

The Meewasin Valley Project



100 Year Conceptual Master Plan
of The South Saskatchewan River Environment in
The Rural Municipality of Corman Park and The City of Saskatoon,
The Province of Saskatchewan, Canada

The Meewasin Valley Project

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Foreword

by Allan K. Gillmore

The citizens of Saskatoon and the adjacent rural municipality have been aware for many years that an unusual community enhancement opportunity exists for this and future generations along the banks of the South Saskatchewan River. The stretch of the river that winds through the City and for 25 kilometres in both directions beyond the City limits, a total distance of almost 80 kilometres, is unique, a great and ancient resource. Local interest groups and councils have proposed many times that the preservation and development of this area should be the subject of long range planning and appropriate control.

In 1975, the Department of Municipal Affairs commissioned the firm of Long Mayell and Associates of Calgary, to undertake a preliminary study of the Saskatoon Riverbank. The conclusion reached in this study was that something really exciting could be developed in the Saskatoon area.

The Honourable Walter Smishek then took an important initiative in 1977, because of his particular interest both as a Minister of the Provincial Government and as Chairman of the Wascana Centre Authority. He suggested that a meeting be held in Saskatoon to explore the possibility of developing a Plan and establishing an Authority for what then was referred to as the Saskatoon River Edge Project. Present at the meeting, which was held on December 17, 1977, were:

Honourable Roy Romanow (Chairman)
Attorney General

Dr. Robert W. Begg
President, University of Saskatchewan

Honourable Gordon MacMurchy
Minister of Municipal Affairs

Honourable Herman Rolfes
Minister of Social Services

Honourable Walter Smishek
Minister of Finance

Mr. Victor Sommerfeld
Reeve, Rural Municipality of Corman Park

Mr. Clifford Wright
Mayor, City of Saskatoon

Mr. Allan K. Gillmore
Vice-Rector, Administration, University of Ottawa

I had been invited because of my association with the Wascana Centre project in its formative phase and as its first Executive Director.

It was agreed that a unique opportunity for long-range planning and development really does exist in the city and region. The reasons included:

The fact that much of the river bank remains in its natural conditions;

The University of Saskatchewan with its far-reaching interdisciplinary research capacity is located in this area;

Public awareness of the importance of our available water is increasing everywhere and local interest in the river and the adjacent lands is high.

Two committees were formed to continue exploring these matters: the 'A' Committee, which was to be concerned with policy matters, and the 'B' Committee, which was a technical working group.

One of the first tasks of these committees was to select a Master Planner. Following a Canada-wide search, Raymond Moriyama, Architect and Planner, was commissioned by the Saskatchewan Department of Municipal Affairs. The wisdom of that choice soon became evident in the accelerated activity that followed. Working sessions were held with all participating parties, some fourteen local interest groups and members of the Provincial Legislature representing the area.

The University of Saskatchewan provided temporary working facilities and lent the services of Mr. Roland Muir, Assistant to the President, as On-Site Project Co-ordinator, during the planning phase.

The entire area was surveyed from the air. The section of river involved in the study was examined in detail by the planners on foot and in canoes. The history of the physical and human development of this part of the province was studied at length.

The result is a conceptual master development plan which surpasses our greatest expectations. It has been endorsed enthusiastically by all the parties who participated in its preparation.

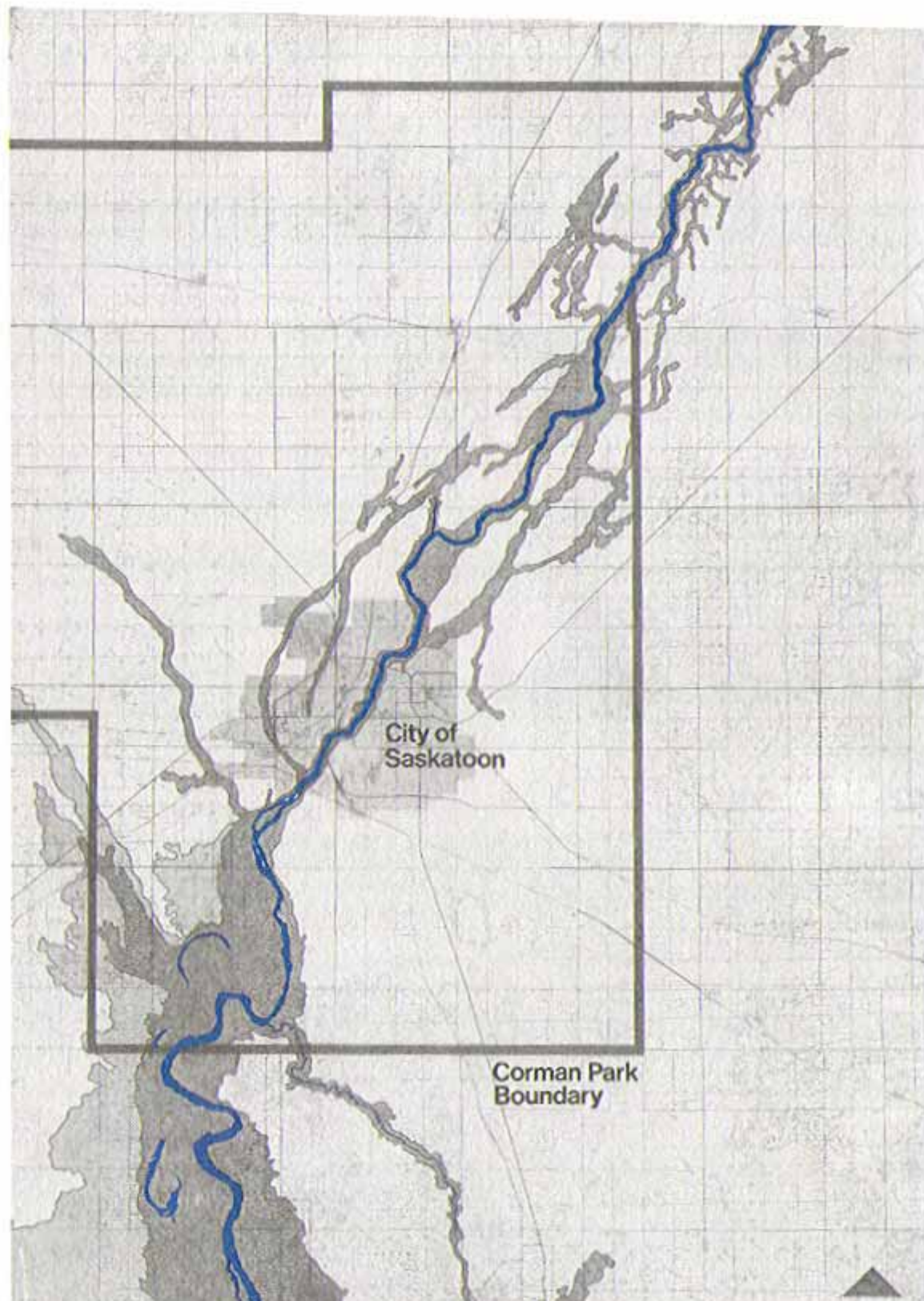
This plan may take a hundred years or more to implement. In fact, it may never be fully completed because it most certainly will evolve and improve as it is periodically reviewed. It does provide a solid conceptual basis, however, to assure that conservation and enhancement in this area may evolve in a logical, planned manner and in the best interests of all concerned. Moreover, results can be anticipated which will be of benefit to the entire Province of Saskatchewan because of the special research and teaching role of the University in this project.

Legislation has been prepared to create an Authority composed of members appointed by the Government of Saskatchewan, the University of Saskatchewan, the City of Saskatoon and the Rural Municipality of Corman Park. This body will be responsible for implementation of the conceptual master plan.

It is not often that one sees in any Province an exciting undertaking which will be of significant and lasting benefit not only to those immediately involved but also to future generations. Saskatchewan is fortunate indeed to have one such project in the Wascana Centre. The Meewasin Valley Project is an even more imaginative venture, of which all concerned may be justly proud.



Allan K. Gillmore
Vice-Rector
University of Ottawa



Assignment

The study area includes the South Saskatchewan River and its banks within the Rural Municipality of Corman Park and the City of Saskatoon.

