when developing recreation planning proposals.

To sum up, the definitions of recreation and leisure are not interchangeable, and therefore possess their own distinct definitions. Recreation is the activity one participates in during one's leisure time and, in most cases includes the use of specific recreational facilities. The provision of these facilities revolves around the recreation planner's ability to identify what type of facility a community requires and in turn to develop a proposal which will address the community's desires.

CHAPTER 2

PROVIDING COMMUNITY RECREATION AND LEISURE

2.1 Introduction

The availability of recreational and leisure facilities at the community level is an integral part of creating community unity. Providing these facilities can be a complex process which must consider both individual and community needs. All citizens must have access to community facilities by ensuring that facility design and programs address all needs of the community.

2.2 Social determinants of Leisure Behavior

Human social behavior is exhibited during one's free time of leisure or within working hours. However, "human social behavior has different antecedents and consequences when it takes place during one's free-time as compared to what occurs within working hours"³. There is a close relationship between social factors, inherent in society, and an individual's leisure behavior. That is to say that the individual's beliefs, thoughts, and behavior towards leisure are influenced by social factors and are not strictly intrinsically motivated. Therefore, the issue of leisure is a social issue covering more than just an individual's desires for leisure services, but rather encompasses a broader social context with regards to leisure

3 Seppo E. Iso-Ahola, "The Social Psychology of Leisure and Recreation", p.3.

behavior.

The development a of working definition for the psychology of leisure is difficult to establish. One can only say that leisure is subject to changing social factors such as one's income, employment or status, and therefore does not remain static, but rather changes as different social influences change an individual's leisure behavior. It is the contention of leisure psychologists, that leisure is part of the human service delivery system, (i.e social services) and must be provided to the community by practitioners who are proficient in dealing with human beings in various leisure and recreational settings. The provision of leisure services to the community is more than just constructing facilities or creating green space, its deeper than that, focusing on social and individual interaction. Therefore "when we talk about dealing, communicating or interacting with other human beings we hit right at the core of the social psychology of leisure behavior"⁴.

The provision of leisure and recreational opportunities is very important to society as a whole by preserving the health of a society. This "health" objective relates to both physical, mental and, most importantly, social welfare of the society.

"Thus far it has been argued that intrinsic motivation

4 Ibid., p.6.

constitutes the basis of an individual's leisure behavior"⁵. However this intrinsic motivation is only part of the influences which shape an individual's and community's leisure behavior. The leisure behavior revolves around an individual's or a community's perception of freedom. At the personal level the perceived freedom is high when the individual attributes the initiation of leisure behavior to one's self. However this perception of freedom is low when the individual ascribes the source of behavior to external factors. These external factors can reduce the experience of a leisure activity from an enjoyable experience, to one that is not perceived as being done of free will. This perception can, therefore, be translated from a individual perception to a larger scale, that being the community perception.

Providing a community with diversified recreation programs and services can establish a positive leisure atmosphere for the community. As a whole we are seen as social beings and therefore, "we need community and some ongoing relationships of trust and confidence. Leisure is a major social space in which such relationships are developed and maintained"⁶. This atmosphere of trust and confidence built up in the communities through leisure expresses the importance of leisure behavior in providing, in a general sense, community health.

5 Ibid., p.236.

6 John R. Kelly, "Leisure", p.163.

Though leisure behavior is most often intrinsically motivated, it still tends to occur more often in a social context. Essentially, this is due to the many leisure activities which are structured around the presence of others, and that most people define their individual competence through interpersonal competence. These observations help to strengthen the fact that leisure for the most part is a social happening even if the leisure behavior of an individual is intrinsically motivated. "Studies have found positive interpersonal involvement (eg. Developing close friends, cooperating with other people) to be one of the three basic dimensions of leisure participation"⁷. Other factor analytical studies " have shown that social leisure is one of the key dimensions of leisure participation"⁸.

Communities must poses a variety of recreational and leisure facilities for its people to utilize. The desire to provide good facilities has been the mandate of recreational agencies, who felt that better facilities will address the communities leisure feelings. The concern of the peoples feelings towards having access to good sport and recreation facilities are important, but peoples' feelings about the social aspects of leisure is as equally important for the community. Though the availability of recreational

7 Seppo E. Iso-Ahola, "The Social Psychology of Leisure and Recreation", p.242.

8 Ibid., p.242.

facilities is important, there should be" at least as much attention to improving social interactions among leisure participants as to improving physical facilities and other non-social aspects of involvement"⁹. Therefore, " instead of focusing on activities, professionals and practitioners should exert major effort on finding how various facilities and programs could be changed and reorganized so that they would encourage and support social interaction"¹⁰.

Leisure is a contributing factor to community unity, relationship and health. In today's society, where urban life is the norm, the need for overall "healthy communities" is a major concern. However, this community health is being partially achieved through the opportunity for a community to express its leisure behavior. Though it has been said that much of an individual's leisure behavior is intrinsically motivated, is not to say that they are independent from each other when it comes to an individuals decision to express leisure behavior. The intrinsic and social meanings are not mutually exclusive. This places more emphasis on leisure to act as a social issue rather than just an individual satisfaction issue.

The provision of a variety of recreational facilities should be available in every community (more so in the urban inner city areas). However the recreation agencies must go much

9 Ibid., p.244.

10 Ibid., p.244.

further in addressing the leisure behavior of the community. To satisfy the individual leisure needs may be intrinsically motivated, but " since so much leisure is activity with other people, intrinsic (or self-related) and social meanings may often be compounded into one satisfaction package"¹¹.

2.3 Urban Recreation and Leisure in the Community

Traditionally, the perception of community needs or desires in terms of recreational and leisure facilities or services have been envisioned in ways by the planner and the residents. These conflicting views exist throughout most districts of the urban fabric, but become more pronounced within the inner city districts.

Each community is unique and each require different leisure and recreational facilities and services. This uniqueness results from the community's demographic make-up and historical precedents established over time. However a common goal and desire of the planner and ultimately the community as a whole, is that " the neighborhood plan and the allocation of facilities within it could help to engender a sense of belonging and community spirit among the residents"¹². This sense of belonging and community can be brought about through the implementation of effective

11 John R. Kelly, "Leisure", p.163.

12 Seymour M. Gold, "Urban Recreation Planning", p.84.

recreational and leisure services and programming, as well as through the provision of good facilities.

Though recreation can be categorized as being a "human service", it also acts as a political instrument. There are many interest groups who apply pressure to Park Boards, so as to influence their decisions with regards to facility type, facility location and money allocation. The communities previously without the strength of an organized body to lobby the Parks Board are now realizing the importance of making themselves recognized. "Neighborhood organizations are learning how to make their voices heard when they put priority on recreation opportunities for their children and youth"¹³. It is slowly being realized that a city park or a recreation district is more than just an area of land, but rather represents a political entity.

A community foresees a set of needs and values which they hope to achieve. Needs such as health, safety, livability, and community unity lead to values such as protection from crime, conservation of environment, tolerance of different lifestyles, expressions, and tastes. (See Appendix A). By having community groups getting involved in the decision making process and by expressing their views on recreation and leisure programs, services, and facilities desired within the community creates the opportunity to help improve the cohesiveness of their community. With this form of

13 John R. Kelly, "Leisure", p.386.

expression the community will also acquire a sound base for the delivery of community recreation and leisure (figure 1). " Instead of viewing the city or suburb as a place to escape from during leisure it should be considered a recreation resource with great potential"¹⁴.

Each community is unique in its history, landscape and demographic make up. Within each community there exist specific demand groups which require facilities that can meet their needs. Different religious beliefs, ethnic backgrounds, and people with physical and mental disabilities exist in each community. Special demand groups such as the elderly, youth and handicapped must have the opportunity to participate in recreational activities in facilities developed within their community.

2.4 Handicapped Recreation and Leisure Benefits

The existence of physically and mentally handicapped people, requires planners and designers to ensure that facility design and programs are developed with these special groups in mind. This means that the physically and mentally handicapped people of the community should have access to recreational services, for the fulfillment of

14 Seymour M. Gold, "Recreation Planning and Design", p.29.

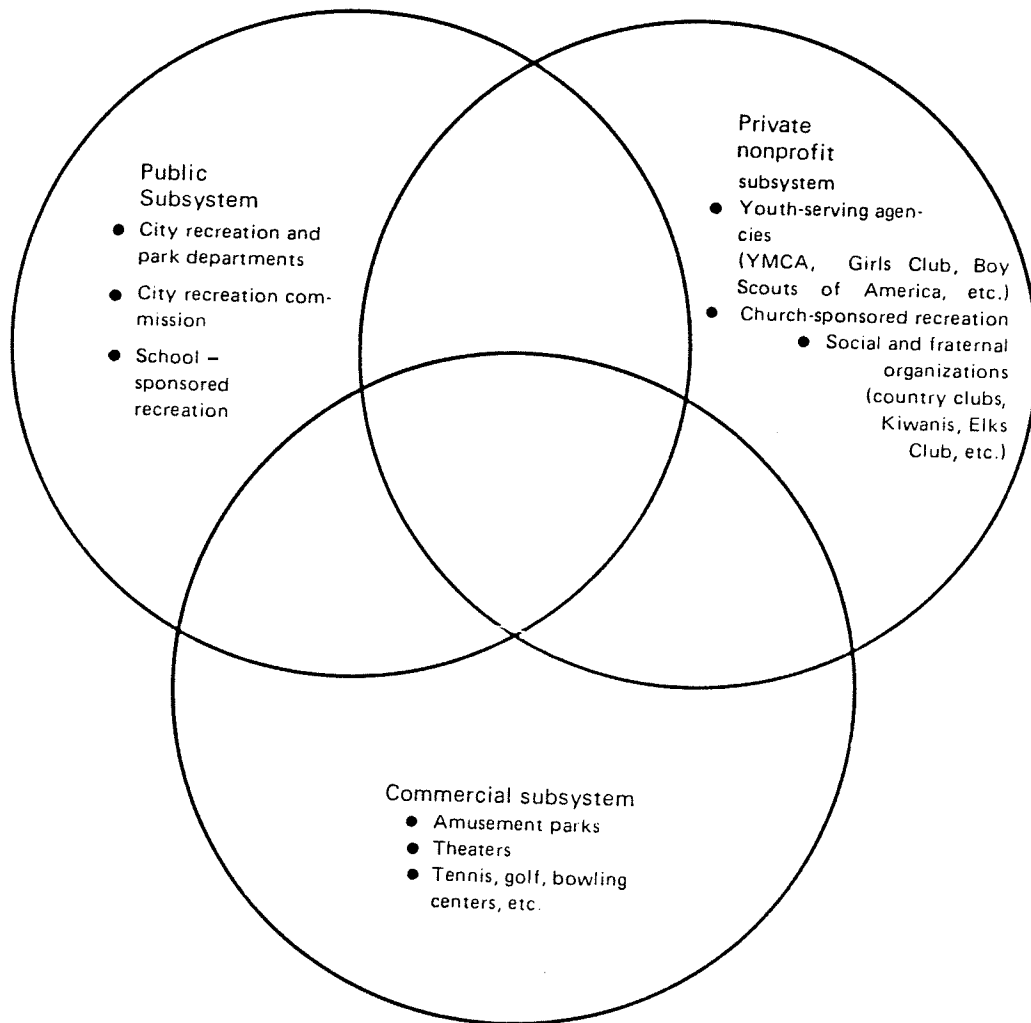


FIGURE 1: Community recreation system

Source: James F. Murphy and Dennis R. Howard, *Delivery of Community Leisure Services*, Lea & Febiger, 1973.

their leisure desires and in some cases for therapeutic reasons.

In the structural sense, recreational facilities should be equipped with devices, so as to make the facility accessible by the physically handicapped. Simple designs such as ramps and lifts should be put into place for people who are confined to a wheel chair or must make use of some form of walking aid. These structural changes should exist in all community recreational facilities. The design aspect is as important as the availability of recreational and leisure programs and services to these challenged people.

Both the physically and mentally challenged people's of a community find great therapeutic benefits through the use of leisure activities. These benefits exist both in the physical and mental sense as well as in the social sense. "Many educators and recreation specialists are well aware of handicapped individuals who learn other skills more quickly through the use of play and leisure activities"¹⁵.

For the physically challenged, recreation and leisure opportunities can play a large role in providing physiotherapy to the individual while at the same time affording enjoyment of some form of physical recreational activity. One such activity is swimming which provides numerous advantages. "Swimming, more than any other

15 Paul Wehman, "Recreation Programming for Developmentally Disabled Persons", p. Preface.

activity, combines strength building, morale improvement, and recreation into a single pleasant experience in which most handicapped people can participate. Swimming reduces the self-consciousness of the handicapped participants because their handicaps are less apparent in the water and their limitations are lessened"¹⁶.

2.5 Senior Recreation and Leisure Benefits

For the most part during the 60's and early 70's the recreation and leisure industry focused on young people. However, this mind set has suddenly changed and the recreation and leisure agencies have now recognized that the population is aging. This has placed pressure on recreation departments to adapt their services, programs and facilities to meet the changing demands.

In Manitoba this is calling for the provision of more leisure activities and recreation facilities to suit an older clientele. There seems to be more people between 40 and 60 years of age participating in physical activity. "Differences in the rate of the physical activity participation based on age were confirmed when activities most often engaged in at age 40 were compared to those most often done today. The clear distinction was the greater frequency of participation in physical activities (of all

16 Grace Demmery Reynolds, "A Swimming Program for the Handicapped", p.11.

kinds) at age 40"¹⁷. (See Appendix A 1.1). This increased participation can, for the most part, be attributed to the elderly having more leisure time at their disposal as their working years wind down.

The provision of leisure opportunities to the elderly reflects the same benefits seen from other groups in society. The physically and mentally challenged persons, as well as the healthy youth or young adult all benefit from participation in leisure and recreational activities. Data on attitudes among the elderly " revealed that those who did not participate were, on the whole, less positive in their attitudes than those who did"¹⁸. It also showed that those who remained more active through their later years would, on the whole, be more satisfied with life.

Leisure and recreation opportunities have shown to benefit the elderly if the facilities, programs and services were present. However the opportunity to participate may mean the removal of several barriers. One of those barriers which exist is the lack of opportunity near the home. This, therefore, expresses the need for the opportunity to participate in a community setting, translating into increased leisure and recreational opportunity for the benefit of the elderly which in turn will benefit the community.

17 Mark S. Searle, "Leisure and Aging in Manitoba", p.133.

18 Ibid., p.37.

2.6 Summary and Conclusions

The decision by an individual to participate in a leisure or recreational activity seems to be, for the most part, intrinsically motivated. However, though the motivation may be intrinsic the activity usually takes place with a group of people, contributing to a sense of social unity.

To ensure that leisure and recreation can contribute to community unity the facilities and programs must be available to all members of the community.

The benefits of offering recreation and leisure opportunities at the community level helps to contribute to the overall health and welfare of the community and its residents.

CHAPTER 3

RECREATION PLANNING

3.1 Introduction

The decision to develop a recreational facility revolves around several factors. Firstly, the identification of the need or demand of a facility, based on excepted standards within a community, must be identified. Secondly, resources for acquiring adequate funding for facility development must be established. The issue of finance is perhaps the most crucial factor in providing community needs, which is reflected by the municipalities' ability to pay for the facilities. Finally, the availability and recognition of potential sites for facility development should follow processes which can best identify the optimum site available

3.2 Recreation Demand in the Community

The concept of demand in the recreation planning profession is one of the least understood. Presently, recreation planners have taken two approaches to the notion of recreation demand. The first one is to have planners find out " what planners think people ought to do"; the second is to "find out what people want to do"¹⁹. Recreation planning sets to create opportunities for people to participate in different activities at specific sites. For this to happen successfully the planner must create estimates of demand so

19 Seymour M. Gold, "Recreation Planning and Design", p.145.

as to select the best site, and the type or mix of recreation resources, facilities and programs. The basis of demand estimates, therefore revolves around the identification of potential users and a detailed look at site characteristics.

Essentially there exists three types of demand which condition the use, design and management of recreation resources. Firstly, there is "latent demand". This demand type " translates the hierarchy of human needs (figure 2) into resource-, image-, or leisure-directed desires that can be described with measures of user preference and satisfaction"²⁰. It is therefore the basis for the argument that supply creates demand. Secondly, there is "induced demand". This is a " latent demand which can be stimulated by public conditioning through the mass media or the educational process"²¹. This type of demand helps to exploit latent demand by influencing people's decisions to change their recreation use patterns (see table 1). Finally, there is the "expressed demand". This demand type " is consumption or participation in terms of existing recreation opportunities. It describes what people do instead of what they would like to do or can be conditioned to do"²². Another way of describing expressed demand is in terms of participation and preference for selected activities (figure 3).

20 Ibid., p.146.

21 Ibid., p.146.

22 Ibid., p.146.

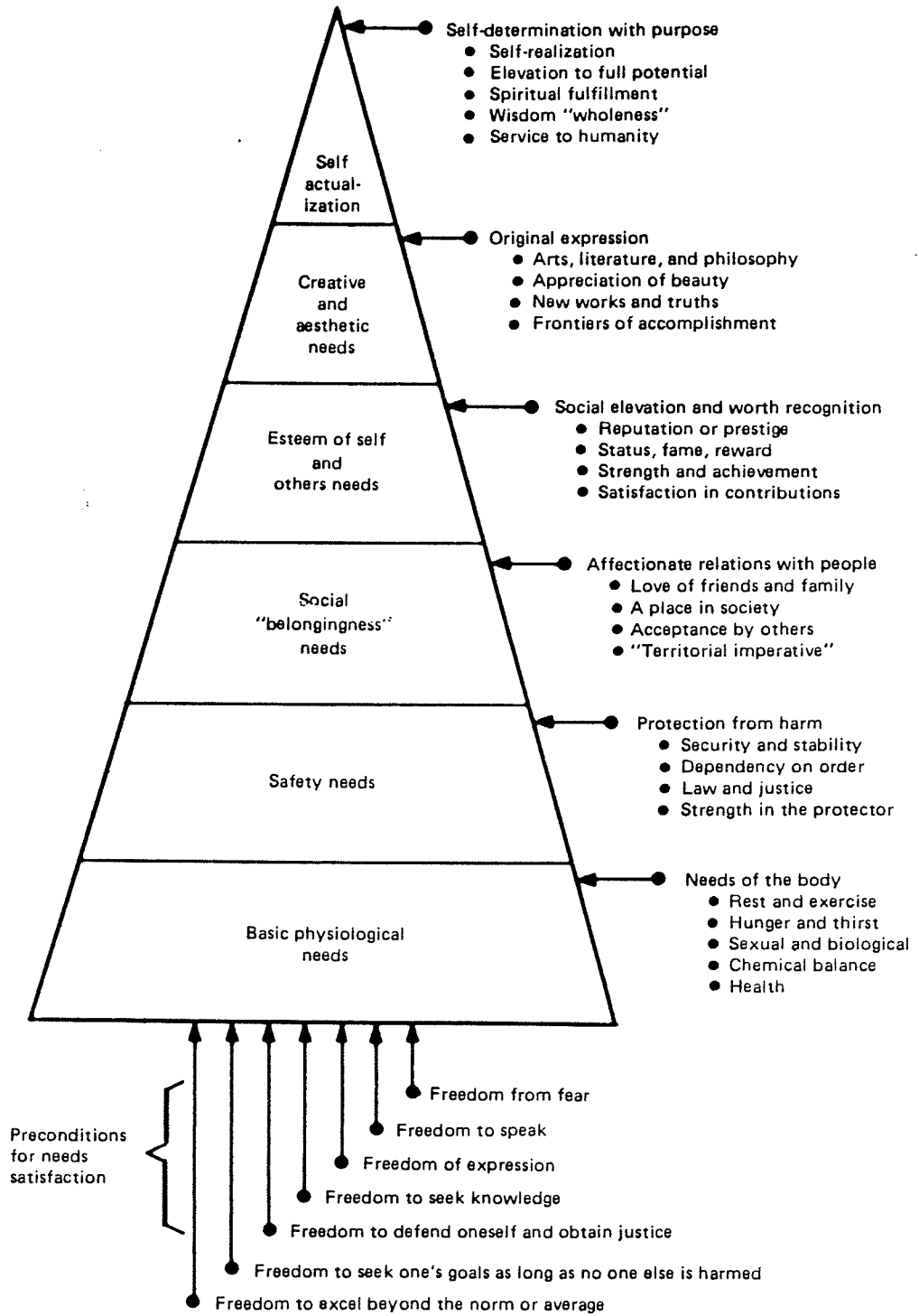


FIGURE 2: Hierarchy of Human Needs

Source: A.H.Maslow, Motivation and Personality. Harper and Row, 1964.

Methods of Managing the Recreation Resource	Methods of Influencing the Recreation Users
Improve or restrict access	Increase awareness of choice
Extend time use periods	Publicize selected areas
Rehabilitate site to mitigate adverse human impact	Limit size of groups
Decentralize facilities to reduce use concentration	Limit length of stay
Zone by activity, use intensity, and time	Limit types of activities permitted
Increase quality of facilities	Establish use rationing and reservation systems
Improve design of facilities	Establish user fees, permits, and registration
Improve operation of facilities	Provide guided tours and structured experiences
Rotate use areas	Enforce rules and regulations
Remove facilities	Interpret site or experience
Close areas or facilities	Provide supervision and program leadership

TABLE 1: Methods of Changing Recreation use Patterns

Source: Seymour Gold, Recreation Planning and Design, p.149.

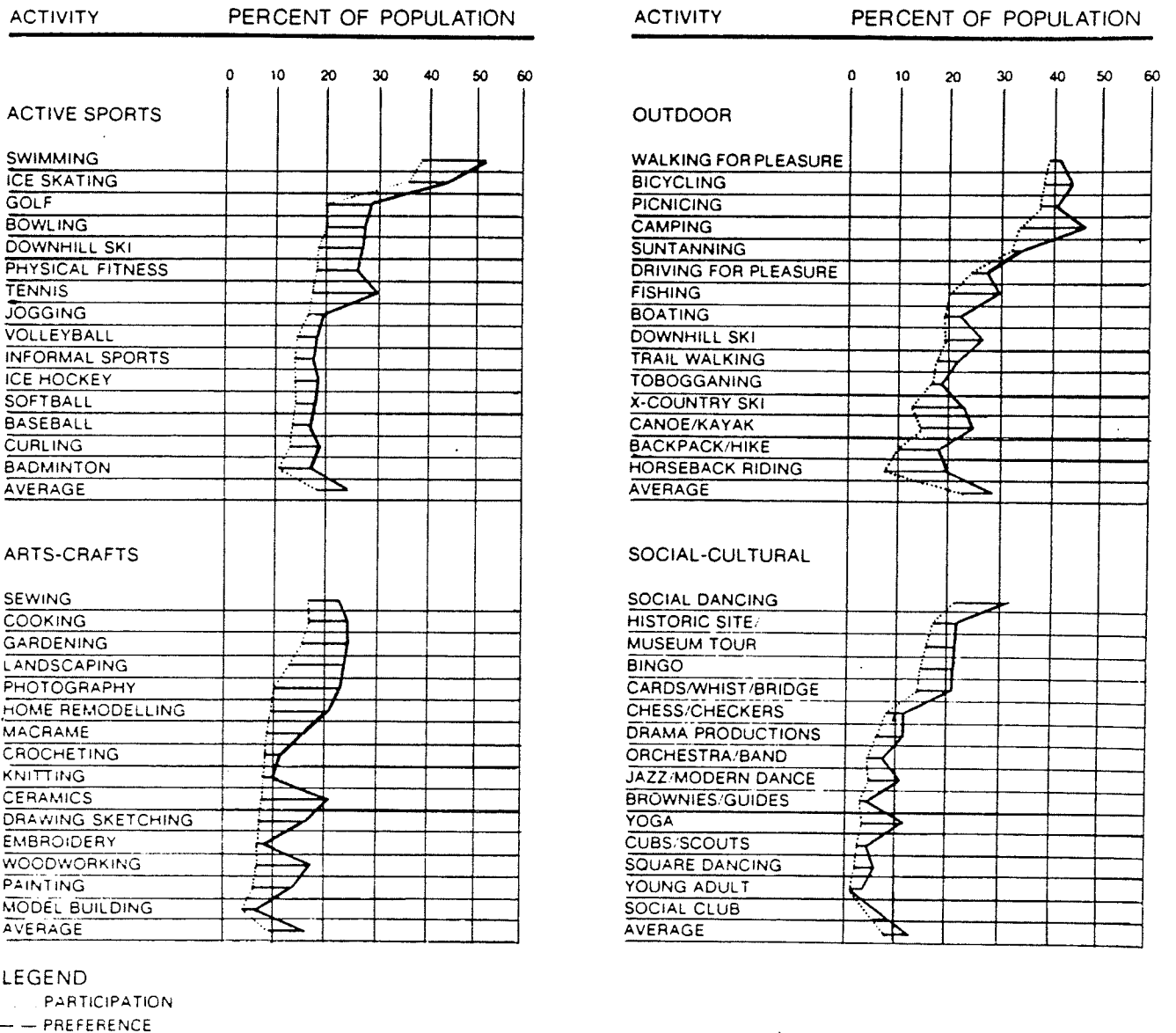


FIGURE 3: Participation and Preference for Selected Activities

Source: Parks and Recreation Master Plan. Dept. of Parks and Recreation, Edmonton Alberta, 1978.

These demand types represent the many potential variables that recreation planners face when deciding on site location, facility type, and recreation services and programs.

3.3 Funding for the Provision of Recreation Facilities, Services and Programs

Recreation departments and City councils have been trying to come to terms with the fiscal worth of recreation and how it should be translated into budgetary requirements. The preparation of budgets and meeting operation costs of facilities are the most crucial areas for most recreation departments. Within the public sector departments, such as Winnipeg's Park and Recreation Departments, use Municipal Tax Revenues in which they allocate and manage these revenues for the implementation and maintenance of recreational facilities.

3.3.1 Winnipeg's Park and Recreation Budget (1989)

Winnipeg's total 1989 tax revenue provides all city departments with a tax base of \$600 million to draw money from for the provision of public services. The Department of Parks and Recreation submit their operating budgets to their director, who intern submits it to the Board of Commissioners to be considered for the budget (Appendix B).

Winnipeg's Parks and Recreation Departments worked under

with a budget of \$53 million in 1988 or 11% of the City's total budget. However tax supported portions of the Parks and Recreation Department budget are far from meeting all the required expenditures for the provision of new facilities and for maintenance of existing facilities for a year.

3.3.2 Financing of Public Parks and Recreation Facilities

One of the Municipal Government's basic responsibilities is the provision of park and recreation services. In Winnipeg the Parks and Recreation Department is fiscally dependent on the government. That is to say, the Park and Recreation Board cannot levy taxes, nor commit to spend money without securing approval, in whole or part from the City Council. However there has been a steady increase in the demand for recreational facilities; the communities expect the funding to come from the shrinking municipal budget. Therefore the amount of recreation facilities provided will have to be based on the communities' willingness to pay for the facilities through user-fees. The amount the City will charge, with respect to user-fees, will have to come under advisement from efficient management techniques, so as to ensure a decline in facility usership does not occur.

3.3.3 Sources of Revenues for Public Parks and Recreation

Besides municipal tax dollars or user-fees other, strategies

of creating revenue for Park and Recreation Departments have been used. However information on most of the alternative sources that have been implemented comes from the United States, since Canada has been lagging in adopting these techniques.

Appropriation from the general municipal tax revenue is the major form of funding for the development of public parks and recreation areas within Canadian cities, followed by the institution of user fees, which are the second most common method used to augment the tax revenues. In this approach, type of service offered has a direct relationship to who pays for the service (the individual or the community). (figure 4). In addition there exist funding from the private sector which may have a vested interest in a proposed facility. In these cases we would see funds coming personal requests, endowments, service clubs fund raising, etc.

In the United States the urban areas have incorporated other forms of obtaining revenue to augment both Appropriation and user-fees. Special local Tax Levies or Special Assessment Taxes are some alternative methods presently being used. The Special Tax Levy is a tax which is put in place and provides the Park and Recreation Departments with extra funding that can only be spent on recreation. The advantages of such a tax, is that it provides a dependable

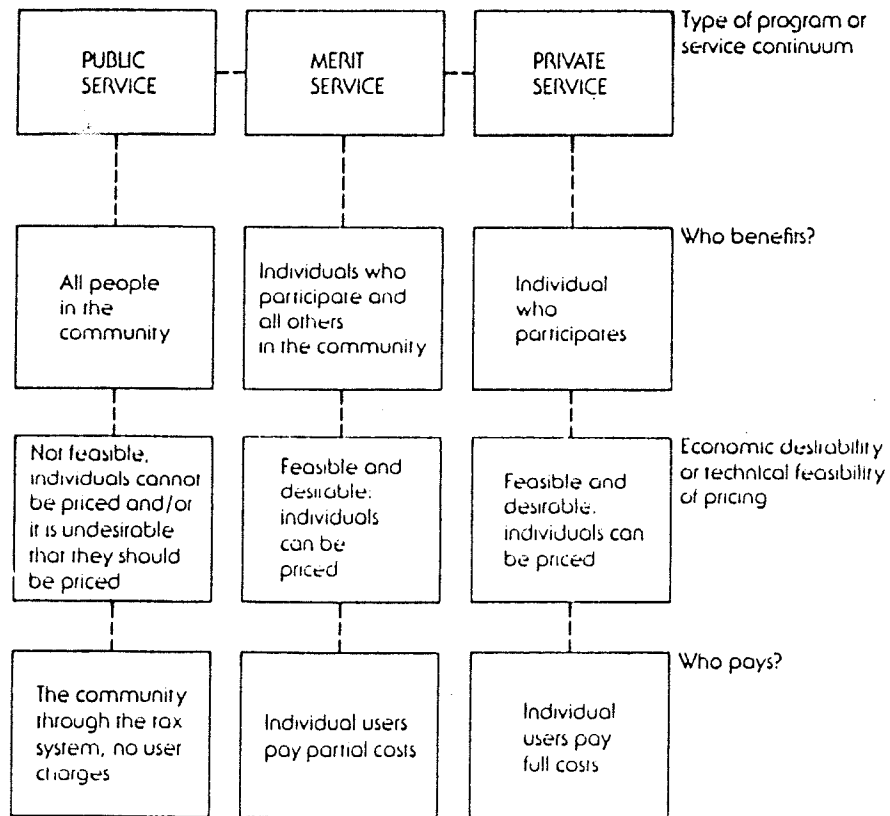


FIGURE 4: Sources of Revenue

Source: Christopher Edington, *The Recreation and Leisure Delivery System*. p.211.

source of funding while eliminating competition with other departments for the same dollar. Similarly, the Special Assessment Tax creates revenue for the cost of improving parks and recreation facilities by adding a voluntary increased charge on the property taxes of those benefiting directly from the facility.

In Canada, other sources of funding come from fees and charges, provincial and federal government grants, bonds as well as fund raising drives at the community level. The fund raising drives occur on a regular basis and is seen as a major influence in providing funds for all Community Centers.

3.3.4 Winnipeg Community Center Finance Management

Essentially it is the large municipal recreational project that receives all the attention, while the day to day recreation facilities, which are also funded by tax revenue, remain secondary on a scale of priorities. All of Winnipeg's Community Centers have to run on a budget made up primarily from Municipal Tax Revenues. This would allow the city to provide the communities with most of its recreation facilities. " In 1972 under recommendations relating to a policy for equalization of standard for parks and recreation services, was the recommendation to adopt a standard approach to financing of park and recreation services within all community committee areas and that the community

committees, with representation by citizen advisors, would determine levels of assistance required by Community Centers"²³ (figure 5).

Before a Community Center can receive funds from the city's taxes, it must have an elected official board (Executive Board). This board thus follows a standardized constitution, enabling there to be consistency in the operation of the facility, as well as, clearly delineating responsibilities of the board with regards to financing and administration. It is, however, still up to the city to ensure that the volunteer groups are aware of the city policies and by-laws.

The City of Winnipeg will fully subsidize all Community Centers and their recreational amenities up to a base standard. However, the city has considered a cost sharing program for facility expansion. This would include all expansion proposals to go ahead without waiting till the city has enough money in their budget to cover the cost, because monies would be raised by the Community Center.

23 The City of Winnipeg Parks and Recreation
Department:Community Center Study, April, 1980.

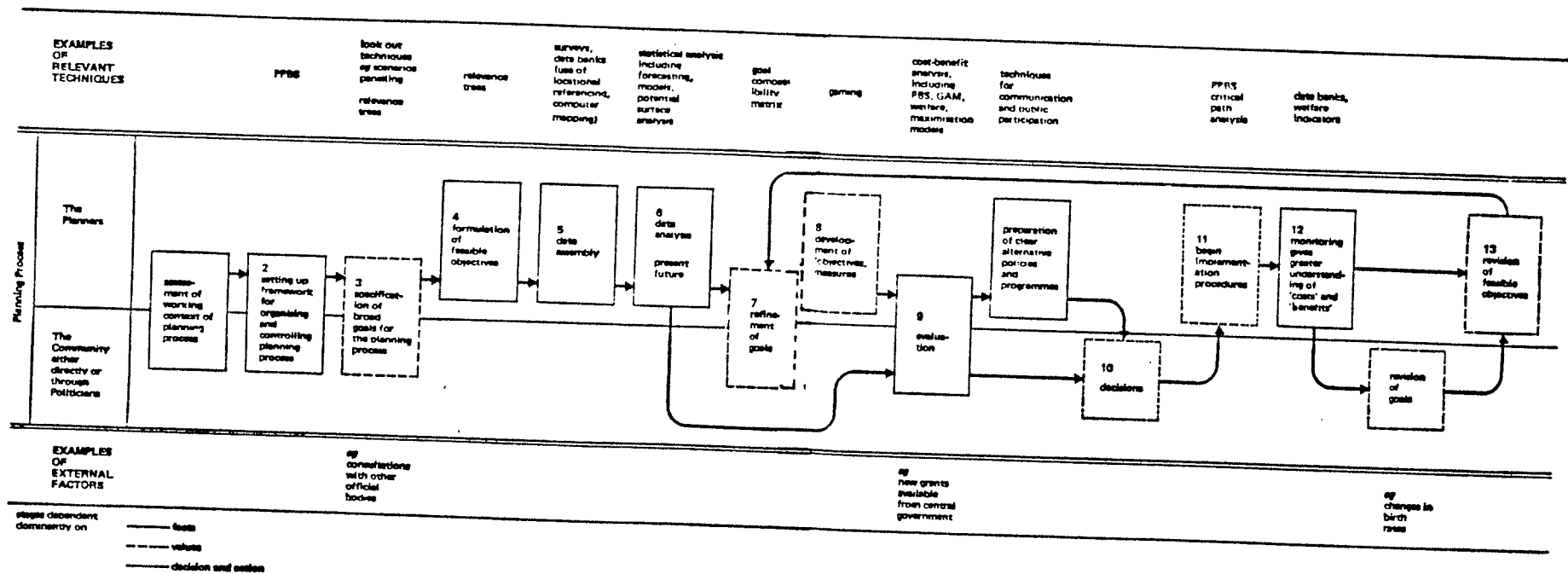


FIGURE 5: A Comprehensive Sequence of Planning

Source: Margaret Roberts, An Introduction to Town Planning Techniques, p.32, 1975.

3.3.5 Community School and Recreational Facility Joint Use Program

Within each community district in Winnipeg there exists a combination of both schools and Community Centers, each providing a certain amount of recreational facilities to the community. However, some facilities can more easily be provided by one entity rather than the other. Therefore the City of Winnipeg has created a Joint Use Program between the 11 individual School Divisions and the City of Winnipeg Parks and Recreation Department, by which each community can provide the essential recreational facilities through Joint Funding Programs.

The city and each School Division can enter into agreement for the use of services, the sharing of equipment, building and other facilities by one of the parties to the other. The administration of these Joint Use Programs is the Joint Planning Committee which would ensure, among other directives, that;

1. In general, the use of both school buildings and recreation facilities on each joint use site shall be available to both the City and School Division with the School Division having priority of use during school programs.
2. In general, the maintenance cost of joint use school buildings shall be borne by the school division and the maintenance cost of joint use recreational facilities shall be borne by the city.
3. In general, the School Division shall receive free use of City owned park and recreational areas, buildings and facilities or parts thereof in the operation of its programs and the City shall receive free use of the school buildings, facilities or parts thereof in the operation of its public

recreation programs whether operating directly or through the agency of City sponsored or approved volunteer non-profit associations, clubs or groups in accordance with a general policy as set out by the Joint Use Planning Committee.²⁴

The directives listed above are an example of programs which help to finance the recreation facilities and services at the community level.

3.3.6 Arena Expansion Financing

When major recreational facilities are planned for development or expansion, the revenue needed for those projects are translated into the millions of dollars. These large projects, therefore, must often acquire financial support from all three levels of government: Municipal, Provincial and Federal. In the case of the Winnipeg Arena there was a tri-level agreement for the financing of its expansion.

The recovery cost for this expansion could have been taken from the general city revenue, but instead the recovery cost was to be generated through the arena operating surplus and from arena patrons. The City of Winnipeg placed a user-fee on all admissions with a surcharge of \$0.25 to help recover the expansion costs.

Financing large recreational facilities with assistance from

24 City of Winnipeg Committee on Environment Joint Use of Schools, Parks and Recreational Facilities, Feb., 1974.

a tri-level basis creates benefits for all levels of government involved. When the provincial government provide financial assistance for such projects, they realize an increase in income tax revenue from the labor used on the project. As well, the Provincial sales tax will create a substantial amount of revenue for the government. Similar types of revenue benefits will be realized by the federal government. Therefore these levels of government, for the most part, don't hesitate when asked for financial support for such projects, because of the recuperative advantages realized through increased tax revenues.

There were two proposals put forward for the arena expansion, one with senior government assistance and one without. The first proposal provided \$2.5 million from the federal government and \$1 million from the province. After 5 years, without senior government help, there would be a deficit of \$1 million, while the proposal with senior government assistance there would be an estimated \$1.5 million surplus (Appendix B 1.1). This type of financial management for such facilities helps provide an effective way for municipalities to recoup deficits over a period of time.

The development of large recreational facilities is a costly venture for any city. The city alone can not expect to fund such a facility through an already strained general municipal tax base. Therefore both upper level government

involvement and private investment must be utilized as a potential financial sources that can help develop the facility without placing undue financial burden on the municipal tax payers.

3.4 Land Use Planning Process

The development of recreational facilities must be considered within the overall urban planning scheme, and should correspond to whatever Land Use policies are pertinent within the city or district where a facility is being contemplated.

Planner's use an array of techniques in order to address specific aspects relating to the location of facilities. The planner must evaluate the social needs of communities and civic resources by systematically analyzing the type of facility and how that facility will effect the surrounding community if it where to be developed. The stages within the process enables the planner to carry out his/her analysis simultaneously. Therefore "it is currently accepted that the land use planning process must be a fluid and continuous one"²⁵.

25 Margaret Roberts, "An Introduction to Town Planning Techniques", p.32.

3.4.1 Stages of the Land Use Planning Process

The land use planning process follows a set of stages which may or may not occur simultaneously.

Stage 1 - Broad Assessment of context

The land use planning process must begin with an institution or organization who requires the use of a professional planner. "Therefore it has been pointed out that whether or not techniques are used successfully depends as much on the characteristics of the organization as on those of the technique"²⁶.

Stage 2 - Decision on framework for organizing and controlling

This stage is developed once the organization is established, and a framework for the organization and control of all subsequent activities is set up.

Stage 3 - Specification of broad goals

At this point the process takes in the views of the three main parties involved in goal specification. This includes the decision makers, planners and finally the community. Each of these groups specify goals, which will be more fully developed and refined through further stages.

Stage 4 - Formulation of feasible objectives

The broad policy goals of stage three are refined to formulate specific objectives which will ensure progress towards achievable policy goals.

Stage 5 - Data assembly

The assembling of data is then needed so as to amplify and access the desired objectives

Stage 6 - Data analysis

The analysis of the data is the second part to the collection of data. The analytical technique used to analyze the data is the important factor to consider in this stage. There are essentially

26 B.F. Wade, "Some Factors Affecting the Use of New Techniques in Planning Agencies", p.109.

three groups of techniques, firstly, to classify data into like groupings; secondly to uncover relationships; and thirdly to replicate relationships and study the results.

Stage 7 - The refinement of goals

At this stage a reassessment of the original goals must come about. In this stage it is necessary to see how much complementarity or conflict exists between different objectives. This can come about through the use of such techniques as a "Goals Comparability Matrix" or "Conflict Matrix" (figure 6).

Stage 8 - Development of objective measures

This is the preliminary stage to the evaluation process, where alternative possibilities are carefully compared to "predetermined" criteria of usefulness. This means measuring objectives which can be assessed to give the benefit side of a balance sheet against costs.

Stage 9 - Evaluation

This stage is very important to the overall process because it puts together the facts and values in a comparison of the alternative possibilities, based on the objectives specified and at what cost.

Stage 10 - Decisions

This stage rests on the shoulders of the "decision makers" who chose the alternatives presented to them by the planner.

Stage 11 - Implementation procedures

These procedures, Though important, do not follow any specific technique, but rather consist of public relations, persuasion and restraint.

Stage 12 - Monitoring

The need to monitor the final proposal which has been put in place is to determine the success or failure of the decision and to determine where changes should or could take place.