The Project Team was requested to:

A. Prepare a 100-year conceptual master plan for the South Saskatchewan River Area to meet the following general objectives:

- a) the enlargement of educational and research opportunities,
- b) the advancement of the cultural arts,
- c) the conservation of nature,
- d) the improvement of recreational opportunities, and
- e) the furtherance of rural-urban relations.

B. Commence the planning study in March, 1978, by reviewing relevant materials provided by the Province and others; and complete the 100-year conceptual plan and report by the third week in August, 1978.

C. Confer with Committees 'A' and 'B' (representing the Province, the City of Saskatoon, the University of Saskatchewan and the Rural Municipality of Corman Park) throughout the preparation of the conceptual master plan and revise it and the boundaries as may from time to time be necessary.

D. Carry out consultation with Committees 'A' and 'B', the Province, the City of Saskatoon, the University of Saskatchewan, the Rural Municipality of Corman Park, staff and selected private sector interest groups.

E. Identify issues, opportunities and constraints that will affect the conceptual master plan including the study of riverbank stability.

F. Prepare and present themes, ideas and philosophy of concept.

G. Prepare and present a conceptual master plan with illustrative sketches.

H. Prepare a final report on the conceptual master plan.

I. Prepare, arrange and have printed and provide One Thousand (1,000) copies of the final report by October 16th, 1978.

J. Prepare and provide two models of the South Saskatchewan River Area as proposed in the conceptual plan and final report – one of the overall study areas and another of a specific proposal.

K. Attend in Regina, Saskatchewan, on such reasonable date as the Province requires and deliver a formal presentation of the final report and 100 year conceptual master plan.

Introduction

by Raymond Moriyama

In Saskatoon we have found it difficult to sleep late. The revelations of history, the direct experiences of a warm and mutually supportive urban and rural community and the prospect of being involved with enlightened, dedicated people in evaluating, protecting and enhancing a unique heritage for this and future generations kept turning in our minds.

Such thoughts encouraged us to rise with the farmers on many days during our study of the South Saskatchewan River, to walk at 4:30 a.m. along the west bank, south of the Bessborough Hotel. Later, as we spent more and more time exploring the nooks and crannies of the river's edge and the countryside, flying over the city and study area and canoeing on the river itself, we marvelled as the land slowly revealed its enduring qualities and potentials: the mauve haze that settles over the prairies in the late afternoon, the vertical red glow at sunrise and sunset, the fresh young green of the aspen in early spring, the quantity and diversity of wildlife in and along the river, the archeological finds and the prehistoric sites alternately exposed and hidden by the shifting river.

Our enthusiasm for the people of Saskatoon and Corman Park, our gratitude and affection for all those with whom we shared our dilemmas, ideas, discoveries and disappointments compel us now to stop, reflect and take the following stance:

We should not and cannot produce a conventional professional report composed only of facts, figures and technical argument. We intend to include our personal reactions and involvements, since what we are proposing is a concept of enriching life and human values in a world too long dependent on cold facts and statistics alone.

We started the project by asking ourselves on the first day a simple but essential question about Saskatoon and the Rural Municipality of Corman Park. In 100 years, what will remain absolutely the same as today? The only things we or anyone else could be sure of are that, barring some great global catastrophe, the sun will rise in the east and set in the west, the wind will blow, winter will be colder than summer.

The quality and quantity of water in the South Saskatchewan River, the wildlife, the vegetation and the continuing health and well-being of the region, depend largely on the awareness, priorities and activities of man himself.

Another fact became abundantly clear as we assessed the evidence of our minds and senses: As long as man inhabits this area, the value of water as a resource fundamental to health, prosperity and human fulfilment will rise.

We asked these questions first because they are basic to the problems of human settlement. One hundred years ago Saskatoon did not exist, not even as a settlement. The Province of Saskatchewan was no more than a dream in the minds of a few. In those not-so-distant times no one could have predicted that the horseless carriage, with its noise and smells and unpredictable behaviour, would soon become an all-demanding, all-consuming extension of man into the environment. Not many could have conceived of a man flying from the prairie to the east in 3 hours, let alone his landing a space craft on the moon within 80 years, his routine thinking and calculations delegated to and accomplished infinitely faster by computers.

Most important of all, in 1878, only a few questioned the impact on nature of man's progress or correlated it to the finite world and the quality of life.

Because of such evidence from the recent past we were acutely aware of the responsibility for the long-term effects and implications of our thoughts and concepts. We determined to become students of the land and the people as much as possible.

On these early morning walks along the river banks, then, we reflected on the 600 million years of geological history beneath our feet. We listened to the quiet voice of the 10,000-year-old, but still-young river. We heard in our mind's ear the voices of participants and individuals articulating their perceived needs, their feelings and thoughts. We studied the warm glow developing within ourselves that seemed linked to the love of people past and present.

It was these thoughts, supported by facts, figures, our personal beliefs and professional skills, that came together in the theme and the conceptual idea that form the basis of this report.

The first elements of that concept are a *unique land* and a *unique people*. The objective is *balance*. The umbrella idea, the broad concept, is *health* (defined by the World Health Organization as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity"). If the continuing physical health of the river and all its connected parts – creek, coulee, ravine, slough, aquifer, land and air, the natural system as a whole – is related, directly and indirectly, to individual health and social health, the supporting concept must be one of *fit*, the fit of man with this natural system. The theme is *linkage*: the physical linkage of the City and the rural area to each other and to the river and the natural system, the social linkage of people to people; the linkage of time – past, present and future.

We are pleased that we were asked to produce a 100-year *conceptual* master plan and not a 100-year *master* plan. If we have learned anything in the past 30 years, it is this: the inflexible master plan, based on transient man-made "facts" and technology, is an illusion that denies the facts of time and change. The word, *conceptual*, implies fundamental thinking about probabilities and possibilities. Such thinking provides a base or guideline while allowing for the dynamics of time – for later questioning, research, analysis, discussions, shifts in emphasis and modifications. In other words, the conceptual master plan offers a realistic, open base for creative future processes. It does not offer a fixed objective to be completed as conceived, without allowances for new awareness, new knowledge, inventions and social or technological change.

Conceptual, as a base for future processes, also has a practical side. It can bridge today, the known, with tomorrow, the unknown. For example, if we were suddenly given certain foreknowledge of the future and that future called for no roads because the motor vehicle is obsolete, what then? Can we even begin to implement the plan today without experience of such a life?

We have also avoided in this report concepts that require technological gymnastics or undue interference with the life balances of the river and its natural potentials. We believe that the concepts here presented demonstrate the compatibility of new development and conservation. Yet we ask the reader to keep the 100-year frame of reference in mind as this report is analyzed.

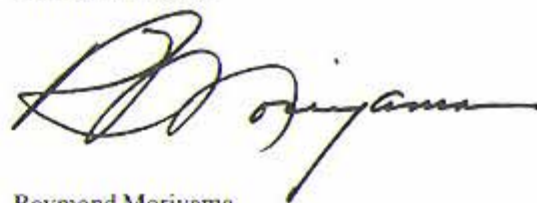
In the past hundred years man has challenged and generally prevailed over his environment. He is now, more often than not, preoccupied with shaping it to his needs rather than being shaped by it. We have found this is generally not the case in Corman Park or Saskatoon, which has always recognized its dependence on the agricultural community. There is a love for, and sensitivity to, the land; and there is an immense and passionate love and, sometimes fear, of the river. If the scales are to be tipped at all, let them tip on the side of listening to the whispers of the land and the wisdom of the forefathers rather than to the gods of unbridled technology.

To entertain a thought, even a passing one, of some day being invited to fashion a 100-year conceptual master plan is enough in itself to stir the blood and the imagination. To be commissioned by an innovative and responsive client and to actually carry out such a study has been an enriching human experience.

Those of us involved owe a debt of gratitude to the people of Saskatchewan and their representatives for the honour of being invited to apply our skills and experience toward the preservation and enhancement of a unique regional resource.