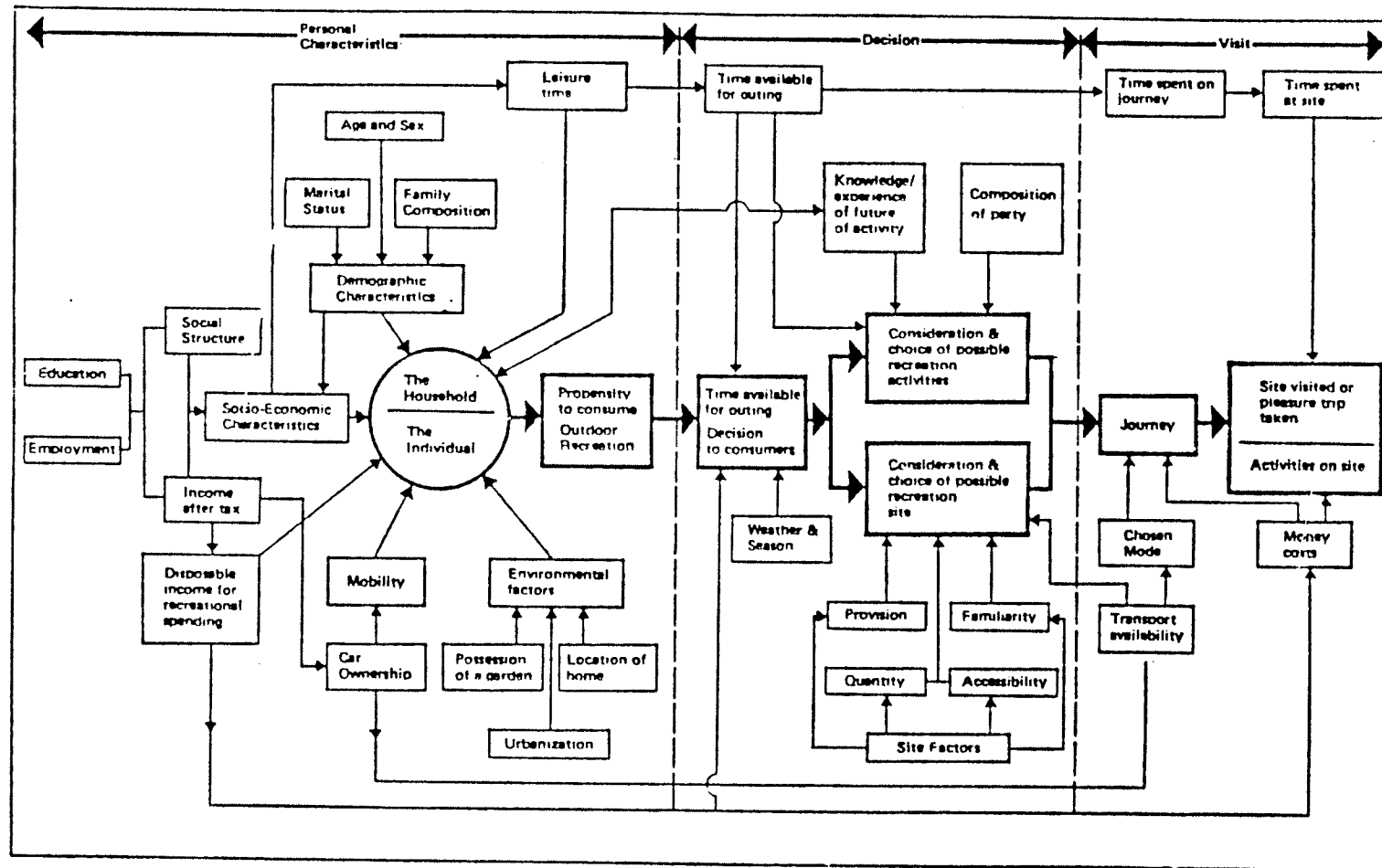


FIGURE 6: Identifying Demand Based on Objectives

Source: Introduction to demand studies, S. Law, The Demand for Outdoor Recreation in the Countryside, 1970.

3.4.2 Facility Location

The decision to locate a recreational facility, in an urban area, is based on a multitude of variables which affect the decision process. These variables revolve around a set of general criteria which include, social issues, policy, finance, and location.

Each of the determinants which make up these four criteria vary with the specific facility to be located and must be flexible enough to be adaptable for a number of urban environments. With continuous physical and demographic changes occurring "due to exogenous shocks, such as the rise of oil prices, or autonomous developments such as the flight to the suburbs"²⁷, indicates the variety of criteria determinants existing within urban areas.

The development of a recreational facility have "close links with a wide variety of aspects from urban life, such as the urban infrastructure, the urban transportation and mobility patterns, the urban environment, the urban facilities and the city size"²⁸. All these aspects of urban life make up the determinants which the four general location criteria are based upon. From these determinants the decision for the type and location of a facility is proposed.

Though these criteria should act as the basis for the

²⁷Wal F.L. Van Lierop, "Locational Developments and Urban Planning", preface.

²⁸ Ibid., preface

decision to develop a recreational facility, they should respect the essentials of the facility being contemplated. This means that even if the facility does not fit all the criteria outlined, it may still be seen as a needed addition to the community. Therefore the essentials of the facility are often expressed in form of outcomes rather than rigidly prescribed procedures.

These criteria and their subsequent determinants attempt to access potential shortcomings of the proposed facility if it were to be constructed. It is important to realize that the decision to develop a recreational facility is not done on an ad hoc basis. Though the formulation of pertinent locational criteria determinants is important in facility location, it should not over shadow the essentials of the facility and the value it may have on the community.

3.5 Summary and Conclusions

The ability to generate funds for facility development is a crucial factor. Through the use of programs such as the Facility Joint Use Program and the fund raising techniques used by the community centers, costs can be lowered and revenue can be generated which help to augment the municipal tax revenues primarily used to support community recreation.

Similarly, by following the land use planning process, sites can be selected which best suit the facility and community in which it is placed. This would revolve around the

incorporation of social, financial, policy and location issues present within a community.

CHAPTER 4

MODEL DEVELOPMENT

4.1 Introduction

There exist many model types which provide the analyst with a variety of data and information. The ability to choose the model which best suits the focus of a study is very important in ensuring that the desired information generated by the model is accurate.

Once the type of model has been chosen, the factors or variables must then be applied to the model. This stage requires the calibration of the model, which ensures the variables applied fits the planning situation or problem to be solved. The calibration process is the most important stage of the model development and in this practicum the model incorporates a set of location criteria which is calibrated to fit the Winnipeg situation.

4.2 Model Types

Models are commonly used in the planning profession, as it is in many professions. This planning "tool", serves as a useful basis for the decision making and specific proposals. Though the word model may have many meanings, in the context of this practicum it is constructed as a device which is designed to simulate reality. The simulation of reality comes about through the model's ability to " reveal patterns

of interaction among different aspects of the subject of study, which can contribute to the predictive and evaluative components of the Planning Process"²⁹. Models help to evaluate alternative choices through a structured and systematic method, therefore providing more rigor in decision making, through a sometimes inconsistent or at best a overly complex land use planning process.

The key to the development of a successful model comes with understanding the complexity involved in establishing relationships in the reality and then present them in a simplified and generalized version.

Of the variety of models used in land use planning, planners essentially focus on three types; Descriptive, Prescriptive, Normative.

First, there are Descriptive Models. This form of modelling is not problem orientated but rather acts as a learning device, by providing a "test-tube experiment for planners"³⁰. These models are used in systems analysis providing solid information in the area of Urban Spatial Theory.

Secondly , there are Prescriptive Models. These models are used to provide a single solution to a specific problem.

29 Margaret Roberts, "An Introduction to Town Planning Techniques", p.93.

30 Anthony J. Catanese, "Introduction to Urban Planning", p.156.

Today however the urban problems have shown to be too complex for single solution models.

Finally there are Normative Models. These models help to create ideal descriptions of systems and therefore serve as a set of possible goals which can be applied to the actual system which exist in the real world.

These types of models can become very complex, depending on the type of formula being applied to the model and the types of variables the planner chooses to apply. However since there exist so many variables which affect land use planning the models developed are usually very complex. For our purposes the "modelling" will focus on the recognition of the types of location criteria which should be considered in developing a recreational land use.

The land use planning models revolve around a particular set of determinants which represent the existing situation within the urban fabric. These models incorporate determinants which "deal with a complex set of interlocking phenomena, capital investment, population structure, transit networks, recreation habits and so on"³¹. The model which is developed in this practicum looks at criteria and their determinants through the use of a checklist (Figure 7).

31 Margaret Roberts, "An Introduction to Town Planning Techniques", p.94.

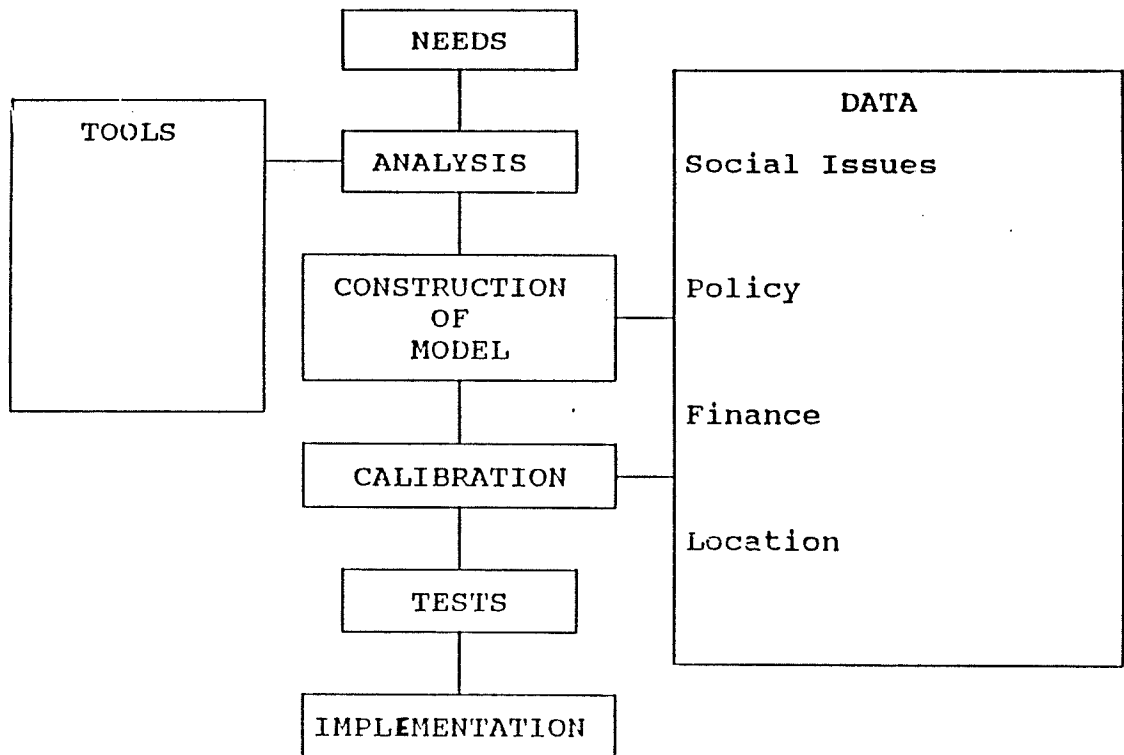


FIGURE 7: Model of Methodology

4.2.1 Elements of a Model

The goal of the planning model is to help provide information on possible constraints and opportunities for a given planning situation. With land use models there exist a set of stages, where, the planner forecast interactions that may take place. The fundamental elements of this interaction within models are generators, attractors, and deterrents. Generators, in the case of recreation may be population or facility availability, attractors may be the type of facility, its uniqueness or the experience it offers, while deterrents may include the cost to use the facility or location with regards to travel time.

Once each of the three elements are established for what ever planning problem, a model must the be developed to provide the desired information. The model development comes about through three phases, design, calibration, and forecasting. "The model design stage consists of the formulation of functional relationships among the component parts of the model"³². These relationships can be expressed in a number of ways, such as a mathematical formula, for example. Essentially, the relationships must exhibit the observed behavior of the actual situation being modelled. This last characteristic is essential and critical for the model to be of practical use.

32 Ibid., p.95.

The generalized model may be applicable to a number of related situations. However it needs to be adapted to the specific situation at hand. The stage is known as **calibration**. This calibration stage refines the generalized model design into a more specific model that will be directly concerned with the situation of the particular study area. The calibration process requires the application of relevant and specific information to the model in the form of workable parameters which best represents the local conditions of a particular situation. For example if the generalized relationship is $y = f(x)$, the model may be formulated as $y = ax + c$, where "a" and "c" are the parameters or modifiers of the generalized formula to represent the specific condition.

Once the design and calibration of the model have been developed the model parameters maybe adjusted with the addition of a time value. This becomes the final phase of the model known as the forecast phase. In the forecast phase of the model a time line is established which helps provide the planner with an indication of future trends adjusting the calibrated parameters over time eg. $y = f(x,t)$. However the position and value of "t" within the model depends on the local conditions and empirical data.

4.3 Identifying Location-Allocation Modelling

Land-use planners are faced with the difficult task of determining the location of many urban facilities. Through the use of various modelling techniques, planners have attempted to identify accurate social, financial, locational and policy oriented indicators to ensure reliable location-allocation information for facility development.

The location-allocation model focuses on the physical and social factors of a city or district and in turn determines the optimum location for the allocation of specific facilities.

These models are constructed, for the most part, to fit the analysis process inherent in the thinking pattern of operations research/management scientists. "To an operations research/management scientist, facility location analysis is usually an optimization problem where the selection of geographical locations for facilities of the same or similar type (industrial plants, regional warehouses, etc) is the main concern"³³. This form of analysis requires a efficiency criterion to be established, where issues ranging from basic dollars and cents determinants to, complex issues such as community benefit, make up the criterion for location proposals for facilities.

³³ Wal F.J Van Lierop, "Locational Developments and Urban Planning", p.81.

Location modelling can be separated into two categories, the continuous and the network models of location. These categories make up a dissimilar model structure and application with, the Continuous Location Models assuming the facility can move freely (flexible) throughout a predetermined region. Conversely the Network Location Model provides a predetermined selection of specific locations (non-flexible) from which one will be the selected location for the facility.

A) Continuous Location Models:

The basis for this type of model is derived from Weber's (1926), "Generalized Weber Problem". Essentially Weber used the example of transportation cost based on factory location. "Weber assumes constant-coefficient production functions, and uses a general spatial transformation function ..."³⁴ (See formula Appendix D.1). Here is where the assumption of uncertainty in location models comes to light, with Weber's study of location economics. Therefore, this continuous location model is also concerned with distance cost, where the idea is to locate a facility in an area which will minimize the over all cost created by distances to the potential users. (Formula Appendix D 1.1)

B) Network Location Models:

These models essentially determine, from a given set of locations, which specific one will result in a minimum set

34 Ibid., p.76.

of total "system costs" if the facility were to be located at that specific location. These system costs are the "disposal costs" referring to transportation charges, and the facility costs related to economies of scale with respects to the volume of activity produced within the facility.

The Network Models consist of several facility location models. One such type is the Dynamic facility location model. This model type suggests that "foreseen changes in costs or demand patterns over an appropriately long planning horizon may make a single period (or static) facility location model inadequate"³⁵. This model allows the planner to stimulate the development of a facility within a specific planning time frame, where once the facility has been established it can be liquidated at a later time in that planning time frame. This model, therefore allows a dynamic flexibility in determining facility establishment over a long planning period by providing a facility liquidation option based on changing cost or demand (based on Efronmson's and Ray's Location Model Formula Appendix D 1.2)

This example of Location-Allocation Models, though not fully subscribed to in this practicum, provides a good example of some of the modelling techniques or approaches that exist, in more a sophisticated manner, and are available to the recreation planner.

35 Ibid., p 89.

4.4 The Model

The model this practicum incorporates is broken into two parts. The first part being the development of a Cross-Impact Matrix and the second part being a Site Evaluation Table.

The Cross-Impact Matrix was used for several reasons. First, the matrix allowed the calibration of the criteria and their determinants, and provided a format for presenting the criteria in an organized manner. Secondly the matrix identified the severity of impacts which existed between specific determinants. From this, deficiencies present within specific sites could then be identified and interpreted. Finally, the matrix acted as a check list for the criteria and their determinants.

Part two consists of the Site Evaluation Table. This table numerically ranked the deficiencies presented in the first part. This evaluation process ranked all the criteria determinants so as to determine the optimum site for the proposed facility. By using this table it provides the planner with a simplified, yet fairly accurate indication of how each site stack up to each other. The value ranking technique used to help distinguish the degree of impact between the determinants will follow a five point system where 5 is high and 1 is low, a non-applicable rating will also be incorporated.

The Site Evaluation Process which this practicum will follow, is similar to the one used in a Santa Barbra County study which used it to evaluate potential scenic trail areas (Figure 8). Similarly the developed location criteria will follow the matrix format (section C of figure 8) to help determine the optimal location for specific recreational facilities.

4.5 Criteria Development for Model

The model developed in the practicum focuses on the criteria for the location of large recreation facilities within an urban setting. It is designed to identify specific location criteria which directly influence recreation facility development and to apply these criteria to an existing location-allocation model.

There will be four basic criteria that will be analyzed with respect to land use planning, specific to recreation facility location and development. The four criteria will consist of location, finance, social and policy issues.

Each of the four criteria were broken down into specific determinants or variables that influence each of the criteria (Figure 9). By identifying the relevant

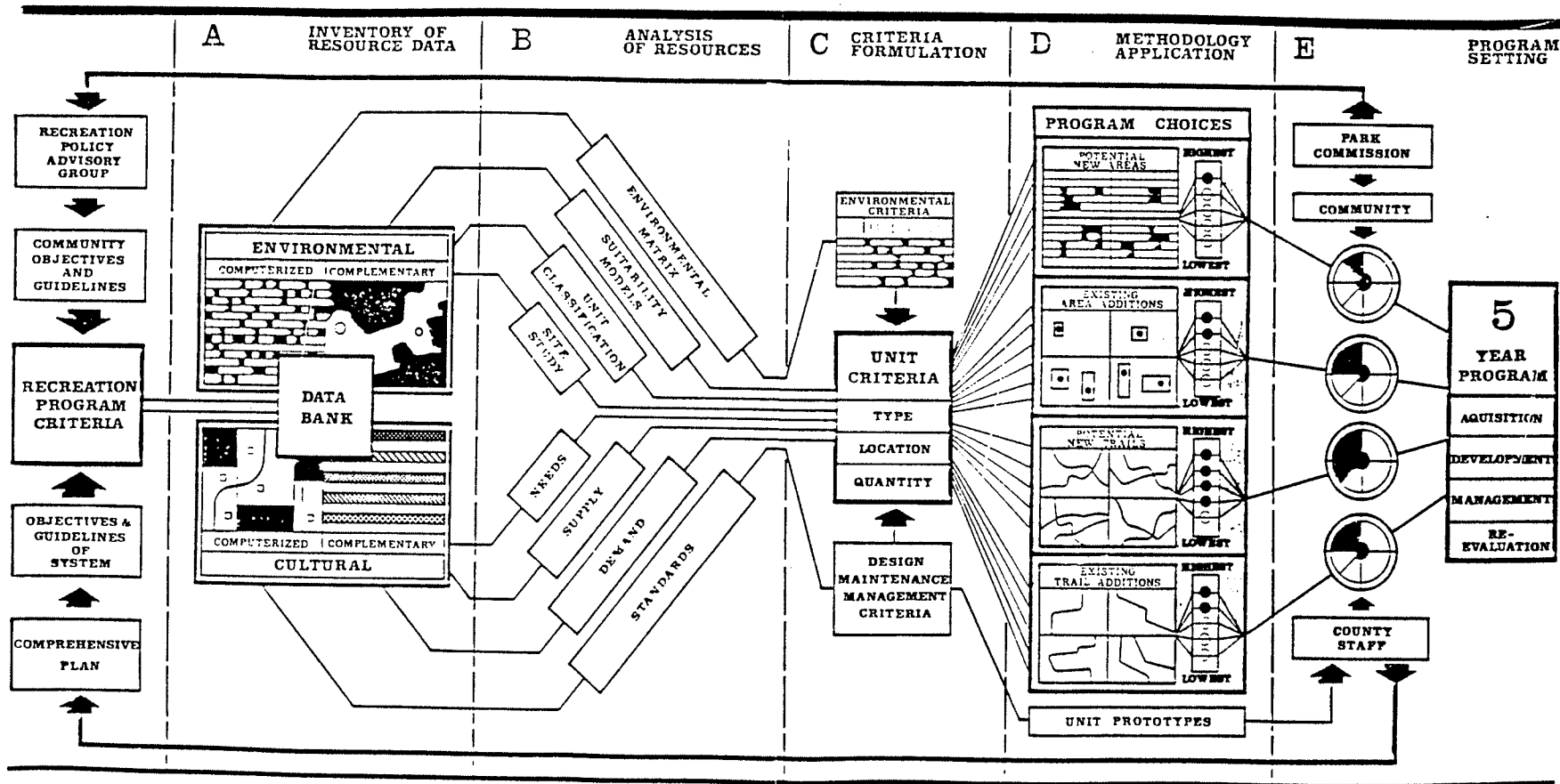


FIGURE 8: Recreation Element of Comprehensive Plan

Source : Park Dept., Santa Barbara County, Calif., Royston, Hanamoto, Beck and Abey, 1974.

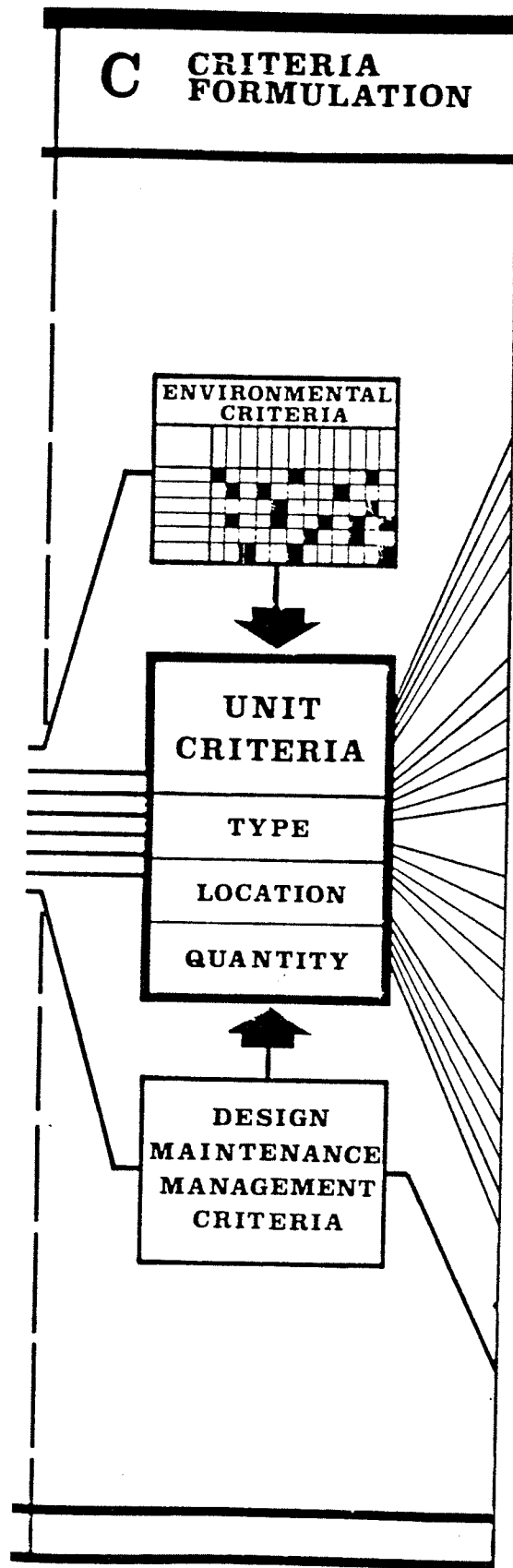


FIGURE 8a: Recreation Element of Comprehensive Plan (Part C)

Source: Park Dept., Santa Barbara County, Calif., Royston, Hanamoto, Beck and Abey, 1974.

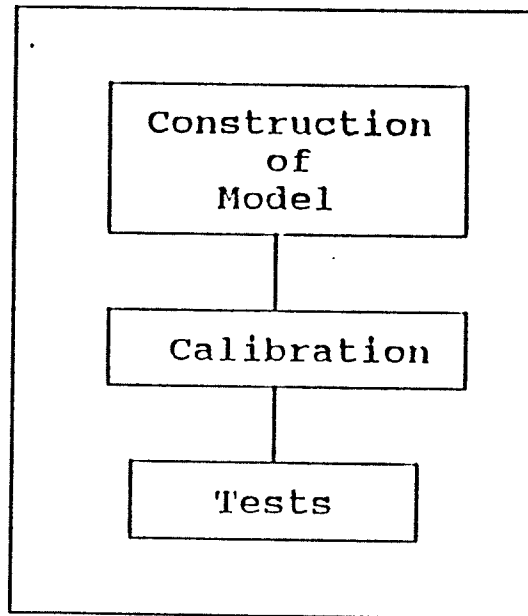


FIGURE 9: Model of Process

determinants associated within each of the criteria, a set of specific indicators will be formulated providing information for the location and development of recreational facilities within a given urban setting.

4.5.1 Social Issues

Ultimately the location and development of a recreational facility should benefit and reflect the desires of the community. The task of identifying the needs or desires of a community is at best a complex myriad of personal values and ideals. However the planner must endeavor to formulate "social indicators" that effectively reflect the values desires or needs of a community.

The formulation of social indicators that can be applied to the planning process have yet to be fully developed. This is essentially due to the fact that;

- a) There is a pressing and immediate need for social indicator data for policy making, when
- b) social statistics and social theorizing are still at a very early stage of development, and considering that
- c) academic researchers concerned with social indicators often do not have sufficient grasp of policy objectives to be able to evaluate the conceptual implications of changes in the definition of social indicators³⁶.

Although theoreticians may question the "state of the art" of social indicators, in pragmatic terms, there is sufficient empirical knowledge for their application.

36 M. Visvalingam, "Operational Definition of Area-Based Social Indicators", Environment and Planning A, 1983, p.831.

However it would be out of context for the purposes of this practicum to attempt to establish a set of social-indicators due to the complexity of this issue. However social criteria used in determining the location of recreational facilities is very important, and consequently a set of general social determinants will be established.

The social criteria should first of all be based on the social climate in which a recreational facility will be located. Moreover, they have to be generalized over a city or regional wide context based on the size and scope of the recreational facility to be developed. Within this general scope of social determinants, there must be an equilibrium created. "An equilibrium has to be found between a social optimum - from an efficiency and equity point of view - and lower level - or individual optima, which both have influence on the "right mix" of planning, market and individuality"³⁷.

The social criterion should be made up of the needs and values expressed by the community. These needs and values are present within several key areas. Firstly, there is the health and safety needs of the community. When deciding on a location for a recreational facility issues such as crime, traffic and health must be considered. For example, will the development of a facility increase neighborhood traffic,

37 Wal F.J. Van Lierop, "Locational Developments and Urban Planning", p.130.

or will crime such as vandalism increase if a facility is located in a specific area. These issues translate into social concerns for both the community where the facility is placed and the rest of the city which may come to patronize the facility.

Secondly, is the issue of aesthetic quality and efficiency. The facility which is to be developed should compliment the area surrounding the chosen location. Facilities should not alienate the surrounding community but rather contribute to a positive environment. Similarly, once the location has been chosen an area characterization study should have been under taken to identify any unique social characteristics (this process should be done on a concurrent basis with the pre-selection of possible locations). There should be equity established with respect to usage and access to the facility. Since we are concerned with the location of large recreational facilities, accessibility in terms of travel and affordability i.e user-fees should be considered.

Finally, there should exist direct communication between the planner and the community that has been chosen for the location of a large recreational facility. Though these types of facilities draw people on a city wide or regional basis, the immediate community within which it is located should be consulted. Citizen participation should be encouraged where public concern is limited, and welcomed when public participation is requested by the community.

This open forum participation will help to ensure the social issues raised by the community (such as safety, equity, health) are understood by planners so that a compromise can be reached on how the location and type of facility can best fit into the community.

Attempting to identify all the social indicators and their interrelationships with political and economic determinants is very difficult. Though there exist general social problems present in all cities (housing, employment, health) each community has its own unique social identity. Therefore, the formulation of social criterion is important for recreation planners when determining the location of a large recreational facility. The recreation planner must understand the social issues present within the community and many times must quantify these criteria. However the "measure of social problems and policies requires the adoption of social, rather than statistical, norms and expectations"³⁸. The issue however is to ensure that the planner identify all the unique social determinants which accurately represent the community.

4.5.2 Policy

Perhaps the most difficult criterion to formulate, in relation to recreation planning, are the policy criteria.

38 M. Visalingam, "operational Definition of Area-Based Social Indicators", Environment and Planning A, 1983, p.838.

The determinants that make up the policy criteria are a combination of all the criterion used in determining the location of recreational facilities. This includes the locational, social and financial criteria. In short, "policy is concerned with defining the broad goal and strategies of action, whether public or private"³⁹. The most difficult part of policy analysis when instituting a new recreational facility or plan, is to ensure that the policy is workable within a day to day format.

"A consensus, is developing that planners can perform an increasingly important role as urban policy analysts. With the increasing complexity of urban decision making, political leaders and urban administrators are demanding from planners pragmatic assistance with policy formation and implementation"⁴⁰.

The development of an effective policy can often be seen as the critical link between the ends and means of a proposed plan. Similarly, with today's ever changing urban fabric, many feel that long range comprehensive plans are not the way to plan recreation and leisure services. Instead planning through flexible administrative policies seems to provide a more pragmatic technique in the planning of recreational facilities and services.

Though recreation policies are mostly city or community orientated, and not strictly facility orientated, it will

39 Anthony J. Catanese, "Introduction to Urban Planning", p.133.

40 Rachelle Alterman, "Planning and Policy Analysis:Converging or Diverging Trends", APA Journal, Spring 1983, p 201.

remain, for our purposes, as a vital criterion for the overall development of the model.

Within the planning profession there exists difficulty in translating public problems into pragmatic policies, thus creating communicative problems between planners and the public. Policy development and subsequent analysis, on the other hand, working in conjunction with planners, can provide a set of techniques derived from economics and operations research to formulate policy recommendations. The analysis of the policy criterion "moves towards social experimentation and the validation and creation of policy knowledge, its practitioners... become part of a scientific (field) which is necessarily rational in its standards"⁴¹. (Appendix D 2.1).

The determinants for developing a policy criterion for recreational facilities are far reaching. However, there exist several specific policy determinants which should be identified. One such determinant is the formulation of an evaluation system for leisure services and facilities (table 2).

This evaluation process should be implemented so that a continuing evaluation of goals and policies originally outlined will continue to reflect the values and attitudes of the community in the future. If the policies don't

⁴¹ Ibid., p.206.

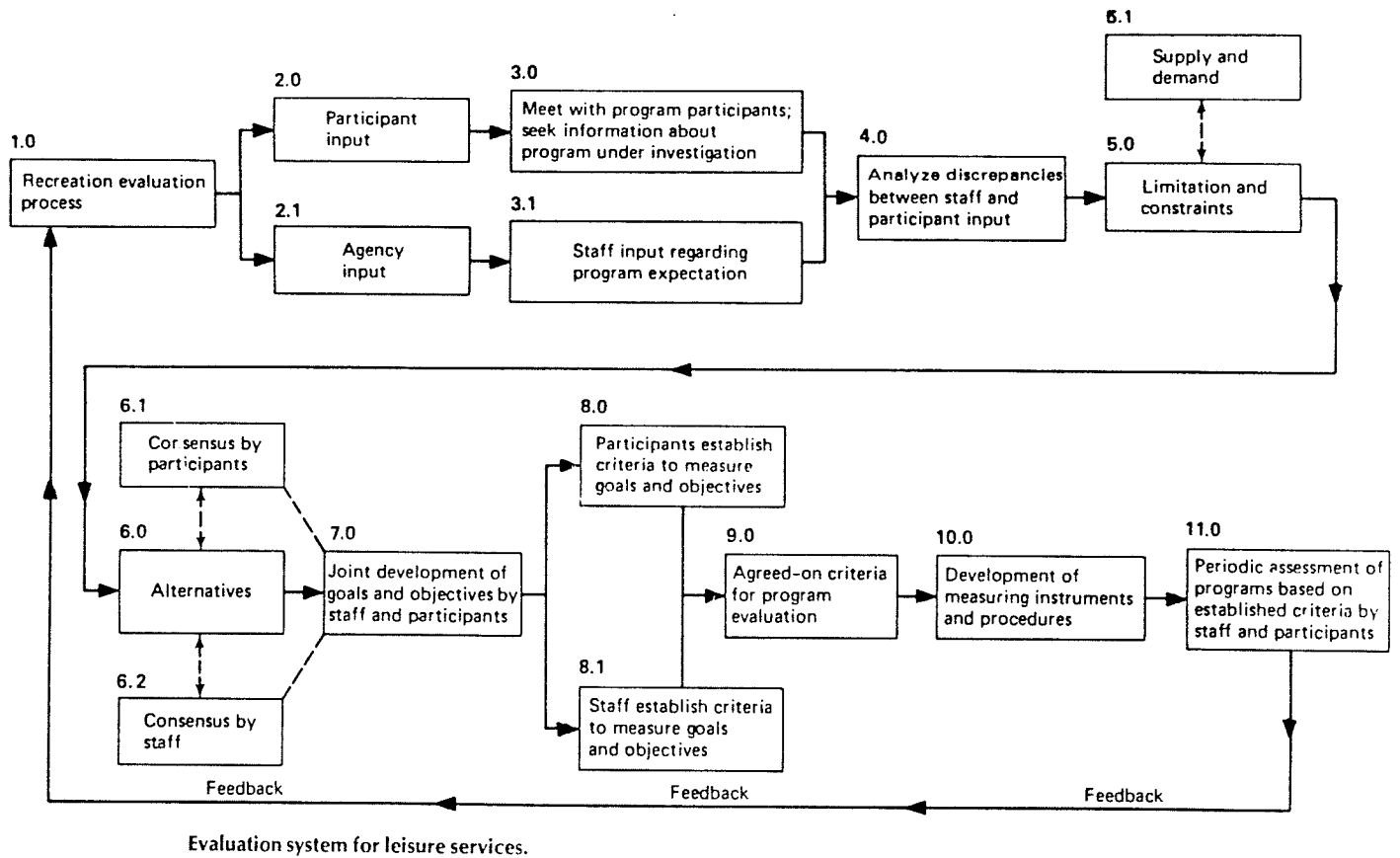


TABLE 2: Evaluation System for Leisure Services

Source: Margaret Roberts, An Introduction to Town Planning Techniques, 1975.

reflect the original proposals then the goal and policies should be flexible enough to accommodate the changes which have taken place in the community.

Policy determinants focus on the determinants of other location criteria as well including the criteria of finance. With respect to recreation facility development, there should exist policies evaluating the implementation of user-fees and concession royalties to generate recreation revenue. There should also be an attempt made to ensure that local governments are aware and subsequently take advantage of all non local sources of assistance. This should not only include assistance from senior levels of government, but also the availability of private investment for site acquisition and the development of a public recreational facility.

Secondly, there should be policies directed towards the development of recreation opportunities at the neighborhood level. There should exist "priorities which recognize the location of potential users when considering new recreation land acquisition"⁴². Similarly, in heavily developed and populated areas consideration for the use of closed streets, water supply reservoirs and parking lots of recreational and non-recreational facilities should be considered.

Thirdly, once the location for a recreational facility has

42 Seymour Gold, "Recreation Planning and Design", Appendix J, p.301.

been found, policies should be put into place so that the facility will be fully utilized. This utilization assurance must come with policies that encourage people to use the facility by allowing patrons to take part in choosing the types of activities and programs. There should also be coordination between the planning of the facility and public transit authorities to ensure adequate and equal access to and from the facility. Other policies that should be established are ones that encourage full utilization through, cooperation between patrons and police department for on going facility supervision and crime prevention. There should also be trained staff available to help the elderly and handicapped peoples so that they to can fully utilize the facility.

Policies should also be established that will ensure appropriate and responsive facility development through the use of sound planning techniques. This includes the employment of professionals to plan the location of facilities, the recreation services of the facility, and to insure that this process is a continuous and flexible one so as to address future change. Similarly, the development and implementation of the plan must be coordinated so as to ensure realistic and pragmatic plans which can best meet the identified needs of the community, city or region.

Finally, to ensure the formulation of effective policies there must exist a certain amount of coordination between

all parties involved in the delivery of recreation services. This includes, park and recreation departments, schools, and other private and public providers. By coordinating such groups, all interested parties will be cognizant of potential development sites and facility proposals there by eliminating any confusion of location and type of facility to be developed.

Though the implementation of policies govern the recreation site once it has been completed, understanding and formulating policies before this stage can help in the location process. Thus, the policy criterion and its determinants constitute of a very large part of the location decision process.

4.5.3 Finance

Perhaps the predominant underlying factor behind the decision to construct a recreational facility or any type of facility is the availability of funds. Even when all the other factors surrounding the locational decision and development of a recreational facility are put into place, the facility will not be constructed unless there is the financial capacity or financial will to see the project started and proceed to term.

When considering the construction of a publicly financed recreational facility the main financial resource available rests in the municipal tax base.

Appropriation of funds from general tax revenues are allocated to all municipal departments from which each department projects their expected expenditures for delivery of their service. The City of Winnipeg's Park and Recreation Department submits a budget from which a prioritized list of capital expenditures is outlined for the coming year. Small scale capital works can usually be covered by the yearly budget receive (approx. 11% of the municipal tax base goes to the Parks and recreation Department). However in the case of large scale facilities additional financial support must be obtained from other sources (Winnipeg Arena Expansion Appendix B). This other financial support for public facility ventures, most often come from the other levels of government (i.e. Provincial and Federal Governments)

Other financial determinants which must be taken into consideration, when planning recreation facilities, are the associated costs required for improvements to proposed sites. These financial considerations are a extension of the criteria determinants which have been identified as possible location constraints. This would include improvement costs to such things as hard services or street construction which may turn out to be to costly, thus influencing the decision to chose a particular parcel of land for the development of a recreational facility.

The provision of recreational facilities through public

sector financing, is for the most part, bound by the recreation departments annual budget. However the private sector can be seen as a financial determinant in itself. The private sector seems to have the ability to generate financial support and in turn have access to funds which can be fully designated towards the development of recreational facilities. Considerations for private involvement in recreation facilities must be considered when developing this financial criteria. The private involvement may take on two roles. The decision on the location and development of a recreation facility may either be exclusively financed through private investment, or financed through a quasi private-public financial agreement. The later financial arrangement would be a joint financial plan for the financing of such facilities.

The financial criterion, for the most part, dictates where a recreational facility will be located. This is especially so when talking about a large scale recreational facility. A cost benefit analysis process should also take place to identify how each of the determinants within the financial criteria will fit into the overall decision process for the location of a large recreational facility.

Finally, the fiance criterion should recognize what the short and long range plans are for facility construction in the city, region or community. The forecasting for capital construction must be considered to ensure investment in new

projects will not be in contravention of an already established city plan or that the proposed facility is viable in terms of profit and sustainability.

4.5.4 Location

The location criterion essentially relates to the physical attributes or amenities associated with a specific site. Therefore the complexities of social issues are not a consideration at this point.

The determinants associated with location relate primarily with the issue of availability. In terms of developing a recreational facility at a specific site or location, "the site should be free from substantial buildings and readily available in terms of acquisition"⁴³. This will ensure that demolition costs of existing buildings will be limited, and that acquisition of the property is available in terms of its zoning status and any restrictions or variances attached of the said piece of property. The proper zoning attached to the area of land is essential, and in the case of Winnipeg the site should be zoned C2 (commercial) or M1 (industrial), or can have a zoning variance put into place to make the site acceptable for the development of a recreational facility. However, the zoning for recreational facilities may be acceptable without a C2 or M1 zoning depending on the size of the facility and if the facility is

43 Ad Hoc Arena Expansion 1980, p.4.

commercially orientated.

The size of the area of land must also be closely considered. The site must not only be large enough to have the facility built on it, but the site must also be large enough to support peripheral services such as on-site parking for patrons. This includes available parking which may already exist within close proximity, walking distance, of the available site.

When considering the development of a large recreational facility within an urban setting transportation and hard services are considered as major determinants within the location criteria. Due to the amount of traffic a large recreation facility may generate at any given time, the location must have access to major arterial routes. Similarly, public transit routes must provide adequate services to the location. Any improvements to roadways, in regards to location access and intersections, or increasing transit routes to service the site should be identified as possible constraints associated with the proposed site.

Providing services to the site has a significant influence on whether a site should be deemed adequate or not. Since a large recreational facility will increase the burden on the service amenities, the adequacy of the existing services to handle an increased load should be closely studied. " The site should be serviced by adequate underground utilities

including land drainage, sewer and water"⁴⁴. Similarly, any service improvements which may be required to increase its capacity should be identified as possible constraints associated with the site location.

Finally, the issue of geographical location must be taken into consideration. Since the development of a large recreational facility provides a city wide or regional attraction, its location should be central. This determinant, in most cases, is of limited usefulness given the fact that most centrally located urban land is either developed or unavailable. This limited usefulness coupled with the other determinants associated with location criteria makes the application of this determinant somewhat unrealistic.

The determinants associated with location criteria as outlined above, provides a general set of locational determinants which can be followed when considering sites. The location criterion, in most cases, deals with a more precise set of determinants through the use of precise measurement of the sites size, transportation modal-split, and service capacity. However, it does not stand alone in the location determination, but is to be used in conjunction with the other three criteria forming the basis from which a decision will be made on the optimum location of a large recreational facility.

44 Ibid., p.4.

4.6 Summary and Conclusions

The identification and calibration of the model criteria remains the most critical stage in the model development. It is important to try different types of models to ensure that the model chosen is the right model for the type of study being undertaken.

Collectively, the four criteria identified provided a general basis for developing location criteria. The two tier model helped to translate the four criteria and their subsequent determinants into a workable site selection format.

PART II:

WAVE POOL IMPLEMENTATION: A CASE STUDY

CHAPTER 5

WAVE POOL CASE STUDY

5.1 Introduction

The second part of the study is concerned with identifying specific sites which would best suit the development of a Leisure Pool facility.

Within Part II, the criteria determinants will be calibrated to fit the city of Winnipeg. Once the calibration process has been completed, five specific sites within Winnipeg will be subjected to the Cross Impact Model. Finally, the second tier of the model, a Site Evaluation Model, will be used to numerically rank each of the proposed sites identifying the best location for a leisure pool facility.