As the study of the river valley progressed and our knowledge of, and regard for, the people of the region developed it became increasingly clear that we were engaged in one of the most demanding and fulfilling projects ever to pass through our office. When the Attorney-General, Roy Romanow, declared during a particularly intense discussion that "I feel like a father of a new Confederation", I understood and silently agreed. In the end, though, the future of this resource will depend upon the answers to a question each one of us must ask. It is this:

What kind of legacy do I want to leave for my children and their children?



Raymond Moriyama
M. ARCH., FRAIC, MCIP, RCA, FRSA

On March 10th, 1978, the selection of our firm as architects/planners of the 'Saskatoon River Edge Study' and the appointment of Mr. Roland Muir as the Secretary to Committees 'A' and 'B' and as On-Site Project Co-ordinator were announced jointly by the Province, the University of Saskatchewan, the City of Saskatoon and the Rural Municipality of Corman Park.

Timing

We were instructed to complete our study by the third week in August, 1978, that is, within a period of five months. Such rigid time constraints, dictated by circumstances and budget limitations, required careful organization and scheduling of each phase of the study.

Process

Briefly, the process included:

1. Collecting existing information and data;
2. Discussing with and receiving inputs from:
 - a) community groups,
 - b) clients,
 - c) client staff and others;
3. Analysing existing information and data;
4. Identifying new and supplementary information required;
5. Pursuing additional information;
6. Generating new information;
7. Analysing:
 - a) opportunities and constraints,
 - b) possibilities and probabilities,
 - c) land capabilities;
8. Exploring ideas;
9. Synthesizing ideas and concepts;
10. Testing ideas and concepts:
 - a) within the project team,
 - b) with community groups, clients and client staff;

11. Developing concepts and recommendations;
12. Testing and refining concepts, control zones and recommendations;
13. Testing concepts for feasibility and implementation;
14. Analysing options for the organization and functions of an implementation authority;
15. Drafting report;
16. Reviewing draft report with community groups, clients and client staff;
17. Preparing final plans, sketches and report;
18. Producing final report, presentation drawings, and 2 models.

University Involvement

The University of Saskatchewan provided us with a committee/work room on campus. The location and the assistance and co-operation of the university staff were of great importance in our study of research papers and archival material. As project co-ordinator, Mr. Roland Muir was indispensable. His organizational ability, his knowledge of the area, the people, and sources of information saved countless man-hours.

Direct Experience—the Land and People

We traversed the study area by car and on foot. We flew over the city and the river several times. We travelled by canoe from the Moon Lake area into the City and along the northern section of the river.

We examined archeological sites, slumps, sloughs, coulees, potholes, and creeks. We studied the extent of filling operations and studied the effects of sewage disposal and indiscriminate dumping.

We walked the streets of Saskatoon speaking to people, taking part in the life and activities where possible. We held meetings with as many local groups as time would allow, to learn as much as we could of their character and needs.

Work Sessions

We worked closely with Committees 'A' and 'B', separately and in joint meetings, reporting and obtaining reactions and criticisms. A similar series of meetings with the local community groups and organizations were equally valuable. Working sessions were held with the Saskatoon City Council, the Council of the Rural Municipality of Corman Park, the Board of Governors and officials of the University of Saskatchewan, and members of the Provincial Legislature who represent the study area.

Briefs

Additional information was provided in briefs received from interested community groups.

The Name, Meewasin

The Cree word, *Meewasin*, means 'lovely', 'beautiful', 'happy'. Time and usage have associated the word with the wider meaning of 'happy meeting place'. The names, *The Meewasin Valley* and *The Meewasin Valley Authority*, were approved by votes of the Committees 'A' and 'B'.

Appendix Materials

This report is a summary. The bulk of the study and background materials, tape recordings of meetings, new geological information, presentations and correspondence is in safe keeping with the University of Saskatchewan and will be turned over to the new Meewasin Valley Authority.



The river valley north of Tipperary Creek.

The Natural History Of The Region

600 Million Years to 10,000 Years Ago

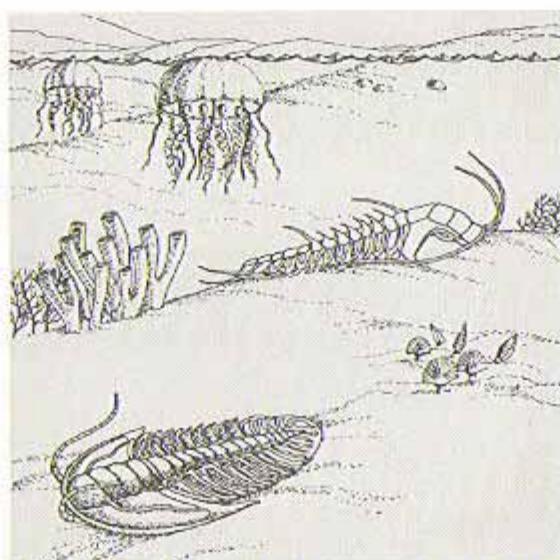
Why and how did the South Saskatchewan River come into being? How did life begin? How did this river valley become the green and fertile corridor of life we see today? What can it tell us about the potentials, the limitations and the possible concepts for this study area?

It is not possible to answer such questions from the immediate, narrow perspective of our own time. To understand the system of interconnected life that the river has become, our vision must somehow be extended and enlarged in time to include the vast, infinitely slow sweep of 600 million years of evolutionary time. It is only within such majestic dimensions that the 'miracle' of the river and its preparation for man's arrival can be visualized.

To trace events on such a scale we must imagine it is possible to drift many miles into space above Saskatchewan, to enter time at a point 600 million years before our century, and to look down upon the Earth below.

In the Cambrian Period (600-500 million years ago), the landscape is vastly different from the one we see today. Its Precambrian rock surface is 6,000 feet lower, bowl-shaped, barren and solid. This is the bleak surface of a planet already 3.9 billion years old.

As the eons pass, the vast area of North America below us slowly begins to sink. The sea flows northward, up the Mississippi trench, from the area we know today as the Gulf of Mexico to fill this vast natural bowl with warm shallow water. This Cambrian Sea will cover most of Southern Saskatchewan for 100 million years. There is no soil. Yet life begins to emerge on land: primitive lichens and mosses that cling precariously to the bare rock. As time unfolds the sea teems with invertebrates. Sediments produced by the weathering of the Precambrian rock bury the remains of countless generations of this sea life. The sea retreats, leaving a rich treasure of fossils to be sealed in the Cambrian sediments.



A cross section of the sea 500 million years ago during the Middle Cambrian Period.

In the Ordovician Period (500 to 440 million years ago), a second sea floods over the Cambrian sediments. Life again begins to teem in this warm shallow sea, which covers about 70 percent of North America. It spawns more advanced invertebrates, molluscs, the first fish. The rock continues to be broken down by weathering and is worked into this sea by rivers. Sediments again fill the great natural bowl. Then the water retreats, leaving behind the mud and debris that will be dried and compressed by time to become the Manitoba tyndall stone, a popular building material in present day Saskatoon. If you look closely at a piece of this stone you can find within it the fossilized remains of sea life from 450 million years ago.

A third sea, the Devonian, slowly moves in from the south to cover the whole plains region below. Rivers flow into this shallow sea. It is 400 million years before our time. For 50 to 55 million years, countless billions of fish evolve – the ancestors of the fishes we know today. They die and are buried by yet another layer of sediments. Along the shore of this sea, wherever mud has been deposited by rivers, the first land plants begin to evolve from seaweed washed ashore.

By the end of the Devonian Period plants are proliferating, evolving leaves and roots, spreading further inland. Fern forests begin to spread across the landscape. As the supply of water from the north is cut off, the Devonian Sea slowly evaporates leaving a thick new overlay of Potassium Chloride mixed with Sodium Chloride. This layer, 4,000 feet below Saskatoon, is today one of the world's richest deposits of potash.



In the marshy areas of the dying sea, more land plants evolve and spread to become the greatest forests of all time. During the Carboniferous Period (350 to 280 million years ago), yet another sea moves into this tropical landscape. Saskatchewan is green with fern forests. The first coniferous trees emerge around this sea. They provide habitats for other new forms of life on land, the amphibians, the first reptiles and insects.