5.2 Structured and Unstructured Pools

The availability of pools for competitive swimming is more than adequate. However, the availability of alternative pool facilities (i.e. leisure pools) are not as readily available to the public. The opportunity for the community to gain access to traditional pool facilities for the purpose of leisure activities is limited due to facility programming and equipment availability.

The capital cost for the construction of a leisure pool is

higher than traditional pools. However, leisure pools have shown to operate more efficiently by "reducing the over all life cycle costs of a facility and reducing in turn the net public subsidy per swim"⁴⁵. This is because the leisure pool does not have to be maintained as a competitive swimming facility and that a leisure pool attracts a larger cross-section of the population due to the unstructured and social environment created.

Presently, the traditional pools have a rectangular design with "sterile white tank and wall finishes, with pool acoustics which creates many problems"⁴⁶. These designs, along with minimum deck space, provided the patron with only one option, either to swim or leave the pool area. This creates a negative attitude towards the use of such traditional pools by people who want a more relaxed social atmosphere than the one available at these facilities. Similarly, since most traditional pools cater to competitive forms of swimming, the demand for prime time hours (4:00 - 9:00pm weekdays) is high among organized swimming groups, thus leaving the casual user to utilize the pool outside prime-time hours.

Hence, although the City of Winnipeg is considered to have an adequate amount of swimming facilities, today's trend in swimming has moved towards a more recreational form,

45 City of Winnipeg Parks and Recreation Department Major Facility Study Update, 1989.

46 Ibid. p.11.

where the social atmosphere is taking dominance over just participating in actual swimming. This translates into the need for new pool designs which provide a more unstructured and leisure orientated atmosphere.

5.3 Leisure Pools: Case studies

Before a facility is proposed, regardless of the type, there has to be a justifiable need for that facility. This justifiable need is based on excepted standards within the community and other communities. These standards are compiled through the use of surveys and methods such as population ratio or area percentage methods which provide information to the planner who in turn project the need for certain facilities. The city or a developer, along with the community, must express the need for a facility to make it a viable one.

Along with the identification of need, there should be the availability of funds provided to the facility to fill that need. The financial aspect is the most dominant criterion in the development of an indoor swimming pool. However, even if funds are available, there are several additional criteria to consider before the development of a leisure pool. This includes, along with the four main criteria, the issue of political will, demand and need. These additional criteria will help to identify the optimal location for such a facility within a specific community.

Other Canadian cities of a similar size to Winnipeg, have constructed innovated leisure pools. These pools provide a combination of attractions including water slides and the use of the Wave Pool technology which simulates waves.

Hamilton constructed its leisure pool in 1983 at a cost of 3.1 million. In 1987, the operating costs were \$396,350.00 with net revenues of \$539,506.00. Initially attendance was high especially on "hot sunny summer days". However it slipped from 125,00 in 1983 to 98,000 in 1987. This was attributed to both increased competition, which may relate to the novelty wearing off, and "lack of additional attractions".

Calgary has constructed 2 leisure pools one in 1981 and one in 1982 with a combined capital cost of \$22 million. Initially, the recovery rate (recovery rate is the percentage of the operating costs which can be covered by incoming revenue) was projected at 80%, however low attendance rates have placed the recovery rate at 65% instead.

Both cities have expressed disappointment with the recovery rate and attendance of their leisure pools. Although initial attendance rates were good, increased competition for the entertainment dollar and from other similar facilities, along with the lack of additional activities offered at the facilities, such as water slides,

saunas or whirlpools, has lead to lower than anticipated use.

In spite of the fact these facilities have not lived up to their expectations, and are seen as to costly, they serve a vital service to a societal trend towards facilities which provide a relaxed unstructured atmosphere. Therefore "even if leisure pools were not more financially efficient, they are justified by the fact they serve a broader cross-section of the public"⁴⁷.

47 Ibid. p.14.

5.4 Applying the Model to Winnipeg

5.4.1 Overview of Method

The model used in the practicum is a two tier model which included a Cross Impact Model and Site Evaluation Model.

The Cross Impact Model was used to identify the relationships amongst the criteria determinants which were specifically calibrated to Winnipeg. While the Site Evaluation Model was used to rank potential sites based on the deficiencies identified in the previous model

Four specific criteria were identified and placed into the Cross Impact model. Within each of the four criteria, specific determinants were identified and then calibrated to specifically fit Winnipeg characteristics.

Once the calibration of the criteria had taken place, the cross impact model was applied to four potential Winnipeg sites. The model, which pitted each determinant with each other, helped to identify the deficiencies present within each of the four sites.

Once the deficiencies had been identified, for each site, they were applied to the second tier of the model.

Based on the deficiencies identified through the use of the cross impact model, the Site Evaluation Model was used to convert the those deficiencies into a numerical scoring

system.

The purpose behind the second model is to numerically rank each site to more easily identify which one will be the optimum location.

The evaluation model accomplishes this by allowing a score to be issued to each criteria determinant, which is then added together providing a ranking score.

This two tier model accomplishes two main objectives. First it helps to identify the deficiencies present at potential sites, through the identification and comparison of criteria determinants; and secondly it provides a numerical ranking system of sites making the selection of potential sites more easily.

5.4.2 Calibration of Model Criteria

The following definitions have been applied to the model criteria and their determinants. It should be noted that the criteria determinants presented below are calibrated to Winnipeg's specific or unique characteristics (Matrix table 3) and may not necessarily apply to other urban areas.

Similarly other cities may have to incorporate criteria determinants which don't exist in Winnipeg's criteria determinant profile. Specific or unique characteristics, such as ethnicity, different political agencies, and past traditions may influence the type of criteria determinant a

Winnipeg Region Cross Impact Matrix

Major Impact

Slight Impact

Criteria		Determinants		Social Issues	Policy	Finance	Location									
		Participation	Crime	Traffic + Safety	Design/Aesthetics	Programs	Joint-Facility Use	User-fee Equity	Site Cost	Service Costs	Transit Cost	Government Grants	Land Availability	Zoning	Transit Accessibility	Services (Sewer, Water, etc)
Social Issues	Participation															
	Crime	X														
	Traffic + Safety	X														
	Design/Aesthetics	X														
Policy	Programs	X	O	O												
	Joint-Facility Use	X	X													
	User-Fee Equity	X	X													
Finance	Site Cost								O							
	Service Cost								X							
	Transit Cost			O	X		O		X							
	Government Grants	X			X				X							
Location	Land Availability								X							
	Zoning		X		X				X							
	Transit Accessibility	X	O	X					X						O	
	Services (Sewer, Water, etc)								X						O	X

TABLE 3

city may have to incorporate in order to develop a true representation of the city.

It is therefore the calibration procedure in the first tier of the model which will ensure that the required criteria determinants for a specific city or region are fully represented.

Social Issues: The social issues regarding the location of a Leisure Pool will be concerned with realizing specific site conditions.

Community Participation - This determinant relates to the amount of participation the facility could generate if a facility were to be developed at a specific site. (This could be influenced by resident advisory groups or through Winnipeg's Joint Use Facility Program).

Crime - This factor relates to the possibility of increased crime at the location facility is to be developed. The focus would be on crimes such as theft and vandalism. This also includes the potential to reduce the possibility of increased crime with programs such as Neighborhood Watch.

Traffic Safety - This covers issues of potential increases in traffic within the vicinity of the proposed facility site, as well as traffic safety. This relates to major arteries and collector routes, as well as the type of transit available in Winnipeg (bus).

Design/Aesthetics - the issue of aesthetics looks at the type of facility and how it will fit within the community in both summer and winter.

Policy: The policy criteria has been developed to identify how the over-all City of Winnipeg Plan influences the location of recreational facilities. Policies related to Plan Winnipeg and its Recreation section have been taken into consideration.

Programs - This relates to the availability of programs provided by the city which may be applied to the facility if it were to be developed at a particular site. This would include local community programs, such as Neighborhood Watch, or programs such as Core Area Initiative and Community Improvement Programs.

Joint-Facility Use - This issue relates to the possibility of implementing the City of Winnipeg Joint-Use Facility Program in the development of a Leisure Pool facility.

User-fee Equity - This focuses on the issue of establishing user-fees which are acceptable to all residents of the city.

Finance: The financial criteria outlined are directly related to the availability of funds which maybe needed to cover the cost of developing the site. The funds required to cover the cost will come from either municipal tax revenues or through private interests, including service groups, and Winnipeg Community Centers.

Site Cost - This relates to the cost of the site before it can be used for development.

Service Cost - This relates to the cost of up-grading or adding sewer, water and drainage at the site. With Winnipeg's flat terrain, drainage could be costly.

Transit Cost - Relates to the additional cost that may exist in providing adequate public transit to the site. This would include regular bus service and handi-transit service.

Governments Grants - This determinant looks at potential grants that may be available for site and facility development, from either the Provincial or Federal Government.

Location: The location criteria was established to determine the optimum site for the development of a Leisure Pool facility.

Land Availability - This determinant will look at the city's or developer's ability to obtain the property, which may include land exchanges between developer and city.

Zoning - This focuses on the type of zoning placed on the site as well as the potential to have the zoning of the site changed.

Transit Accessibility - The existing transit service to the proposed site and the potential to expand service to the site.

Services (water, sewer, etc.)- The existing services at the site and the ability to provide the services

5.4.3 Site Evaluation Criteria

The criteria developed has been subjected to a Site Evaluation Process which is based on a 6 point scale, where 6 will be a high rating and 1 being a low rating. There will also be a non-applicable category N/A. This comprises the second tier of the model.

Once the evaluation criteria has been applied to each of the sites, the scoring will then be represented within a Scoring Matrix (Appendix G 1) which will help identify the best possible site for the development.

Site Evaluation Table:

I. Social Issues

A) Community Participation

High	6
	5
	4
	3
	2
Low	1
	N/A

B) Crime Potential

Small	6
	5
	4
	3
	2
Large	1
	N/A

III. Finance

A) Cost for Site

Small	6
	5
	4
	3
	2
Large	1
	N/A

B) Cost for Services

Small	6
	5
	4
	3
	2
Large	1
	N/A

C) Traffic Safety

High	6
	5
	4
	3
	2
Low	1
	N/A

D) Aesthetic Quality

High	6
	5
	4
	3
	2
Low	1
	N/A

II. Policy

A) Available Programs

High	6
	5
	4
	3
	2
Low	1
	N/A

B) Joint Facility-Use

High	6
	5
	4
	3
	2
Low	1
	N/A

C) User-Fee Equity

High	6
	5
	4
	3
	2
Low	1
	N/A

C) Transit Costs

Small	6
	5
	4
	3
	2
Large	1
	N/A

D) Potential for Grants

High	6
	5
	4
	3
	2
Low	1
	N/A

IV. Location

A) Existence of Services

High	6
	5
	4
	3
	2
Low	1
	N/A

B) Transit Availability

High	6
	5
	4
	3
	2
Low	1
	N/A

C) Centrality

High	6
	5
	4
	3
	2
Low	1
	N/A

D) Utilization

High	6
	5
	4
	3
	2
Low	1
	N/A

D) Zoning Potential

High	6
	5
	4
	3
	2
Low	1
	N/A

5.5 Potential Site Evaluation

The following sites within the City of Winnipeg are seen as potential areas for the development of a Leisure Pool facility. Each of the sites are considered as being acceptable with respect to the development of a regional type facility.

The optimum location will be selected, (if it exists), by applying the Model and its subsequent criteria to each of the sites and then evaluating how each site responds to the prescribed criteria. There were four sites which were analyzed and evaluated.

5.5.1 Portage Ave. West and Perimeter Highway

This parcel of land consists of 216 acres which is currently owned by the Red River Exhibition Association. The land lies just west of the Assinaboine Downs (figure 10).

Social Issues:

Presently this area of land lies outside the urban limit line and therefore is not part of The Plan Winnipeg

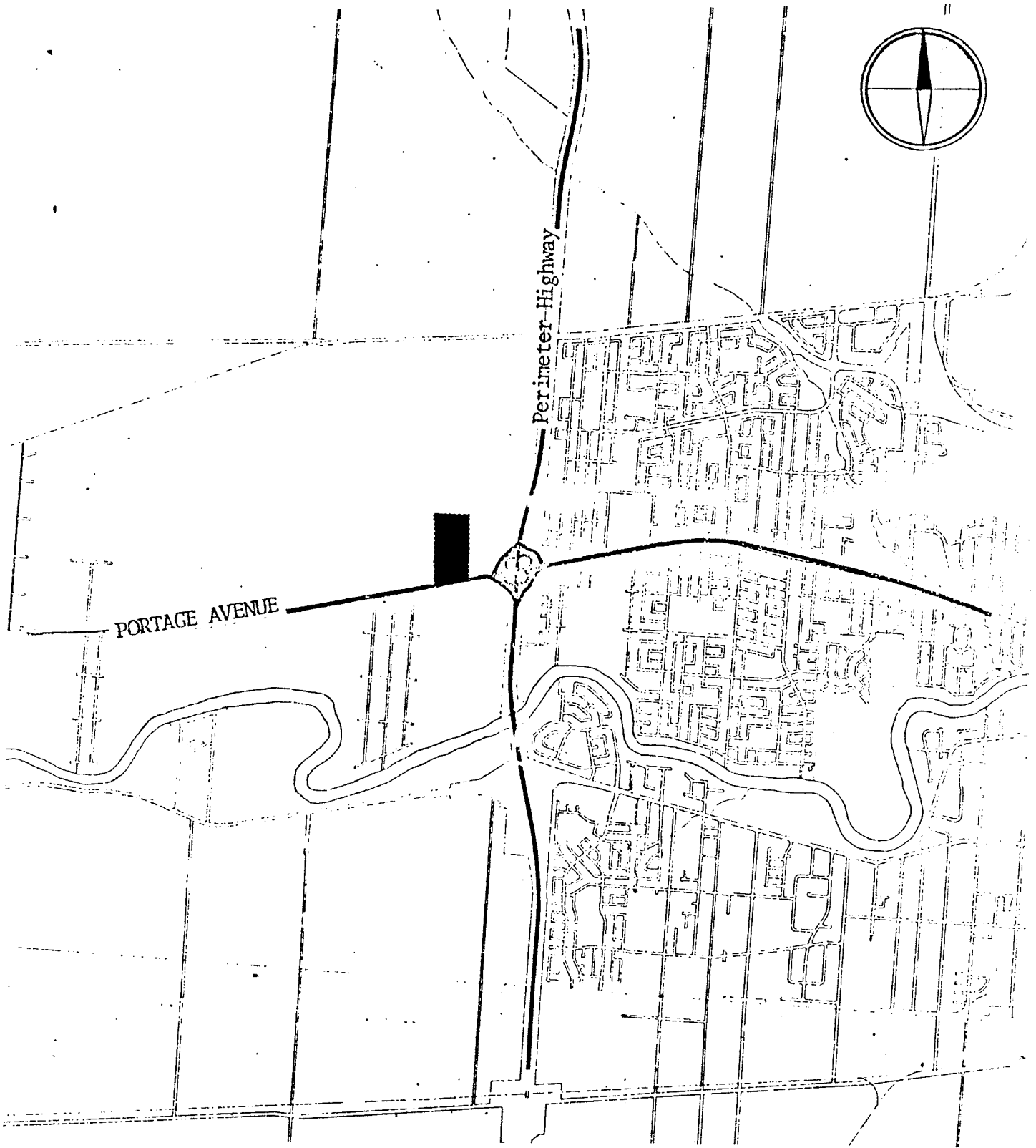


FIGURE 10

recommendations. There is also no residential development to the west of the site and though there does exist intensive residential development to the east, this area is divided by the perimeter highway, thus isolating the site. Therefore this may reduce the amount of citizen participation due to the limited amount of immediate residential development.

Crime in the area would not be viewed to increase within the surrounding communities if the facility were developed because of the division created by the perimeter highway. However vandalism to the facility may become a problem due to its isolation from the surrounding communities.

Both safety and traffic should not directly effect the communities east of the site. The traffic would utilize both Portage Avenue and the Perimeter Highway which are both major arterial routes and would therefore provide adequate access to and from the site.

Similarly since Portage Avenue already acts as a barrier between communities, to the north and south, a minimal increase in traffic would not lower existing pedestrian safety standards.

Finally since the site is not located directly adjacent to any residential housing the facility would not be aesthetically displeasing to the immediate area around the site. Similarly, it may serve to complement the Assinaboine

Downs and any type of facility the Red River Exhibition Association may propose in the future.

Policy:

Since the site is located outside the city limits it may not come under the city's joint-use facility program between the schools and community centers. However there should be a program put into place which can insure full utilization of the facility by involving the surrounding community centers and schools.

The issue of user fees may be of some concern to citizens located outside the immediate site. If the user-fees are established based on the communities located adjacent to the site (Bucanan and Glendale) it may not indicate the ability to pay by citizens within other areas of the city. This is due to the over-all yearly income the citizens in these areas make (average family income 25,000.00 to 27,000.00 1981 Stats Canada).

Finance:

Financially, the acquisition of this site and subsequent development of the facility will be a costly venture. The Red River Exhibition Association has indicated that they would be willing to part with a portion of the site to facilitate the development. However the cost for the parcel of land was not indicated.

The City of Winnipeg would have to receive additional

funding for the development of such a large facility. This would require assistance through the Community Improvement Program which sees capital cost funds coming from the three levels of government. This site, though outside the City's Development Plan should still be eligible for CIP funding.

The site, however will require the installation of all hard services. There does not exist any sewer service, city water service, or gas service at the site because it is still zoned agricultural land and lies outside the urban limit line. The site will also be required to construct a road way for means of access to the site, and means of egress from the site.

Location:

Presently the site is zoned both Agricultural "A" and Highway Commercial District "C3" which will both allow a recreational facility to be constructed as a conditional use. The size of the site is adequate and it has been made available by the Red River Exhibition Association.

The distance of the site from the surrounding communities is not far but it is separated by the Perimeter Highway which will make pedestrian traffic to the site near to impossible. Similarly, the transit service is very limited with buses running on a limited Sunday schedule during the weekdays. Therefore the need for increased bus service will be needed.

Access to the site by automobile are limited to either the Perimeter Highway or the Portage Avenue Corridor. However because both these routes are seen as major arteries it may provide easier access to the site by people from other parts of the city. But the fact remains that the site is not centrally located with respects to other districts of the city and may deter people who live across town to come and utilize the facility. (See Matrix Table 4)

5.5.2 Polo Park (Alexander Park)

This site is located just east of Polo Park Shopping Center and the Winnipeg Arena/Stadium Complex. Presently the site is home to the Alexander Park Soccer field and Velodrome. The site is 5 acres plus. (Figure 11)

Social Issues:

Just east of the site is located Winnipeg's West End District, which is a fairly heavily populated area. Therefore it is assured that there will be a considerable amount of citizen participation with regards to the type of facility being proposed for the site. This will therefore require increased communication between the communities the developers and planners.

With the existence of both a large shopping center and two major recreational facilities, the proposed leisure pool facility type would not seem to be out of context with the surrounding aesthetic quality.

Portage Ave. + Perimeter Highway
Cross Impact Matrix

Major Impact

Slight Impact

Criteria Determinants		Social Issues				Policy			Finance			Location				
		Participation	Crime	Traffic + Safety	Design/Aesthetics	Programs	Joint-Facility Use	User-fee Equity	Site Cost	Service Costs	Transit Cost	Government Grants	Land Availability	Zoning	Transit Accessibility	Services (Sewer, Water, etc)
Social Issues	Participation															
	Crime	<input checked="" type="checkbox"/>														
	Traffic + Safety	<input checked="" type="checkbox"/>														
	Design/Aesthetics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													
Policy	Programs	<input type="checkbox"/>	n/a													
	Joint-Facility Use	<input type="checkbox"/>	n/a													
	User-Fee Equity	<input type="checkbox"/>	<input type="checkbox"/>													
Finance	Site Cost							<input type="checkbox"/>	n/a							
	Service Cost							<input type="checkbox"/>								
	Transit Cost		<input type="checkbox"/>	<input checked="" type="checkbox"/>		n/a										
	Government Grants	<input checked="" type="checkbox"/>														
Location	Land Availability							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
	Zoning		<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			
	Transit Accessibility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		
	Services (Sewer, Water, etc)							<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		

Major Deficiencies:

1. Programs - not eligible for City Grants
2. Joint-Facility Use - not eligible
3. Service Cost - no City services available
4. Transit Cost - limited bus service
5. Service Availability - limited
6. Centrality - located outside City limits

TABLE 4

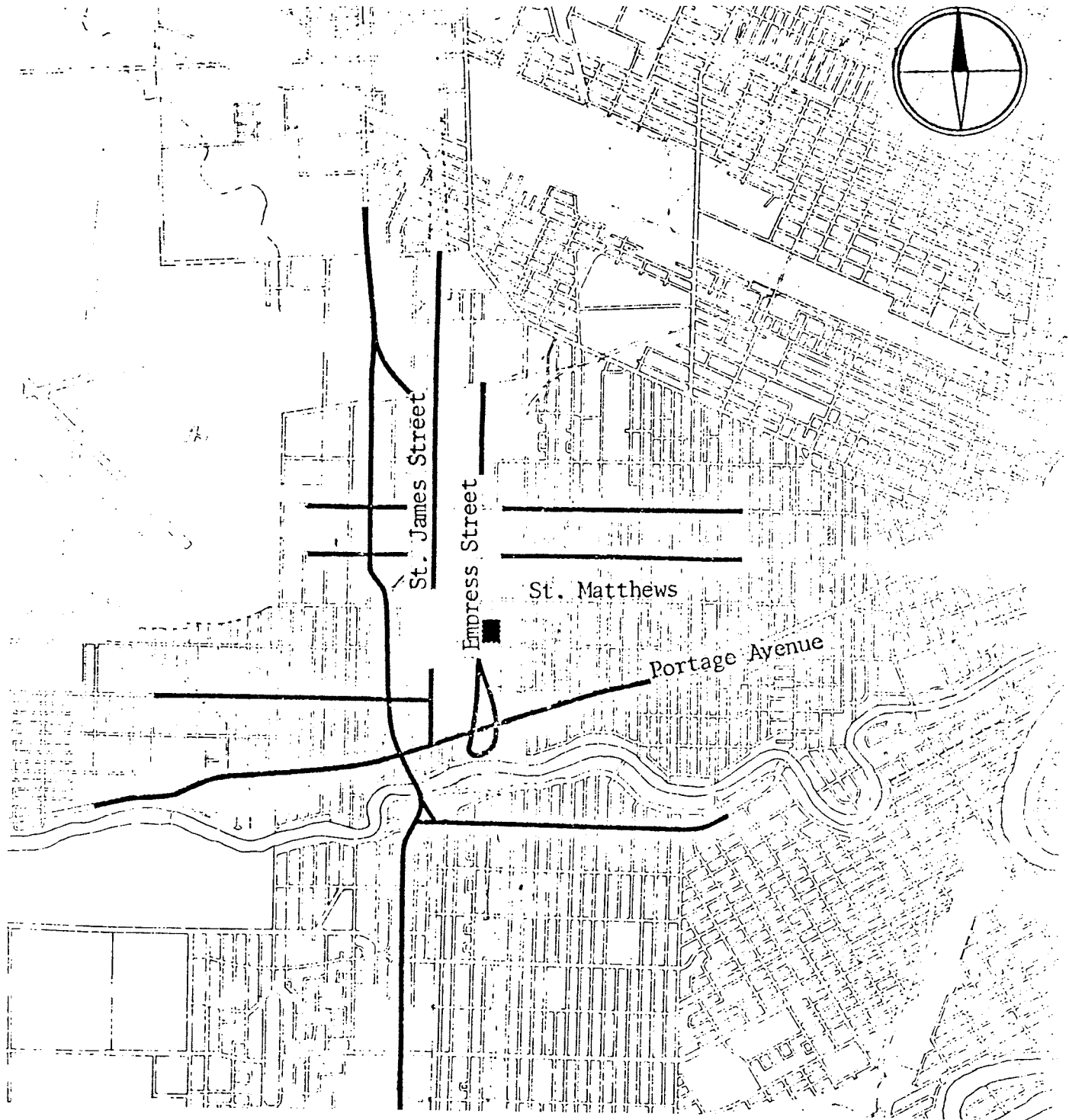


FIGURE 11

The reduction in safety with regards to increased traffic is not seen as a major problem due to the nature of the facility which will not create large traffic problems as do the Arena and Stadium at the end of games.

However, there may be some concern with respect to increased crime. The potential for increased vandalism is a legitimate concern due to the added pedestrian traffic this recreational facility will generate. Both vandalism to the facility and automobiles may be a concern. However vandalism to the surrounding homes is not seen as a major concern because of the barrier between the facility and the homes created by the Midland Rail Line and Olmands Creek.

Policy:

This site comes under Plan Winnipeg and is subjected to the recommendations outlined by the document. Since the facility is seen as a regional one, agreements between the Winnipeg school divisions and the facility, with some negotiations, may be established.

Policies for the rate of user-fees should show more equity considering the site is located on the fringe of the cities core area (Minto), and therefore should reflect the residents ability to pay.

The ability to realize full utilization of the facility in this location, will be to encourage community participation

in both crime prevention and safety around the facility. There should also be an effort made to inform the surrounding community and region of what the facility has to offer, in terms of programs and activities.

Finance:

The site will not require any additional cost for the implementation of hard services for water, drainage, or sewer. There would be a cost however for the removal of the soccer field and its grand stands, as well as the removal of the Velodrome.

This site is adequately serviced by city transit and therefore would not require the addition of extended services, thus eliminating service expansion costs to the site.

The city would utilize funds from the Community Improvement Program and from the general tax base. There may also be additional funds from the Core Area Initiative, if it could be shown that the facility developed at the site could benefit the core area as a whole..

The site is presently owned by the city therefore there would be no cost associated in acquiring of the site.

Location:

The location of the site provides some transportation advantages to people who drive or who use the city

transportation services. Access to the site is possible from Portage Avenue, St. James Street, Ness Avenue, Empress Avenue and Ellice Avenue. All routes provide regular transit service.

All hard services exist at the site and should be adequate to service the development of the proposed facility.

The location of the site is next to the city's largest shopping mall, Polo Park, providing a large consumer base which could create significant user-ship of the proposed facility. Presently the site is zoned "C3" which permits a recreational facility. (See Matrix Table 5)

5.5.3 Lagimodiere and Springfield Road

This site is located at the north east corner of Springfield Road and Lagimodiere Blvd. This parcel of land is part of the old North East Landfill site, which is now a new park site which lies on some 87 acres. (figure 12)

Social Issues:

The site is located in an area which has realized increased residential development over the last 10 years, especially west of Lagimodiere Blvd. The local participation in this area would be high based on the communities past input with regards to the development of the Harbour View Golf Course and Recreation Complex.

Polo Park (Alexander Park)
Cross Impact Matrix

Major Impact

Slight Impact

Criteria Determinants		Social Issues				Policy			Finance			Location				
		Participation	Crime	Traffic + Safety	Design/Aesthetics	Programs	Joint-Facility Use	User-fee Equity	Site Cost	Service Costs	Transit Cost	Government Grants	Land Availability	Zoning	Transit Accessibility	Services (Sewer, Water, etc)
Social Issues	Participation															
	Crime	<input checked="" type="checkbox"/>														
	Traffic + Safety	<input type="checkbox"/>														
	Design/Aesthetics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													
Policy	Programs	<input checked="" type="checkbox"/>	n/a	<input type="checkbox"/>												
	Joint-Facility Use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													
	User-Fee Equity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													
Finance	Site Cost						<input type="checkbox"/>	<input type="checkbox"/>								
	Service Cost						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
	Transit Cost		n/a	<input type="checkbox"/>		n/a		<input type="checkbox"/>								
	Government Grants	<input type="checkbox"/>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Location	Land Availability						<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	Zoning		n/a	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>			
	Transit Accessibility	<input checked="" type="checkbox"/>	n/a				<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			n/a			
	Services (Sewer, Water, etc)						<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				n/a	n/a		

Major Deficiencies:

1. Programs – not eligible for all Core Area Grants
2. Crime – may be a problem due to proximity to Polo Park

TABLE 5

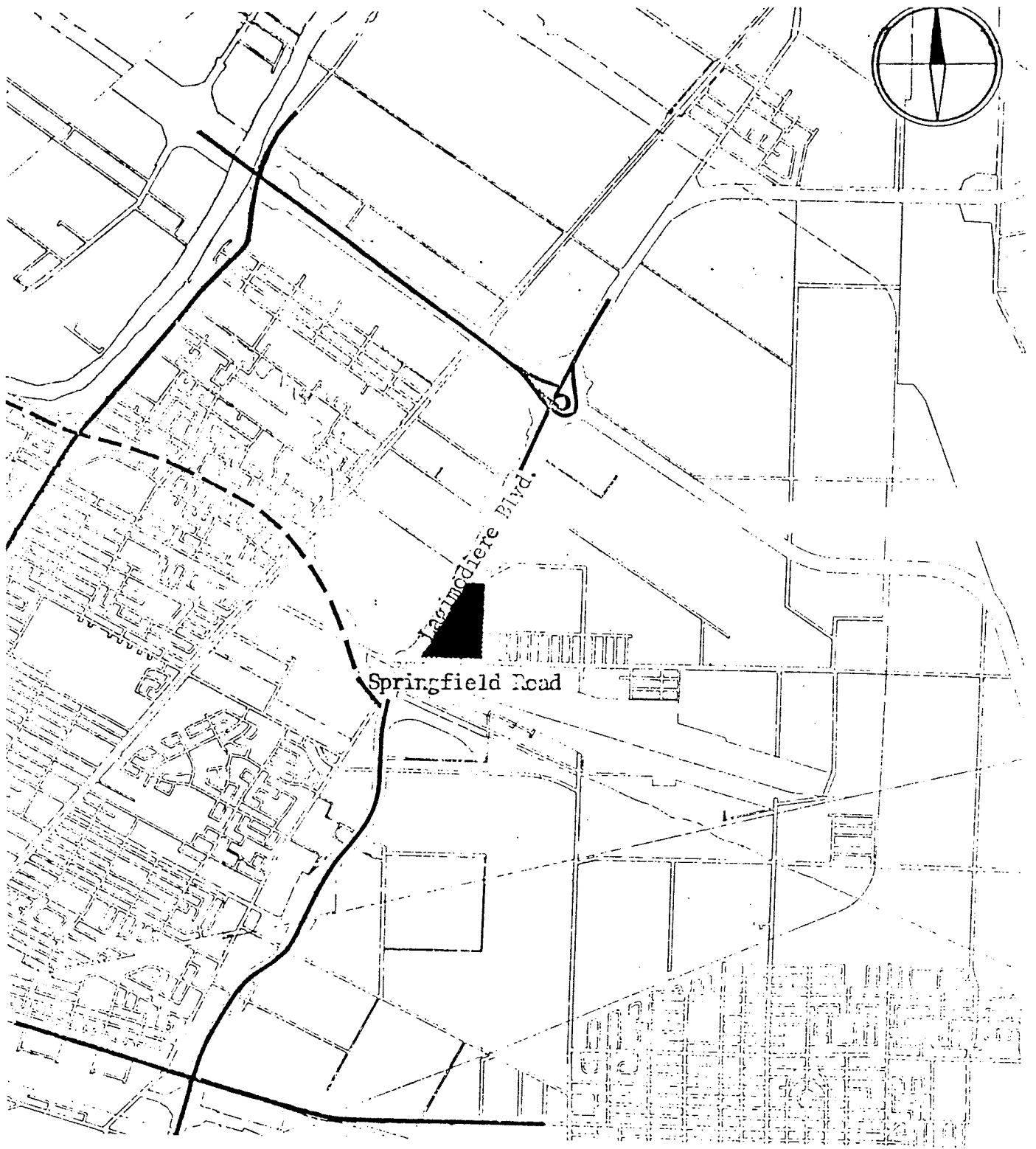


FIGURE 12

The location of the site does not lend itself to safety problems with regards to increased traffic because immediate housing development does not exist around the site nor will it be allowed. Although the crossing at Lagimodiere Blvd. will increase with pedestrians attempting to get to the facility.

The possibility of increased crime in the surrounding neighborhoods does not seem likely because the site is separated from the neighborhoods by retention ponds to the north, railway tracks to the south and Lagimodiere to the west. However like the Portage Avenue and Perimeter site there may be the potential for increased vandalism because of the site being slightly isolated.

Aesthetic quality of the facility may be a concern for the surrounding community, thus citizen participation with regards to the type of facility would be an issue.

Policy:

The issue of user-fee equity may be of some concern if the facility is developed at this site. This may be related to the already existing Harbour View Golf Course and Recreation Complex which would share the same piece of property and may want the user-fees of the new facility to help subsidize some of the costs of the Harbour View facility. Therefore a separate user-fee agreement would have to be reached between each of the facilities separately.

Policies for a community crime prevention program should be instituted because of the slightly isolated location of the site which may contribute to increased crime such as vandalism.

This site would be under the jurisdiction of the Plan Winnipeg document and therefore would have to subscribe to the recreation policies outlined in the Plan's recreation section.

Finance:

There would be no cost to the city for obtaining the property since the city owns the site. The site is also serviced by both water and sewer and has the drainage problem for the site resolved through the existence of a retention pond.

There may be an increased cost incurred through the extension of bus service to the site which at present is limited. Access to the site by personal vehicles is seen as adequate with Lagimodiere Blvd., however Springfield Road would have to be up graded to addresss increased traffic flows.

Financing for the facility would come from both the Community Improvement Program and from the City's general tax fund. However costs associated with the development of the facility may be recovered more quickly through a joint user-fee agreement between the existing complex and the

proposed facility to help off-set the initial capital costs.

Location:

This site is located within an area which is under increased development, but for all intensive purposes can be seen as being located outside the city. Access to the site is possible through the use of one major route that being Lagimodiere Blvd. Similar to the Portage Ave. and Perimeter Highway site, the Springfield site has the benefit of providing access to other areas of the city through the use of the Perimeter Highway and Lagimodiere Blvd.

The site, however is not centrally located and with the limited bus service it may deter people from coming out to the facility.

The site is also not zoned for the development of a recreational facility and at present is zoned "PL" Park/Landfill. To change the zoning from "PL" to a zone which allows the development of a recreation facility may be a problem. This is due to the community out cry that arose with the changing of the zoning to facilitate the development of the Harbour View Complex. (See Matrix Table 6)

5.5.4 Kenaston Blvd. and McGillivray Blvd.

This parcel of land is located in the south west part of the city just south of the Lindenwoods Development and north of the Whyteridge Development. The site is located west of

Lagimodiere Blvd. + Springfield Rd.
Cross Impact Matrix

Major Impact

Slight Impact

Criteria Determinants

		Social Issues				Policy			Finance			Location				
		Participation	Crime	Traffic + Safety	Design/Aesthetics	Programs	Joint-Facility Use	User-Fee Equity	Site Cost	Service Costs	Transit Cost	Government Grants	Land Availability	Zoning	Transit Accessibility	Services (Sewer, Water, etc)
Social Issues	Participation															
	Crime	<input checked="" type="checkbox"/>														
	Traffic + Safety	<input checked="" type="checkbox"/>														
	Design/Aesthetics	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
Policy	Programs	<input type="checkbox"/>	n/a	<input type="checkbox"/>												
	Joint-Facility Use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>													
	User-Fee Equity	<input type="checkbox"/>	<input type="checkbox"/>			<input checked="" type="checkbox"/>	<input type="checkbox"/>									
Finance	Site Cost							<input checked="" type="checkbox"/>	<input type="checkbox"/>							
	Service Cost							<input type="checkbox"/>								
	Transit Cost		<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
	Government Grants	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Location	Land Availability									<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Zoning		<input type="checkbox"/>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Transit Accessibility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Services (Sewer, Water, etc)								<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Major Deficiencies:

1. Programs - not eligible for all Core Area Grants
2. Service Cost - service extensions will be needed
3. Transit Cost - service will have to be extended
4. Centrality - located at the out-skirts of the City
5. Zoning - will require variance to have zoning changed

Table 6

Kenaston Blvd. and north of McGillivray Blvd. which includes approximately 90 acres.(figure 13)

Social Issues:

The surrounding area has rapidly been developed in to a large residential development of affluent stature. This may reflect in the demand for a facility which is very aesthetically pleasing and one which fits in with the characteristics of the community.

Participation may be fairly high if the facility were developed in this area, based on the financial stability presented within this community. This participation in turn may assure that crime is not dramatically increased with the development of the facility because high participation levels within the community creates a greater community awareness.

Since the Lindenwoods site is located at the extreme southwest corner of the residential development, increased traffic within the area is not expected to create pedestrian safety problems. However the Whyteridge residential development which located on the opposite side of the site, crossing McGillivray Blvd., may require addition pedestrian crossing zones.

Policy:

The issues of programs and joint-facility use in this area will be similar to the Springfield Road and Lagimodiere

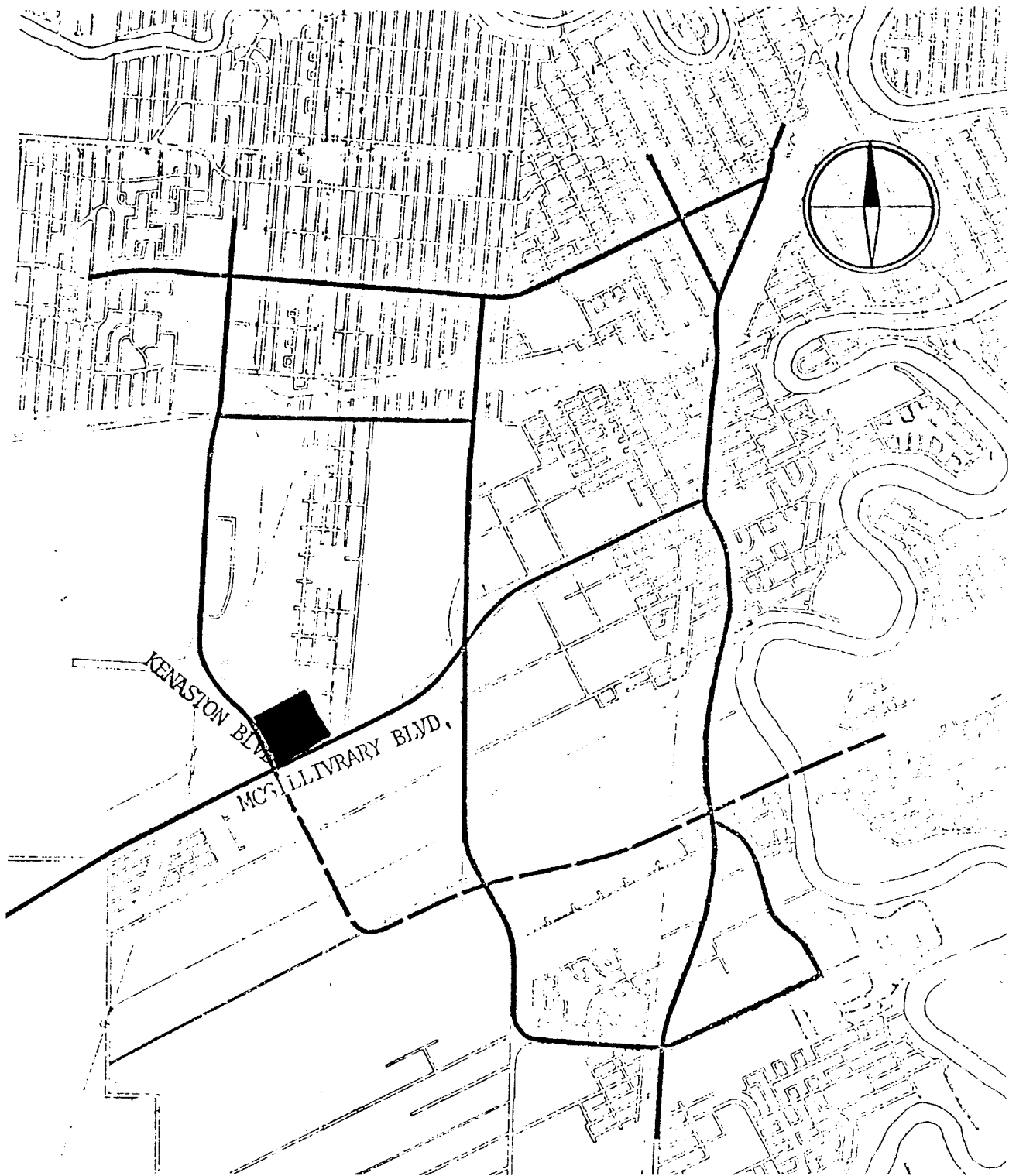


FIGURE 13

Blvd. site (5.3.3).

The user-fee equity issue may be of some concern if the facility is located at this site because of the higher economic standing present in the immediate communities i.e Lindenwoods and Whyteridge.

Finance:

This site is serviced and therefore will not require any major hard service implementation. However the site is not owned by the city, therefore the city, if it wanted to develop the facility, would have to either have to purchase the site, make a land exchange with the developer or develop the facility as a quasi-public facility.

There exist transit services along Kenaston and Waverly Blvds., however more adequate services will have to be implemented to directly service the site.

There may not be to much in way of government grants available to the development of the site because of its suburban location and economic stability of the area.

Location:

The land is available, however it is not owned by the city and therefore for the city to acquire the land there may have to either be a land exchange or concessions made by the city to acquire the site.

Both hard services and transit services exist, but the

transit services will have to be improved to directly serve the proposed site.

The zoning was changed from a "A" agricultural standing to "M1" light industry zone. With this zoning status a recreational facility would be an acceptable use for this site. (See Matrix Table 7)

5.6 Cross-Impact Matrix and Site Evaluation Summary

The Cross-Impact study was used to identify the amount of impact each of the criteria determinants had on each other. From these impacts a set of deficiencies within each site were identified. Once this had been completed, the identified impacts and subsequent deficiencies were then applied to a Site Evaluation Scoring Table in order to rank each of the proposed sites.