The insects proliferate with amazing diversity. There are creatures that look like present day dragon flies – except in size. Their bodies are 370 millimetres (15 inches) long with wing spans of 740 millimetres (30 inches). The most durable of all the insects are the 800 species of cockroaches, some with bodies 100 millimetres long. In the unchanging warm climate, the forest rises 30 metres into the steamy air. When the great pulpy trunks finally topple into the brackish swamps, they decompose into sludgy layers of peat, to be compressed over the millenia by the weight of sediments into coal.

The Triassic Period (230 to 180 million years ago), provides a lush tropical environment. It ushers in the Age of Reptiles and the dinosaurs. These fascinating dinosaurs are to evolve, adapt and survive for 140 million years.

During the Cretaceous Period (135 to 70 million years ago), another new sea, reminiscent of the vast one of the Cambrian Period stretches from the Arctic Ocean to the Gulf of Mexico. It spawns a greater diversity of life than ever before. Along its populated marshy fringes birds are evolving, escaping from predators by conquering the air. The dinosaurs feed voraciously upon fish, abundant within the warm shallow water.

Fresh water is flowing from the west carrying with it great quantities of sand and mud. These sediments begin to build extensive deltas and flood plains, upon which more tropical vegetation luxuriates. By the end of the Cretaceous Period the region contains the deepest sediments to be found in North America.

The age of the seas and the Age of Reptiles are coming to an end. We are now at the Tertiary Period (70 to 2 million years from the present). A major event is about to occur, an event that will change the climate and land form of Saskatchewan and the study area.

In the west the crust of the Earth starts to fold over itself under tremendous pressures from within. The Rocky Mountains are being created. As this wall of mountains increases in height it blocks off the warm, moist air from the Pacific that has bathed Saskatchewan for hundreds of millions of years. The sea withdraws, temperatures continue to drop, and the climate changes from tropical to temperate. The Rockies begin to channel cold winds down from the North. The ecosystem of the plains is changing radically.

There are no more flying reptiles, no dinosaurs, no forests of giant ferns and sequoias.

Glaciation

The weathering continues, aided by incessant winds and dust storms that blow for centuries. Rains continue to fill the rivers, carrying rock particles, sand and clay from hills and mountains and depositing them, often hundreds of feet deep, in the low-lying areas. Flowering plants flourish in this soil. So do the hardwood trees. The sluggishness of the cold blooded reptilian world is replaced by a new life of quick movement and vigor. The Age of the Mammals, the warmblooded animal, has arrived.

By the end of this 68-million-year period, the landscape transforms under the cooling and drying influences, from temperate mixed forests to semi-arid prairie, much like the one we know today. Large mammals related to the present-day bison roam the forests and grasslands of the plains.

As we enter the Quaternary Period (2 million to 10,000 years ago), a succession of monumental events is about to happen, a cycle that will remodel and scrape away most of the sediments of the past 68 million years. It is the epoch of the glaciation of the North American continent. Events like the formation of the Rockies, are a new genesis. They will reshape the surface of 6,000 feet of sediments to form the land and river we know today.



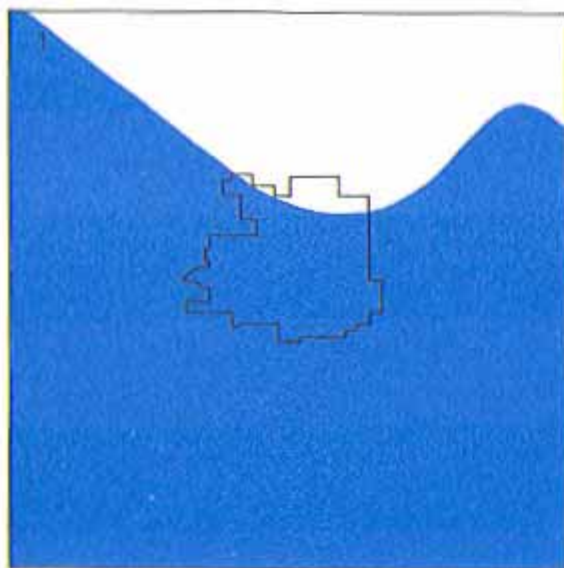
Positions of the glacier front as it retreats across Southern Saskatchewan.

During the Pleistocene Epoch (1 million to 10,000 years ago), a succession of glaciers descends upon Saskatchewan.

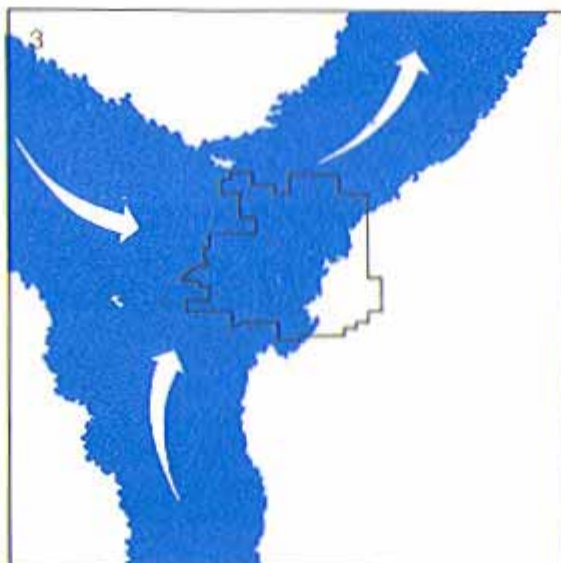
The last wave of glaciation, the Wisconsin Glacier, advances from the northeast, out of Hudson Bay, with spectacular power. The ice flow is thousands of feet high, perhaps as high as two miles. It climbs over the Canadian Shield through Northern Manitoba and covers the plains. During this advance, the glacier scrapes vast quantities of soil from the Shield and deposits them on the plains.

Retreat of the Glacier and Formation of Lake Saskatoon

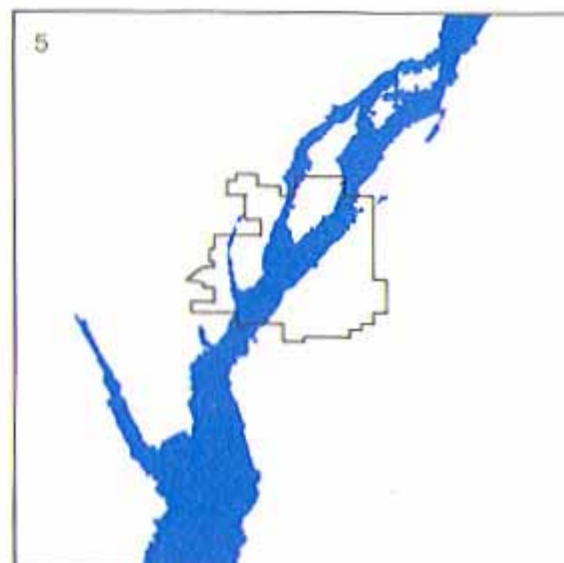
The glacier begins to melt (around 20,000 years ago) and recede northward. As it retreats downslope to the north and northeast toward Hudson Bay, it blocks the regional drainage system. Along its south face, Lake Saskatoon is formed. It covers much of the area around the present day City of Saskatoon. During the roughly 3,000 year life of this glacial lake, 200 feet of stratified clay and silt are deposited as deltas over the ancient sediments.



1 The south face of the melting glacier forms a dam creating glacial lake Saskatoon.



3 A broad flow channel is created by the outflowing lake.



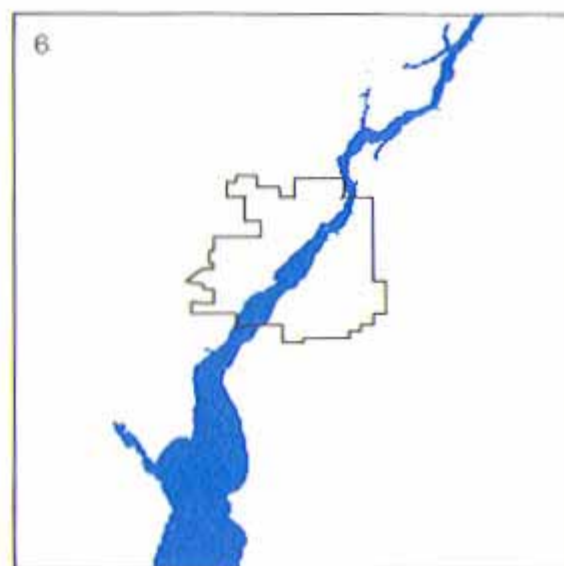
5 The River is downcutting into the tableland and becoming channelized.