The sites which showed the greatest extremes between each other, were the Portage Avenue/Perimeter Highway site, and the Polo Park (Alexander Park) site. There were six deficiencies identified within the Portage Avenue/Perimeter site which included; no City services, such as transit, water and sewer, as well the location of the site is not ideally suited for convenient access from other parts of the city.

Conversely the Polo Park (Alexander Park) site was identified as having two major deficiencies which included

Kenaston Blvd. + McGillvary Blvd.

Cross Impact Matrix

Major Impact X

Slight Impact O

Criteria		Determinants															
		Participation	Crime	Traffic + Safety	Design/Aesthetics	Programs	Joint-Facility Use	User-fee Equity	Site Cost	Service Costs	Transit Cost	Government Grants	Land Availability	Zoning	Transit Accessibility	Services (Sewer, Water, etc)	
Social Issues	Participation																
	Crime	O															
	Traffic + Safety	X	X														
	Design/Aesthetics	X	X	X													
Policy	Programs	X	n/a	O													
	Joint-Facility Use	X	X	X													
	User-fee Equity	O	O			O	O										
Finance	Site Cost						O	O									
	Service Cost						O	O									
	Transit Cost		O	X		X			X	X							
	Government Grants	X		X	X				O	O							
Location	Land Availability						X	X	O	O	O						
	Zoning		O	X			O	O					O				
	Transit Accessibility	X	O	X			X	X		X	X		X				
	Services (Sewer, Water, etc)						O	O	X			O	O				

Major Deficiencies:

1. Traffic Safety - heavy traffic at Kenaston + McGillvary
2. Site Cost - site not owned by City but by Developer
3. Transit Cost - service will have to be extended
4. Centrality - Located at out-skirts of City

Table 7

eligibility for programs and the potential for increased crime around the site.

On the Site Evaluation Scoring Table (Table 8) the Portage Ave./Perimeter site scored a 52 which constituted a 4 ranking, while The Polo Park (Alexander Park) site scored a 78 which constituted a 1 ranking. The scores recorded were out of a potential 98 points.

The Polo Park (Alexander Park) site scored high on the fact that much of the infrastructure already existed at the site, therefore reducing much of the service implementation costs. Another positive factor identified from the matrix is the fact that the site is located next to a major shopping center where large amounts of people visit on a daily basis potentially providing a facility with a large and immediate consumer base.

Conversely the Portage Ave./Perimeter Highway site is located in a area where the immediate consumer base is small, and does not conveniently facilitate access of consumers from other areas of the city. Also, unlike the Polo Park site there does not exist a adequate service infrastructure and therefore site cost for the development of a facility could be very costly.

Based on the Cross Impact Matrix and the results from the Site Evaluation Scoring Table, the Polo Park (Alexander) site seems to be the optimal location for the development of

Table 8

Urban Area	Potential Leisure Pool Sites																	
Scoring Key	Site Evaluation Scoring Criteria																	
Scoring 1-low 5-high	Social Iss.				Policy				Finance				Location				Score	Rank
	Participation	Community	Crime	Traffic + Safety	Design \ Aesthetics	Programs	Joint-Facility Use	User-Fee Equity	Utilization	Site Cost	Service Cost	Transit Cost	Government Grants	Land Availability	Zoning	Transit Accessibility		
Site Name																		
Portage Ave. + Perimeter	5	5	3	6	1	2	3	4	6	2	2	3	1	2	1	6	52	4
Polo Park (Alexander Park)	5	4	5	6	3	4	4	6	6	5	6	4	5	5	5	5	78	1
Lagimodiere Blvd. + Springfield Rd.	5	4	3	5	3	3	3	4	5	3	3	3	3	3	2	3	55	3
Kenaston Blvd. + McGillvary Blvd.	5	5	3	5	3	4	3	5	3	5	3	3	3	3	3	5	61	2

a Leisure Pool facility. The fact that the site was identified as having the least amount of major deficiencies, along with the fact that it is located next to a major shopping center, indicates that the development of a recreational facility at this site may be a viable one.

It should be noted that there exists a political situation with this site in which Winnipeg Enterprises Corporation would like to make the site into a parking lot, while the Winnipeg Parks Board would like to retain the site as green space.

This practicum did not take into consideration this situation because of its political nature and the fact that this site was not originally considered to be green space due to the structures which already existed on the site.

CHAPTER 6

EVALUATION OF METHOD

6.1 Introduction

The model development for this practicum was not without problems. There were methodological problems encountered which may have been reflected in the substantive results acquired from the model. The following evaluation will indicate where problems were encountered in the methodology and how the model responded overall.

6.2 Methodological Evaluation

The success of this model hinged with the choice of criteria and the calibration of those criteria. The decision to use the four criteria (Social Issues, Policy, Financial, Location) in the model, was made with the feeling that it sufficiently covered all the variables needed to successfully identify potential facility locations.

The method of identifying most of the criteria was not particularly difficult, except for the issue of politics. Identifying the criterion determinants of such things as political will and or political influence in developing location criteria was primarily excluded from the study due to the complexity of the issue.

The method of using a two tier model was somewhat effective.

It enabled the analysis to be broken down into two parts; the first tier was used to calibrate the criteria, to indicate the impacts of the criteria determinants on each other and to identify the deficiencies at each site; while the second tier was used to convert the information, gathered in the first tier, into a scoring system which would rank each of the proposed sites.

One problem with this model lies in its simplicity. The model does not directly incorporate statistical information which could identify a wider range of criteria determinants and in turn calibrate those criteria more precisely

Another problem, with the methodology used, is that it did not allow the incorporation of additional criteria determinants into the model once it had been calibrated. This posed a slight problem because, though the criteria was calibrated to Winnipeg, as a whole, each site possessed unique characteristics of their own which, in some cases, should have been incorporated in to the model.

Finally, the second tier of the model perhaps should have included a "plus" "minus" range for the scoring of determinants to make the results seem less precise.

6.3 Substantive Evaluation

The results generated, from the model, provided information that focused on the types of criteria needed to help form a set of locational criteria and identify the optimum site for the development of a leisure pool facility in Winnipeg.

The first tier of the model, where the calibration process took place, respond well to the matrix format which enabled a cross impact evaluation between each of the criteria to take place. The result was the identification of "major" deficiencies at proposed sites. However the problem with this method focussed on the ability to correctly identify major and slight impacts between each criteria determinant. This was because it was very difficult to clearly identify the criteria determinants without being somewhat ambiguous.

Secondly, it was difficult to apply the calibrated criteria of Winnipeg, as a whole, to the proposed sites. This was because each site had some unique characteristic which could be easily calibrated specifically for that site, unless a new model was constructed for each individual location.

The second tier of the model was constructed to provide a numerical ranking system for the proposed sites. This was fairly successful in identifying the optimum location through the use of a simple scoring matrix which gave a value to each criteria determinant. The problem with using such a simple model is that there exists a margin of

error with the score given to each determinant.

Each score is based on the first tier of the model which identify the deficiencies at the site and the type of impact that exist between the criteria determinants. From this, an inferred score must be given to each determinant. Thus the ranking of each site, based on the scores given, will experience a margin of error.

However, this model does accomplish two main goals. First, it provides a simple set of locational criteria which can be applied to any city by, allowing new and different determinants to be incorporated and calibrated for each different city. Secondly, it provides a simple and somewhat accurate indication of optimal sites based on a numerical ranking system.

6.4 Recommendations

There are several recommendations for Model development and methodology.

Recommendation 1:

Both model development and identification of criteria should take place concurrently so that the model can be formed around the criteria in order to get desired results from the model ex. Cross Impact Analysis.

Recommendation 2:

That the model be calibrated first to fit the City characteristic, as a whole, then re-calibrated for each separate community within the City or Region.

Recommendation 3:

That all criteria and their subsequent determinants be defined at the outset of the model so that it is clearly understood what each determinant represents.

Recommendation 4:

That statistical information be incorporated into the model, where applicable. (This was not practical for the purposes of this practicum).

Recommendation 5:

That a "plus" "minus" range be applied to the scoring of determinants so that a degree of flexibility can be realized in the overall ranking of the site.

Recommendation 6:

That the facility be one that will function year round with a design which will allow outdoor use in the summer months and indoor use during winter months. (See Facility Design Appendix H)

CHAPTER 7

CONCLUSIONS

7.0 Conclusions

The provision of recreational facilities at both the community and regional level is a complex process. Issues focused around social determinants of leisure behavior indicates the difficulty in identifying how individuals perceive leisure and what motivates them to either participate or not. Much of an individuals participation in a recreational activity is related to social factors and, for the most part, is not totally intrinsically motivated. This is due to the fact that many leisure activities are participated in with others, thus making for positive sociable behavior.

Similarly the creation of a positive leisure atmosphere in a community can lend itself to greater social harmony in that community.

Once a need is established in a community or region, for a recreational facility, issues of programs, accessibility for all and finance come to the forefront of planning for that recreational facility.

The issue of finance, with respect to recreation facility development or any facility for that matter, remains the pivotal factor. Support from both the private and public

sectors are needed to ensure the viability of a facility. There are, however, political issues and barriers which exist when proposing the development of a facility which must be resolved to ensure the success of the proposal. Even though recommendations may be put forward by planners which indicate benefits or deficiencies with regards to a facility or site, the political will must exist to accept the recommendations and make responsible decisions.

The ability to address all the factors relating to locational decisions comes about in the choice of model used to identify the types of criteria involved and their subsequent determinants.

The calibration of the criteria and determinants within the model is the most important procedure. This procedure allows the planner to determine which unique characteristic should be included or excluded based on specific or unique characteristics present within the community or region.

The ability to identify locational criteria for the development of any type of facility has to first come with an understanding of the specific concepts which the planner must work with. Once they have been defined a method for representing the specific criteria must be established, such as in the form of a model. It is from the calibration of the model and identification of the pertinent criteria and their determinants which allow the planner to identify the most suitable site for the proposed facility.

APPENDIX A

1. COMMUNITY NEEDS AND VALUES

Health and safety needs	Hazards	Environments in which threats from fire, flood, earthquake, unfenced heights, deep water are minimized.
	Crime	Protection from criminal activities, such as assault, burglary, car theft.
	Traffic	Protection from traffic, especially in residential areas with children, old people.
	Aid	Easy access to emergency services, police, fire, and ambulances.
	Health	Sufficient sun, light, clean air, pure water, sanitation, trash and garbage control to maintain public health standards.
	Exercise	Adequate space and facilities for walking, jogging, cycling, and active sports.
Livability needs	Space	Adequate space to engage in desired activities.
	Quiet	Ambient noise and vibration levels to carry out desired activities; sleeping, talking, reading, and relaxing.
	Light	Sufficient light for activities such as reading, shopping, driving; avoidance of excessive light or glare where darkness is valued, e.g., in residential areas at night.
	Climate	Climate controls that protect people from or reduce unacceptable heat, cold, wind, sun, rain, fog, or draught.
Access needs	Regional access	Access to jobs, services, schools, shops, recreational, and transportation facilities.
	Cycle and pedestrian	Safe and pleasant conditions for cyclists and pedestrians to circulate within and between communities.
	Public access	Sufficient public access to valued resources, such as shorelines, beaches, lakes, rivers, viewpoints.
	Orientation	Visible access or clear signing of important and desirable facilities and destinations.
Identity needs	Conservation	Environments which are familiar, stable, predictable, where severe disruptions of continuity do not take place, are not threatened, or are managed with full participation.
	Territory	Places which people and communities feel "belong" to them, for which they can care and feel responsible, even if they are not owned.
	Expression	Environments which allow and encourage the expression of personal, family, community, or cultural identities.
	Mastery	Environments which are responsive, which can be easily changed to accommodate changing needs.
	Choice	Individual, family, and community freedom to express particular desires or to explore alternative lifestyles.
	Privacy	Protection from intruding eyes, noise, and distracting events for desired activities, personal, family and community life.

	Social contact	Interaction, help in times of trouble, adequate choice of friends and neighbors.
	Participation	Participation in the process of analyzing community needs, policy formation, planning and design decisions.
	Power	The chance to make decisions which affect personal or group environments.
Aesthetic and symbolic needs	Attractiveness	Environments which are pleasurable and inviting to the senses; sight, sound, smell, and touch.
	Imageability	Environments which are unique, vital, vivid, and distinctive.
	Purity	Environments which are ordered, simple structured, clean, and well-maintained.
	Natural character	Environments related to nature by natural materials open air, vegetation, views.
	Sense of place and history	Environments which have a strong sense of identity, whose history is significant and evident.
Community needs	Justice	Equitable distribution of amenities and services to all population groups and areas.
	Pluralism	Tolerance of different life-styles, expressions, and tastes.
	Resource conservation	Conservation of natural, energy, atmospheric resources.
	Economy	Low capital-costs for easily maintained and durable environments.

APPENDIX B

THE CITY OF WINNIPEG — CURRENT ESTIMATES

EXPENDITURES

PARKS AND RECREATION

	<u>1988</u> <u>Budget</u> \$	<u>1988</u> <u>Actual</u> \$	<u>1989</u> <u>Budget</u> \$
<u>General Administration</u>			
Senior Management Services	1,549,583	1,704,827	1,642,228
<u>Regional Parks and Operations</u>			
Area 1	1,586,556	1,560,300	1,652,366
Area 2	1,185,867	1,165,810	1,255,031
Area 3	1,562,705	1,534,131	1,617,742
Area 4	1,021,085	999,641	1,162,669
Area 5	1,256,053	1,231,146	1,333,412
Area 6	1,834,518	1,840,991	1,912,588
Administration	106,283	57,987	131,365
Park Security	673,673	682,047	698,086
Weed Control	642,909	636,982	676,723
Insect Control	1,255,103	1,125,818	1,279,269
Assiniboine Park Zoo	2,273,590	2,236,994	2,408,413
Cemeteries	391,381	351,035	361,370
Forestry	1,514,560	1,471,399	1,580,948
Dutch Elm Disease	1,198,005	1,537,547	1,251,160
Floriculture	524,071	488,834	547,793
Cycle Path Maintenance	18,146	18,052	19,205
	<u>17,044,505</u>	<u>16,938,714</u>	<u>17,888,140</u>
<u>Planning, Development and Central Services</u>			
Administration	576,960	540,111	592,126
Planning and Resources	650,038	636,072	662,635
Facilities Construction and Maintenance	1,516,091	1,540,727	1,587,651
Site Development	697,299	694,393	727,109
Energy Conservation	41,685	41,685	93,858
	<u>3,482,073</u>	<u>3,452,988</u>	<u>3,663,379</u>
<u>Recreation and Community Parks</u>			
City Centre-Fort Rouge	5,700,411	5,728,562	5,987,718
St. James-Assiniboia	4,564,912	4,498,489	4,766,589
Lord Selkirk-West Kildonan	5,622,635	5,583,115	5,999,959
East Kildonan-Transcona	5,127,515	5,056,963	5,312,633
St. Boniface-St. Vital	4,434,142	4,493,392	4,712,918
Assiniboine Park-Fort Garry	4,964,599	4,947,626	5,289,242
Regional Recreation Services	3,568,578	3,415,007	3,716,292
	<u>33,982,792</u>	<u>33,723,154</u>	<u>35,785,351</u>
Total Parks and Recreation	56,058,953 =====	55,819,683 =====	58,979,098 =====

PROPOSAL 1

Operating expenses increase by 6% annually.
Debt charges - 10% over 25 years.

NEW WINNIPEG ARENA

Financing Proposals

Profit and Loss 1981-1985

Financing Proposals:

Construction Cost - 1980	\$20,000,000
Disposal of Existing Arena	2,000,000
Net Cost	<u>\$18,000,000</u>
Federal Contribution	5,000,000
Provincial Contribution	5,000,000
Cost to City of Winnipeg	<u>\$ 8,000,000</u>

<u>Year</u>	<u>Arena Revenue</u> (000)	<u>Arena Expenses</u> (000)	<u>Surplus on</u> <u>Operations</u> (000)	<u>Amusement</u> <u>Tax on</u> <u>Revenues</u> <u>from Arena</u> (000)	<u>25¢ levy</u> <u>on tickets</u> <u>at Arena</u> (000)	<u>All Revenues</u> (000)	<u>Debt Charges</u> <u>@ 10%</u> <u>25 years</u> (000)	<u>Surplus</u> <u>(Deficit)</u> (000)	<u>Cumulative</u> <u>Surplus</u> <u>(Deficit)</u>
1981	\$1,901	\$1,358	\$543	\$330	\$316	\$1,189	\$ 881	\$ 308	\$ 308
1982	2,049	1,437	612	366	329	1,307	881	426	734
1983	2,196	1,520	676	402	342	1,420	881	539	1,273
1984	2,360	1,608	752	438	355	1,545	881	664	1,937
1985	2,543	1,701	842	484	369	1,695	881	814	2,751

PROPOSAL 2

Operating expenses increase by 6% annually.
Debt charges - 10% over 25 years.

NEW WINNIPEG ARENA

Financing Proposals

Profit and Loss 1981-1985

Financing Proposals:

Construction Cost - 1980	\$20,000,000
Disposal of Existing Arena	2,000,000
Net Cost	\$18,000,000
Federal Contribution	5,000,000
Provincial Contribution	2,000,000
Cost to City of Winnipeg	\$11,000,000

<u>Year</u>	<u>Arena Revenue</u> (000)	<u>Arena Expenses</u> (000)	<u>Surplus on</u> <u>Operations</u> (000)	<u>Amusement</u> <u>Tax on</u> <u>Revenues</u> <u>from Arena</u> (000)	<u>25¢ levy</u> <u>on tickets</u> <u>at Arena</u> (000)	<u>All Revenues</u> (000)	<u>Debt Charges</u> <u>@ 10%</u> <u>25 years</u> (000)	<u>Surplus</u> <u>(Deficit)</u> (000)	<u>Cumulative</u> <u>Surplus</u> <u>(Deficit)</u>
1981	\$1,901	\$1,358	\$543	\$330	\$316	\$1,189	\$1,212	(\$ 23)	(\$ 23)
1982	2,049	1,437	612	366	329	1,307	1,212	95	72
1983	2,196	1,520	676	402	342	1,420	1,212	208	280
1984	2,360	1,608	752	438	355	1,545	1,212	333	613
1985	2,543	1,701	842	484	369	1,695	1,212	483	1,096

PROPCAL 3

Operating expenses increase by 6% annually.
Debt charges - 10% over 25 years.

NEW WINNIPEG ARENA

Financing Proposals

Profit and Loss 1981-1985

Financing Proposals:

Construction Cost - 1980	\$20,000,000
Disposal of Existing Arena	-
Net Cost	<u>\$ 20,000,000</u>
Federal Contribution	5,000,000
Provincial Contribution	2,000,000
Cost to City of Winnipeg	<u>\$ 13,000,000</u>

<u>Year</u>	<u>Arena Revenue</u> (000)	<u>Arena Expenses</u> (000)	<u>Surplus on</u> <u>Operations</u> (000)	<u>Amusement</u> <u>Tax on</u> <u>Revenues</u> <u>from Arena</u> (000)	<u>25¢ levy</u> <u>on tickets</u> <u>at Arena</u> (000)	<u>All Revenues</u> (000)	<u>Debt Charges</u> <u>@10%</u> <u>25 years</u> (000)	<u>Surplus</u> <u>(Deficit)</u> (000)	<u>Cumulative</u> <u>Surplus</u> <u>(Deficit)</u>
1981	\$1,901	\$1,358	\$543	\$330	\$316	\$1,189	\$1,432	(\$243)	(\$ 243)
1982	2,049	1,437	612	366	329	1,307	1,432	(125)	(368)
1983	2,196	1,520	676	402	342	1,420	1,432	(12)	(380)
1984	2,360	1,608	752	438	355	1,545	1,432	113	(267)
1985	2,543	1,701	842	484	369	1,695	1,432	263	(4)

APPENDIX C

TABLE 13.1 | CHARACTERISTICS OF ACTORS IN THE PLANNING PROCESS

Characteristics	Planner	Decision maker	Individual
Technical training	Professional	None	None
Objectives	Public interest	Special interest	Self-interest
Time horizons	Long range	Short range	Immediate
Salary/time	Full	Partial	Intermittent
Orientation	Benefit	Cost	Cost
Approach	Systematic	Political	Emotional
Responsibility	No	Yes	No
Authority	No	Yes	No
Salary	Yes	None	None
Age	-30	50+	30+
Income	Middle	High	Low

TABLE 13.2 | GOALS OF ACTORS IN THE PLANNING PROCESS

Group	Goals or objectives
Community decision makers	Pride and status Cohesion and social betterment Reduction of juvenile delinquency Increase in citizen health and safety Beautification: aesthetic betterment and balance Increase in "culture" Community betterment: achievement of the good city
Suppliers of public recreation	Happiness or enjoyment Personal growth and self-improvement Physical and mental health Public safety Integration and socialization Citizenship and democratic values
Users of public recreation	Group interaction and sociability Relief from normal roles and surroundings Search for status Competition, reality testing, self-evaluation Variety, excitement, challenge

Source: Abstracted from a review of the literature by Cans, 1957, and Gold, 1973.

APPENDIX D

MODEL FORMULA

general equilibrium case. The more recent theory of location starts with the modification and extension of the classical system. The basic reference starts with Isard (1956), Hoover (1937, 1948), Losch (1959), Alonso (1966) and Greenhut (1956). They focus on the total transportation cost except they introduce variations in labor, power cost, etc., and internal and external economies. Kuhn and Keunne (1962) and Cooper (1968), etc., have proposed algorithms (to be reviewed later) for this extended version. Let us briefly state Isard's model. He, like Weber, assumes constant-coefficient production functions, and uses a general spatial transformation function such as

$$\phi (Y_1, \dots, Y_k, M_A S_A, M_B S_B, \dots, M_j S_j, X_{K+1}, X_{K+2}, \dots, X_n) = 0 \quad (1)$$

where Y_1, \dots, Y_k represent quantities of various inputs other than transport, $M_A S_A, \dots, M_L S_L$ represent quantities of various transport inputs, X_{K+1}, \dots, X_n represent quantities of various outputs, M_A, M_B, \dots, M_L represent the weights of various raw materials, and S_A, S_B, \dots, S_L represent the distances products and raw materials are moved. Assuming that total revenue and costs on all inputs are fixed, the firm's customary problem is to maximize profits.

$$V = - P_1 Y_1 - P_2 Y_2 \dots P_k Y_k - r_A M_A S_A - r_B M_B S_B - r_L M_L S_L + P_{K+1} X_{K+1} \dots + P_n X_n \quad (2)$$

where P_1, P_2, \dots, P_n are prices and r_A, r_B, \dots, r_L are transport rates. This maximization leads to the conditions

$$\begin{aligned} \frac{r_I}{r_J} &= - \frac{d(M_J S_J)}{d(M_I S_I)} & (M_C S_C) &= \text{constant} \\ \frac{r_I}{r_C} &= - \frac{d(M_C S_C)}{d(M_I S_I)} & (M_J S_J) &= \text{constant} \\ \frac{r_J}{r_C} &= - \frac{d(M_C S_C)}{d(M_J S_J)} & (M_I S_I) &= \text{constant} \end{aligned} \quad (3)$$

MODEL FORMULA

A. Continuous Location Models

The prime examples of continuous location models derive from the early work of Weber (1926) discussed previously. This is known as the "generalized Weber problem." Cooper (1963) and Kuenne and Kuhn (1962) consider this problem in which the object is to locate a single source on the plane in order to minimize the sum of the weighted (with intensity of use) distances to potential users. Mathematically, this problem is to minimize in x_p and y_p the function

$$\sum_i w_i [(x_i - x_p)^2 + (y_i - y_p)^2]^{1/2} \quad (7)$$

where (x_i, y_i) are the coordinates of the demand points with weights w_i , and x_p and y_p are the coordinates of the facility to be located. The solution method is based on the first order conditions of extrema in classical calculus. An iterative procedure is proposed in which one starts with a trial point x_p^0 and y_p^0 and computes the trial distances $d_i^0 = [(x_i - x_p^0)^2 + (y_i - y_p^0)^2]^{1/2}$. At each iteration the trial point is revised via:

$$x_p^{t+1} = \frac{\sum_i \frac{w_i x_i}{d_i^t}}{\sum_i \frac{w_i}{d_i^t}} \quad (8)$$

$$y_p = \frac{\sum_i \frac{w_i y_i}{d_i^t}}{\sum_i \frac{w_i}{d_i^t}} \quad (9)$$

This procedure continues until $|x_p^t - x_p^{t+1}|$ and $|y_p^t - y_p^{t+1}|$ are sufficiently small. Cooper has demonstrated that the algorithm converges quite rapidly, rarely requiring more than ten iterations.

A more general form of this problem is known as the "location-allocation" problem where the aim is to locate more than one facility. Cooper (1967) has suggested heuristic methods which view the problem as two interrelated sub-problems. The allocation problem is merely finding the minimum cost allocation of demand points to the sources, which are temporarily fixed. The location subproblem finds the optimal locations using the iterative procedure (8) and (9) with respect to the current allocations. The procedure alternates between these two subproblems until the locations and the allocations converge.

Other researchers, such as Francis (1963), and Wesolowski and Love (1971), have considered a variation of the generalized Weber problem in which instead of euclidian distances, rectangular distances are used. This is probably a more appropriate measure in metropolitan settings where the arteries of transportation are usually perpendicular to one another.

MODEL FORMULA

The authors incorporate three additional computation saving devices, called "simplifications." Since repeated reference will be made to these later in the section, we discuss these next.

Simplification 1 computes a lower bound on the cost differential of solutions with $y_i = 1$ vs. $y_i = 0$, $i \in K_2$. If this bound is found to be non-negative at a node, all the solutions with $y_i = 0$ can be eliminated from further consideration. This is computed as:

$$\Delta_i = \sum_j \text{Max} \left\{ \text{Min}_{k \in K_1 \cup K_2} \{c_{kj} - c_{ij}, 0\} - f_i \right. \\ \left. k \neq i \right.$$

In the summation each term can be interpreted as the minimum penalty for not using i for a particular j .

Simplification 2 attempts to reduce the number of customers which can be served from an $i \in K_2$. If j is such that $\text{Min}_{k \in K_1} c_{kj} < c_{ij}$,

it can be removed from P_i , as in the optimal solution j will never be served from i , even if it may be open. Reducing the sizes of P_i for $i \in K_2$ strengthens the lower bounds; furthermore, whenever $P_i = \phi$, $y_i = 0$ in the optimal solution.

Simplification 3 computes an upper bound on the cost differential between $y_i = 0$ vs. $y_i = 1$ for $i \in K_2$. If this bound is found to be non-positive, then $y_i = 0$. The bound is computed as:

$$\Omega_i = \sum_j \text{Max} \left\{ \text{Min}_{k \in K_1} \{c_{kj} - c_{ij}, 0\} - f_i \right.$$

Similarly, each term in the summation measures any potential reduction in the cost for making facility $i \in K_2$ available in addition to those in K_1 .

At each node these simplifications are applied in a cyclic manner until the partial assignment is completely simplified, i.e., all

MODEL FORMULA CON'T

$$\Delta_i < 0 \text{ and } \Omega_i > 0.$$

Khumawala (1972) has been able to improve the computational efficiency of the Efraymson and Ray (1966) algorithm by observing that the performance of the algorithm critically depends on the rule by which y-variables are selected for branching. After extensive experimentation, he has demonstrated that the rule which chooses the variable with the largest Ω_i performs best. Using this rule he has been able to solve quite large problems with reasonable effort. A very recent and successful approach to (P1) is given by Erlenkotter (1978) who uses a tighter formulation of (P1) -- one in which Eq. (12) are replaced by:

$$x_{ij} \leq y_i \quad i = 1, 2, \dots, m; \quad j = 1, 2, \dots, n.$$

This formulation is equivalent to (P1) for all integer y's, but its relaxation usually results in an all integer solution, thereby completely solving the sub-problem.

2. Capacitated Facility Location - these models place a limitation on the volume of activity that can take place at an established facility. Although this may seem to be a relatively minor modification in (P1), its impact on the solution methodology is non-trivial. The capacitated facility location problem can be formulated as follows:

$$\begin{array}{l} \text{Min} \\ y_i = 0, 1 \end{array} \left(\sum_{ij} C_{ij} x_{ij} + \sum_i f_i y_i \right) \quad (13)$$

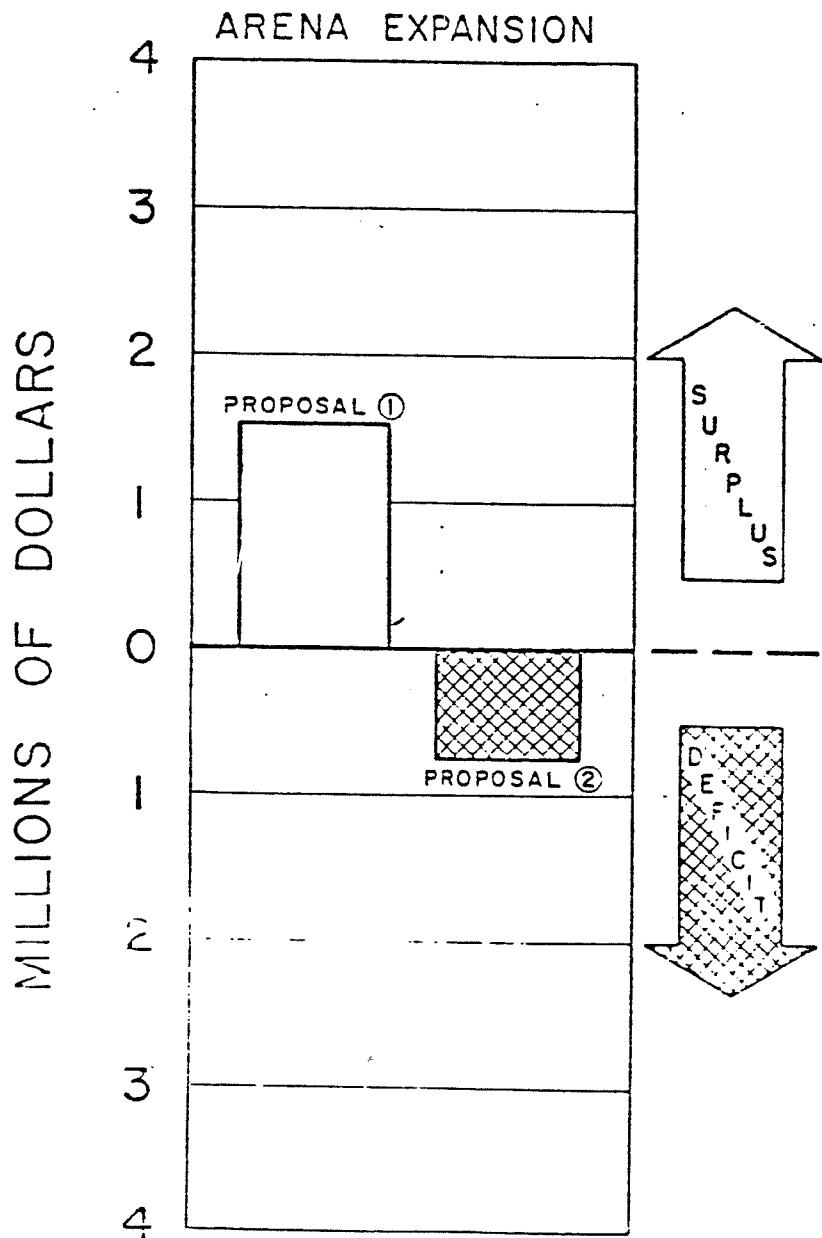
$$(P2) \quad \sum_i x_{ij} = D_j \quad j = 1, 2, \dots, n \quad (14)$$

$$\sum_j x_{ij} \leq S_i y_i \quad i = 1, 2, \dots, m, \quad (15)$$

In this formulation D_j and S_i represent demands and capacities, and x_{ij} now represents the actual amount shipped from i to j rather than the proportion of j 's demand. Other notation is as in (P1).

APPENDIX E

CUMULATIVE FINANCIAL RESULTS OF FIRST FIVE YEARS OF OPERATION 1981 - 1985



APPENDIX F

Table 1. Planning and policy analysis: Dimensions for comparison

Dimension	Planning	Public policy analysis	Trends of convergence/divergence
1. Generic vs. substantive focus	<p>Historic roots in urban physical planning: in '50s-'60s—"generic explosion." Today, concurrent mixture of generic and substantive views of the profession.</p>	<p>Claims to be generic, applying to any domestic, national, foreign or defense problem. Problem of extent of emphasis on training in some substantive area.</p>	<p>Trend toward convergence as planning became more generic ('70s). Possible crossroads in '80s—some calls for rejection of "content-less" planning.</p>
2. Stage in the planning/policy making process	<p>Traditional emphasis on design of solutions, innovation. Later, emphasis on analysis and comparison of alternatives. Recent added focus on implementation needs plus direct involvement in implementation.</p>	<p>Less emphasis on design. Emphasis on analysis and comparison of alternatives and impacts. Recent awareness of implementation needs; less direct involvement.</p>	<p>Some convergence with persisting difference.</p>
3. Complexity and time range	<p>Often deals with complex, multi-sectoral problems; "intangibles" and uncertainty. Tradition of long-range view. More concern recently also with sectoral policies, more middle- and short-range emphasis.</p>	<p>Tends to deal with simpler, uni-sectoral problems. Usually takes short or middle range view.</p>	<p>Some convergence with persisting difference.</p>
4. Rationality, analytic and quantitative techniques	<p>Rise and demise of, and ambivalence about, the rational-synoptic model. Considerable use of quantitative methods, scientific analysis. Yet recent questioning of positivist social science.</p>	<p>Rational approach is central to policy choice. Paramount emphasis on analytic and quantitative techniques (cost-benefit analysis, statistical decision models, some operations research).</p>	<p>Past convergence re: use of analytic techniques. Recent growing divergence (at least in "planning theory").</p>
5. Institutionalization, professionalization	<p>(a) Institutionalized at local and regional level; some national legislation in certain substantive areas (e.g., environment) (b) Professional tradition. Some current trends to deprofessionalize</p>	<p>(a) Activity exists in some agencies at federal and state level. A few beginnings at local level. (b) "Policy analyst" becoming a job title.</p>	<p>(a) Some convergence (competition) at local level. (b) Increasing competition.</p>
6. Range of roles	<p>Wide diversity of roles: • adviser to governmental officials;-analyst • advocate for constituency • community organizer • coordinator & facilitator of communication • deliverer of goods/services • implementor of policies within agencies</p>	<p>More limited range of roles: • staff adviser to governmental officials • contractor for research • consultant Possible additional roles: • community consultant • citizen as leader</p>	<p>Only partial overlap; Possible convergence (increasing competition) since public policy analysis may include additional roles.</p>

Table 1. Continued

Dimension	Planning	Public policy analysis	Trends of convergence/ divergence
7. Definition of client/ constituency	<p>Traditional normative responsibility to "ultimate client:" allegiance to "public interest." Commitment to direct participation.</p> <p>In many roles, direct interaction with local residents. Yet—growing recognition of need to respond directly to decision maker.</p>	<p>Client defined as employer, contractor, decision maker. Legitimacy of goals through market or representation. Little direct interaction with affected populations. Some recent calls for "analyst as advocate."</p>	<p>Increasing divergence re: some planning modes (learning, radical, critical, transactive).</p> <p>Some convergence re: other planning modes (analyst).</p>
8. Ethics, ideologies, values	<p>Value neutrality not promoted in many planning modes. Normative commitment to particular values (equity, opportunities for disadvantaged).</p> <p>In some planning modes—commitment to radical social change. Education in ethics takes important place.</p>	<p>Direct clients as source of values. Ethics as criterion for choice among alternatives (e.g., benefit-cost plus "equity").</p> <p>No particular social philosophy or allegiance to particular values promoted.</p> <p>Growing awareness of ethics.</p>	<p>Divergence re: many planning modes (radical, critical, advocacy, transactive, even formalized ethics code).</p> <p>Possible partial convergence in future if public policy analysis expands view of ethics, social roles.</p>

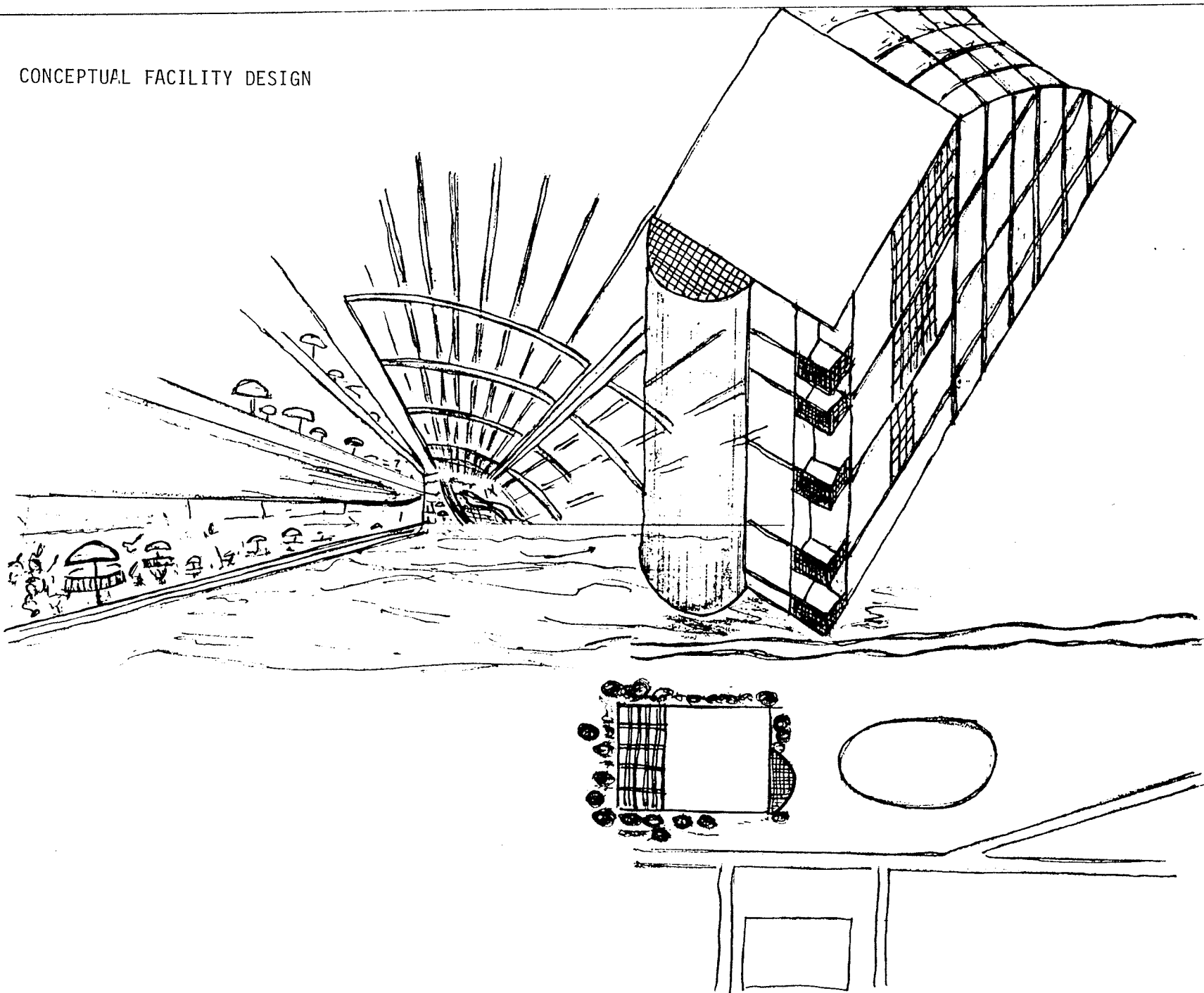
APPENDIX G

TABLE 14.2 | SCORING MATRIX

LOMPOC URBAN AREA		BIKE TRAILS													
Scoring key		Scoring criteria													
<div style="border: 1px solid black; padding: 2px; display: inline-block;">1-6</div> Basic scoring: 1 = Low; 6 = High <div style="border: 1px solid black; padding: 2px; display: inline-block;">±3</div> May be used when individual variable is extremely impor- tant for evaluation		No. and character of intersections	Visual quality	Land use type	No. of owners	Type of facilities	System compatibility	Biological impact	Geologic impact	Physical condition	Potential no. users	Composition of users	Kinetic environ- mental experience	Total score	Rank
#	TRAIL NAME														
1	Ocean Beach Park Trail	6	5	6	6	6	6	2	3	3	2	3	5	53	3
2	Casmalia Road Trail	5	4	1	1	3	1	2	5	4	3	4	2	35	10
3	Santa Ynez River Trail	6	4	5	3	3	3	3	5	3	4	4	4	47	8
4	Correctional Institute Trail	6	5	2	1	5	5	4	5	3	4	4	4	48	7
5	Cabrillo Highway Trail	4	3	4	5	5	4	4	5	4	5	3	4	50	5
6	Kenneth Adam Park Trail	6	5	2	2	5	5	5	5	3	4	5	5	52	4
7	Santa Ynez River—"A" Street Trail	5	4	5	5	5	5	3	5	3	5	5	5	55	2
8	Riverside Drive Trail	6	3	3	3	3	3	5	5	4	5	5	4	49	6
9	River Park Trail	6	4	5	5	5	5	3	5	3	5	5	5	56	1
10	Cabrillo Highway South Trail	4	4	4	4	3	3	4	3	4	3	3	4	43	9
LOMPOC URBAN AREA		HIKING AND EQUESTRIAN TRAILS													
1	Ocean Beach Trail	6	4	2	-2	5	5	1	4	3	3	3	5	38	3
2	Santa Ynez River Trail	6	4	5	3	3	4	3	5	3	4	4	4	48	2
3	Kenneth Adam Park Trail	5	4	3	5	5	5	6	5	2	4	5	4	53	1

APPENDIX H

CONCEPTUAL FACILITY DESIGN



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