2 The glacier retreats further, opening a northward spillway for glacial lake Saskatoon.



4 The river is flowing over a broad channel.



6 The river intensifies the erosion of the tableland and becomes more channelized.

Transition from Broad Flow Channels to River Valley

As the ice continues to retreat, a glacial spillway is created along the ice margin. Rapid drainage of the lake covering present-day Saskatoon begins to occur. At the beginning this drainage takes the form of a broad flow channel. It has no definite channel, and covers a band that extends about two miles east and up to four miles west of the present river channel.

This broad flow channel is now in the process of becoming the river channel that will eventually become a part of the South Saskatchewan River and its banks. In terms of geological time, this transition is a rapid one, commencing about 9,000 to 10,000 years before the present. The process is complex and dynamic, but the principle is simple: a search for dynamic equilibrium – between the quantity and velocity of water, the slope of ground, and the quantity and quality of materials that the water encounters.

Thus in the study area, vast differences exist in the processes and in the results south and north of the present day City of Saskatoon.

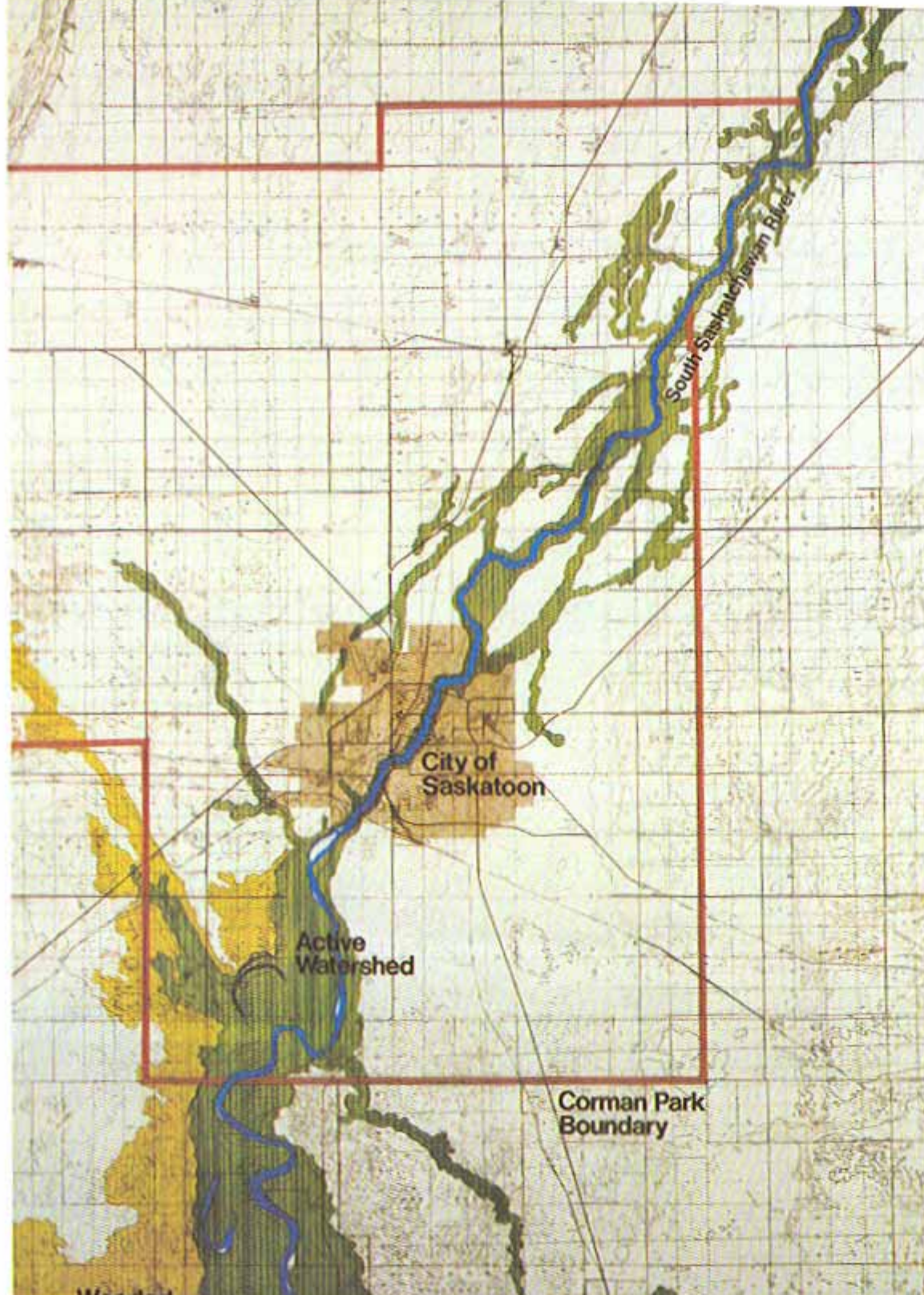
The series of maps showing the transition illustrate the narrowing process of the channel. In the south, the broad flow channel rapidly cuts downward through the sand dune area. Later, as a river channel, it oscillates back and forth across this ever lowering plain, creating a broad, fertile and constantly changing valley.

In the north, the broad flow channel is working against a harder till deposited by the glaciers. It is cutting deeper and deeper into a much narrower band of erodable materials. During the early stages, when the broad flow abandons its wide channel, it deposits a thin veneer of fluvial-lacustrine silt and clay on the surface gravels. These provide the rich topsoil that supports the agriculture of today. In some cases, especially in subsequent stages, the narrowing process and the lateral movement are so rapid that they create a type of sheet erosion. Where this occurs there is no subsequent deposition of gravel and sand; fine particles are removed from the surface leaving only an armouring of boulders. (There are also aquifers, the underground flows predating the glacier, inter-connecting into the river channel.) As the river is attempting to establish a course on this till plain it meanders as in the south, criss-crossing the present day alignment of the river. However, as it settles its course, unlike in the south, it leaves behind current scars, such as the Hudson Bay Slough, and coulees marking the abandoned flow channels.

As it shifts and down-cuts, it creates terraces on one side of its channel and high cliffs on the other. The Saskatoon terrace (on which the City core is now established) is thus 8,000 years old in its present form.

So we see the conditions that create broad differences between the south and the north. The south is a sandy meander plain; the north is a harder glacial till with river-related sloughs, coulees, aquifers, and paired terraces. The future City of Saskatoon is to emerge at the junction of these two diverse areas.

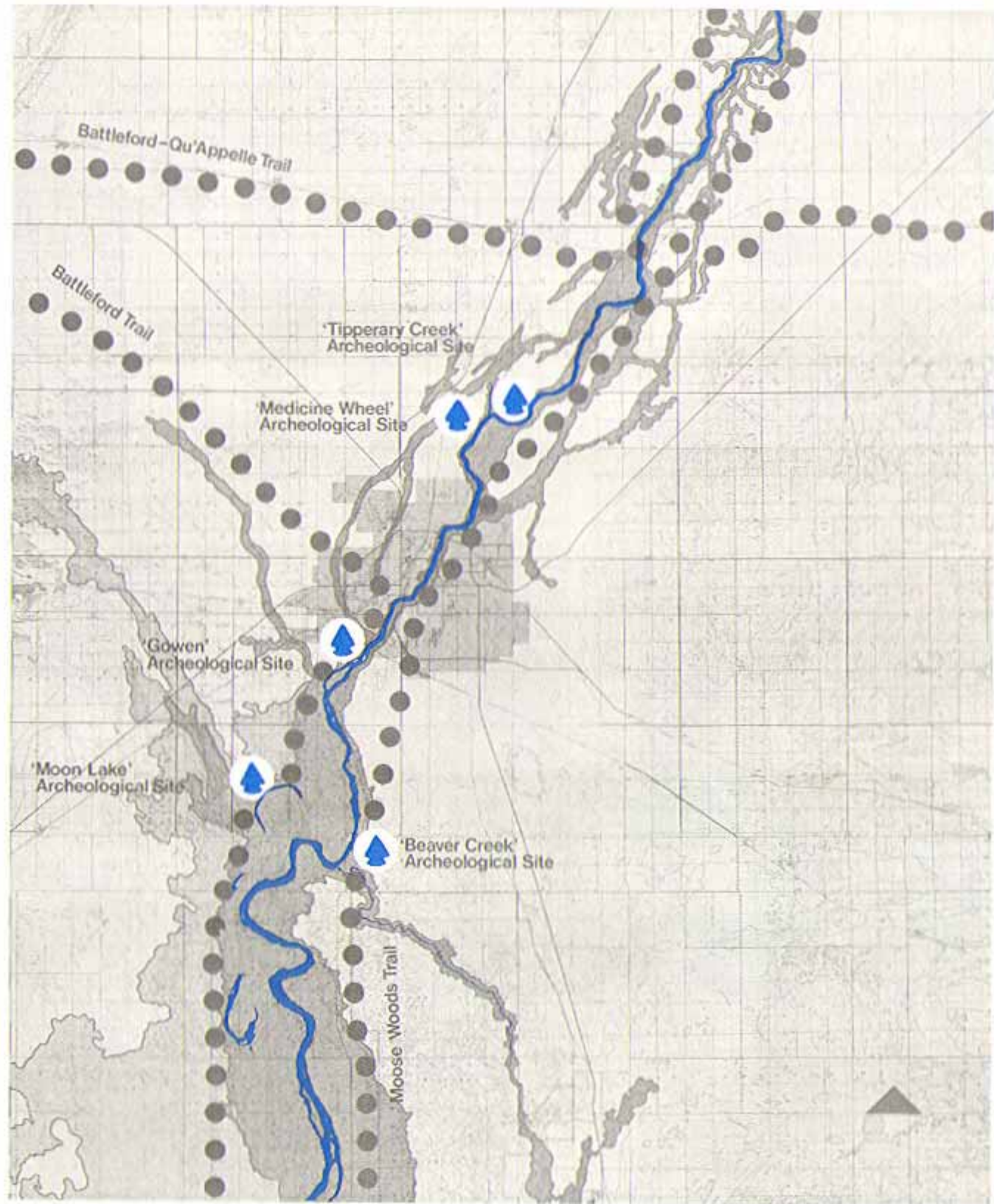
At this point we must begin our journey back toward the surface of the earth through these vast reaches of time and space. For our own ancestors have appeared. From now on we must follow the story of the river as explorers, with our feet again on the surface of the earth.



River Valley

Today, the river valley is a diverse and interconnected water-created pattern of meander plains, creeks, islands, river banks, river terraces, coulees, aquifers and sloughs.

Wherever moisture is concentrated there is a profusion of life. The river gives form to the land while continuing to shift and modify its course. Man's attempt to control it, even with dams, does not significantly moderate its occasional violence. Because of the two geological formations within which it is formed, the river valley is highly differentiated in terms of landforms and vegetation. It exists as an area substantially different from the surrounding prairie. It is an ecosystem within an ecosystem.



The Human History Of The Region

Settlement Before 1880

What can we learn from the history of human life on the plains? When did it begin? How did it develop and flower? What can we learn from our predecessors to carry forward into the future?

Again, we must step back to broaden our vision, this time on the surface of land and water, into a more recent past: the dawn of human history in North America.

Scientific and scholarly knowledge of the beginning of *Homo sapiens* in this region remains incomplete in parts because of the archeological destruction wrought by the glaciers. However, the most recent archeological finds fill in some of the gaps. They allow us to picture man arriving on the North American Continent between 25,000 and 40,000 years ago from north-eastern Asia. He has walked from Asia on what had been ocean bottom, now exposed by the Ice Age as a land 'bridge' called Beringia. It is land rich in accumulated natural fertilizer created from the remains of sea animals and plants. Lush forage grows on this newly exposed land, attracting animals from Asia; man, the hunter, follows the animals.

These peoples, on the evidence of archeological finds in Siberia, are essentially big game hunters, although they supplement their diet with plants and birds. Each autumn, as the mammals retreat to winter refuge in Alaska, the hunters follow. They set up temporary camps, bases for the hunt, and seasonal settlements. They become the first North Americans.

The glacier will later erase most traces of their existence, as it does with the rock and soils containing the geological record of nearly 70 million years preceding them.

These hunter/nomads live in southern Saskatchewan (according to the most recent evidence and speculations). They are pushed slowly southward ahead of the glacier. Much later, their descendants reverse the movement, following the northward retreat of the glacier into this region.

On the evidence available in the study area we can visualize human beings hunting and fishing along the river during the early stages of its formation (about 8,000 years ago).

As the glacier retreats and the river begins its continuing search for a pathway over the barren landscape, life begins to colonize this newly created landscape. The persistent, ubiquitous miracle of life is again following the physical system. The river carries seeds and twigs downstream into the Saskatoon area. They take hold along its banks. Birds and mammals follow, seeking the shelter and food provided by the plants.

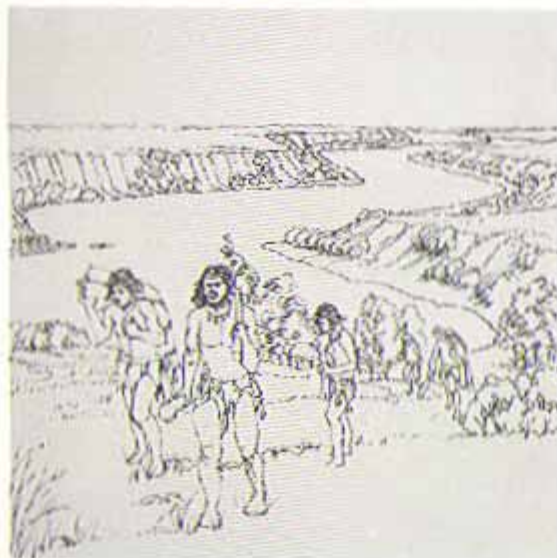
About 6000 B.C., then, we see the late prehistoric nomads migrating into the northern plains. They cover themselves with animal skins. They use fire for cooking and for survival through the long months of cold and snow. In such an environment, what do they fear? What do they believe in? What dreams and



Hunting ritual at a river valley encampment.

One of the earliest recorded archeological finds along the river, at the Gowen Site (on the west side of the river immediately north of the Queen Elizabeth Power Station), helps us to visualize a hunting encampment around 4000 B.C. This and other recently discovered finds along the river strongly suggest that the South Saskatchewan River in that distant time forms the heart of an environmental zone of prime importance to these inhabitants of the plains. The river-related environment offers many inducements and advantages for the nomadic tribes. The water itself is an attraction. On the prairie, essentially a low rainfall area, permanent streams provide a secure water supply for people and animals. Large mammals are easy to hunt here, where they come to water. Waterfowl and migratory birds are plentiful. The valley of the river offers the only major shelter from the sweeping prairie winds, especially during the winter. It is also a major area for tree growth, providing firewood and construction materials. There is an abundance of edible and medicinal plants.





A hunting party returning to camp along a river valley trail.

Although our stereotypical image of prehistoric man on the plains is of the bison hunter in open grassland, a more important focus of his activity and settlement is in fact the sheltered and well-watered environments of lakes and river valleys. Since such environments are not common on the plain, the South Saskatchewan River valley is heavily populated by man and wildlife. Today, there are several known archeological sites along the river, although they remain largely undocumented.

These include:

Moon Lake-2150 B.C.

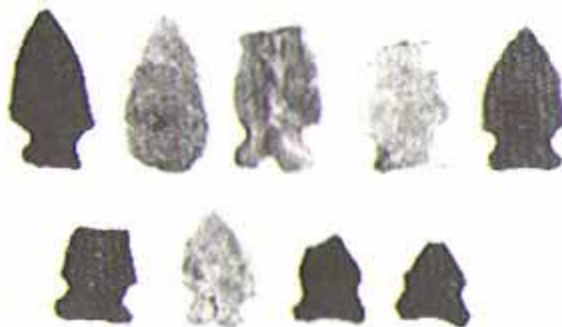
Beaver Creek-undocumented

Gowen Site-between 3810 B.C. and 4200 B.C.

Tipperary Creek-undocumented

Tipperary Creek Medicine Wheel-undocumented.

These sites are an indication of a significant archeological study potential along the river.



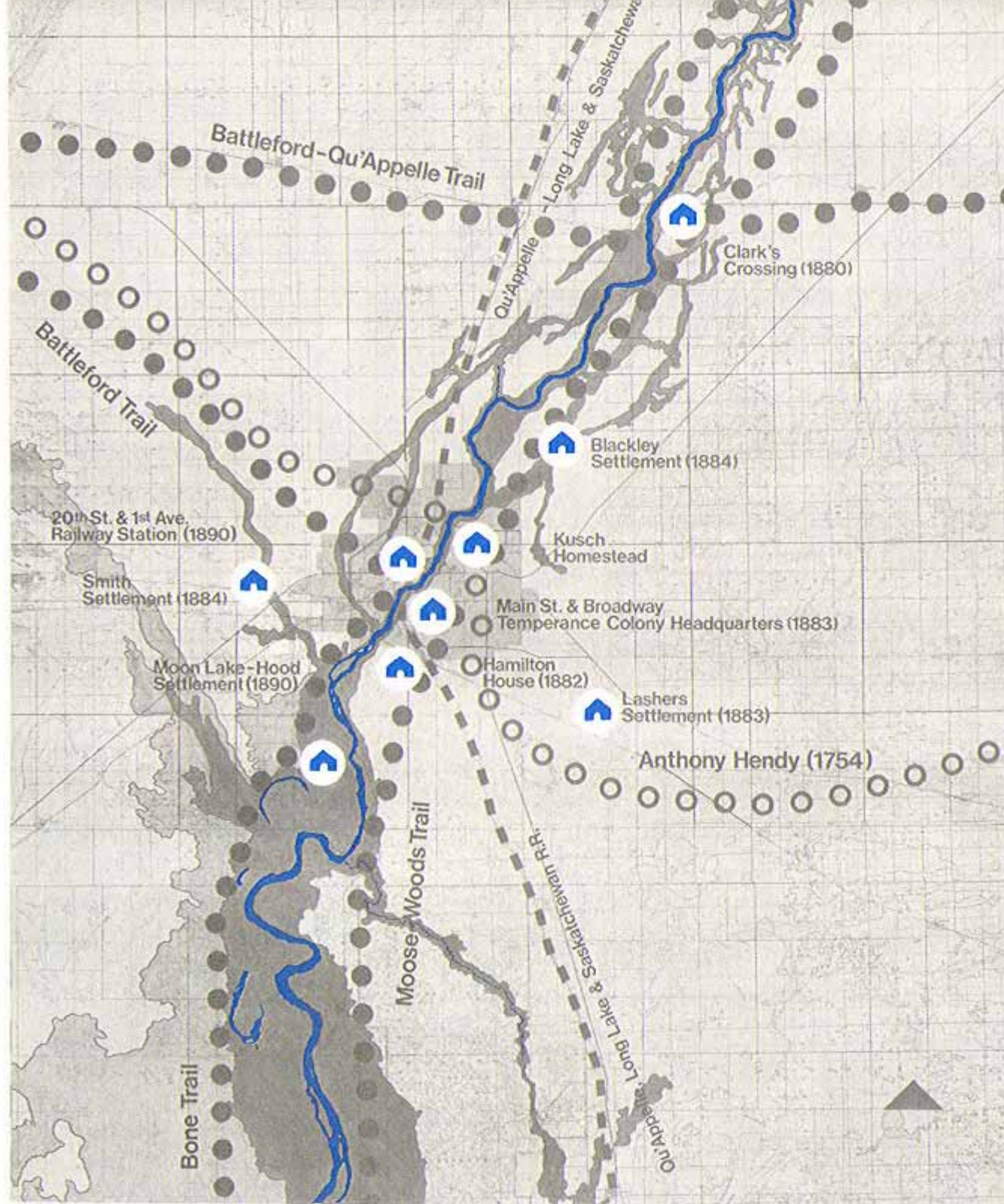
6000 year old projectile points from the Gowen Archeological Site.

Around 1000 A.D., we see the nomads joined by Indians migrating from the eastern forests. By the Seventeenth Century the area is inhabited mainly by the Assiniboine Indians in the south and Plains Cree Indians in the north. There are trails on both banks of the river as the Indians travel north and south for hunting.

The earliest European to set foot in the Northern Prairies is Henry Kelsey, an explorer and fur trader. He arrives in 1690. In 1754, Anthony Henday becomes the first recorded European to travel through this area, often using the Indian trails.

In the 1860's, the Sioux Indians from the Dakotas, fleeing into Canada following the Battle of Little Bighorn, are given the protection of the Crown. A band is granted land in the Moose Woods area south of Corman Park. During this period the Federal Government, anxious to consolidate and settle this area, acquires the Hudson Bay Lands of the prairies.

A few immigrants begin to trickle westward in the early years. They establish widely separated settlements at Batoche, Battleford, Prince Albert, Humboldt, Carlton, Fort Qu'Appelle and a handful of other places. The Indian trails are pressed into service as routes for wagon trains, freight, transport, mail and new settlers. Hudson Bay Company steamers begin plying the Saskatchewan Rivers. A government telegraph connects Edmonton and Winnipeg.



Trails and
Early Settlements

In 1880, J.F. Clark, one of the earliest settlers in the area, establishes Clark's Crossing at the point where the wagon trail and telegraph line cross the South Saskatchewan River, northeast of the present City of Saskatoon. He has a dream (never realized) that this point will soon become a busy distribution centre for the new homesteaders along the river.

The site of present-day Saskatoon is not on any trade crossroads, nor is it the only good fording place across the South Saskatchewan. The origin of the city is to be found elsewhere, in the moral hopes and real estate speculations of a group of people in far-off Ontario.



The original settlement at Clark's Crossing, 1885.



A view of Clark's Crossing showing the first telegraph line crossing the South Saskatchewan River, 1885.

In 1881 this group forms a Temperance Colonization Society for the purpose of establishing a Temperance Colony in the North-West. The next year, they organize as a company and ask the Canadian Government for a land grant of 2,000,000 acres. They are given 213,760 acres, an area that stretches from the Moose Woods in the south to Clark's Crossing in the north, on both sides of the South Saskatchewan River.

In June, 1882, John Lake is appointed by the company to lead a party west to locate the land granted and choose a town site. They establish their first home at Clark's Crossing and then begin the search for a townsite along the river. A site then central to their tract of land and known today as Idylwyld (on the east bank) is chosen, partly because it offers a good ferry crossing.

The name "Minnetonka", which means "a great river", is almost adopted for the new site but John Lake decides on "Saskatoon" (from "Mir-sask-quah-too-min" – Cree word for "a carpet of flowers") as the name for the settlement. The Company approves both the site and the name the following winter.

In 1883, Lake returns west again with a new group of colonists. By August 18th, the survey of the townsite is complete. The whole population (of perhaps 35) gathers to celebrate the founding of Saskatoon. Lumber begins to arrive by raft from Medicine Hat the following week and the settlers begin to build in earnest.



Homesteaders on the Saskatoon ferry in 1885.

By 1884, a ferry is established. Saskatoon becomes the crossing point for the trail from Moose Jaw to Battleford. Whether by healthy respect for the slumping condition along the river edge or by great foresight and love for the uniquely green riveredge vegetation, or possibly both, the village founders provide for generous natural areas along the bank and the Idylwyld flood terrace. The town plan, moreover, shows generous parks along the river and wide streets with boulevards. With this bold move, the pioneering forefathers set the direction for generations to come.



An 1889 sketch of Saskatoon prior to the coming of the railway.

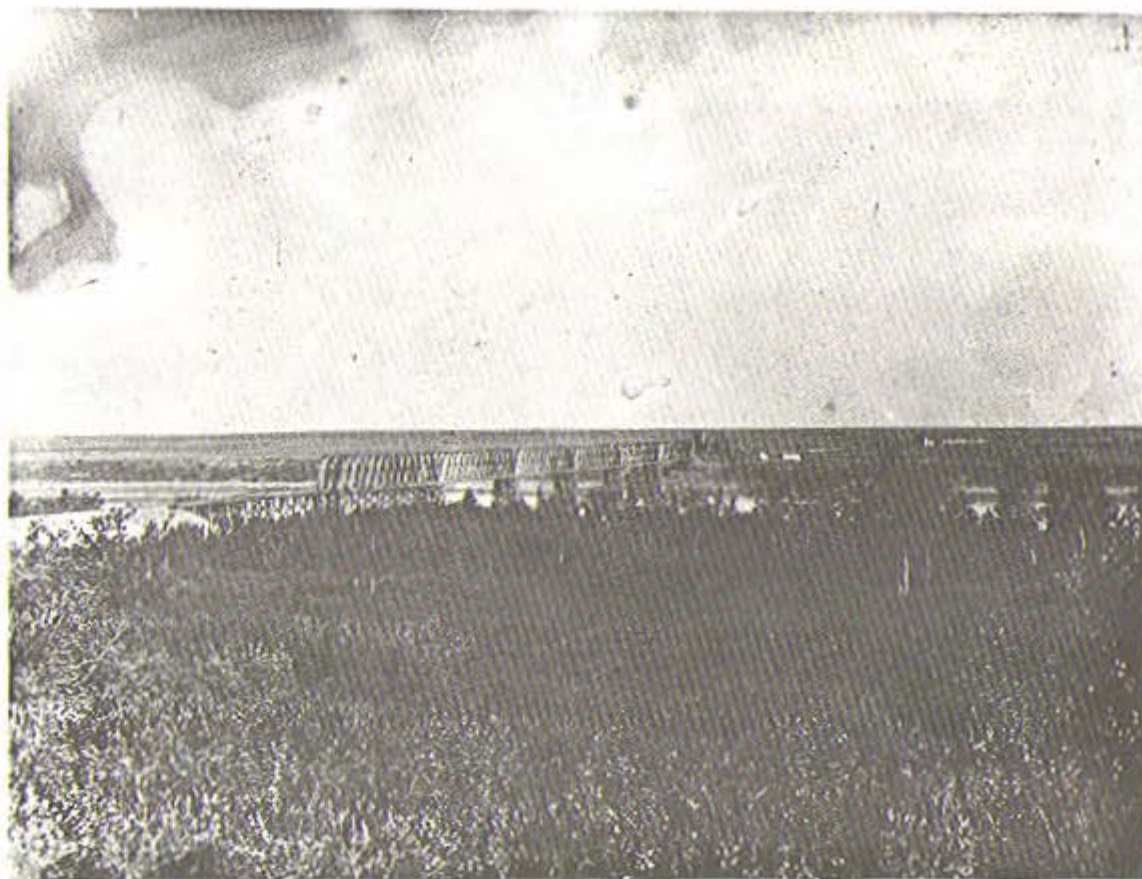
By 1885 optimism abounds in the colony. The population has risen to 70. There are 22 homes, a store, hotel, school, tinshop and blacksmith shop. Nearly 1,100 acres lie broken ready for crops.

But hardship returns in the years between 1885 and 1890. The Riel Rebellion threatens to wipe out the colony. Early droughts reduce crop yields. Though much of the Saskatoon area suffers from drought, the river helps save the day. The lush meadows of the Pike Lake and Moon Lake districts and the slough flats to the north provide excellent range for cattle.

In 1889 the first bridge is constructed across the South Saskatchewan (at the site of the present-day Idylwyld Bridge). It carries the railroad from Regina to Prince Albert. A railway station and rail yard are built on the river terrace across the river from the Temperance Colony. A new community quickly springs up around the station and along the tracks. Gradually the focus of growth shifts to the new location as businesses build near the station to avoid the delays and expense of ferrying goods across the river.

By 1900, enterprising new settlers appropriate the name Saskatoon for their town by the railway. The Temperance Colony eventually bows to the inevitable and adopts a new name, Nutana, for the original settlement of Saskatoon on the east bank. The new Saskatoon soon becomes the distribution point for surrounding communities. These communities begin to spring up wherever connecting railroads open new tracts of farm lands.

In 1906, the year after Saskatchewan becomes a Province of Canada, the Town of Saskatoon joins with the Villages of Nutana and Riversdale (the site of a temporary campsite established by the Barr Colonists who had arrived from England three years earlier) to establish a city with a single name for all: the City of Saskatoon.



The First Bridge, 1889.



The City of Saskatoon from the Nutana side, 1906.



The Town of Saskatoon in 1903.

The opening of the traffic bridge at 3rd Avenue (in October, 1907) marks the rise of a new era of transportation for the young city. The automobile has arrived. It grows rapidly in popularity. As a result, the ferry falls into disuse. The bridge, indirectly, also ends steam navigation along the river at Saskatoon. The steamboat, *City of Medicine Hat*, making its run from Medicine Hat to Grand Rapids, Manitoba, during the June floods, reaches Saskatoon on June 8, 1908. It is swept against the bridge by the currents and sinks, ending an era.



The last ferry crossing the river at Saskatoon.



The sinking of the "City of Medicine Hat", 1908.

On July 29, 1910, the cornerstone is laid for the first building on the campus of the University of Saskatchewan.

It is this period, shortly after the city comes into being, that marks the ending of the pioneering ways and the decline of the role of the river. The City enters a period of growth. It prospers amid wild land speculation. The river is forgotten. Land and the railroad are functionally more important. The new horseless carriages and the new traffic bridge make contact with the river banks, water, vegetation and wildlife even less important. The river is considered a dangerous nuisance by many, especially when it threatens both life and property during the June floods. The floods of 1903 and 1908 and the alarmingly rapid spring break-up of 1904 reinforce this attitude. So it is that the river edge is preserved – partly through foresight, partly through the inability to attract industry along the river and partly because of the unstable riverbank soils.



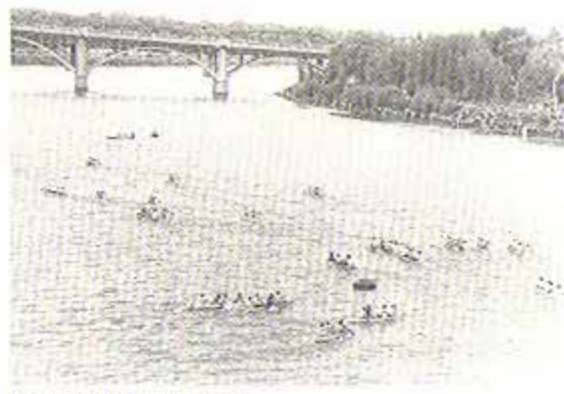
The 1908 flood.

Although Saskatoon continues to develop away from the river, plans are produced (between 1911 and 1913) to enhance the river edge. They are never implemented because of a succession of economic depressions. We must wait for the 1930's Depression, when money is scarce but willing hands and imagination plentiful, to see improvement plans followed through with the construction of Kiwanis Park, the Broadway Bridge, the Weir, the 19th Street Subway, the Arena and construction of the Bessborough Hotel by the Canadian National Railway.

In the period following World War II, the City of Saskatoon is engulfed in a boom of growth and prosperity. Once again the river is forgotten. However, in the Sixties and the early Seventies, the citizens in the area once again begin to perceive the potential value and the beauty of the asset they possess.

To walk along the river edge today, even in the centre of the city, is to be immediately struck by a strong sense of nature and history. The river has contributed to the city its unique form and character.

The love-hate relationship with the river persists to this day. The river can still destroy property with awesome ease and it remains a threat to human life. But it is also acknowledged, as it was thousands of years ago, as a giver of life. The forefathers of Saskatoon built their future on its banks. This is the heritage we possess today.



Louis Riel Day on the river.

Opportunities

General Guidelines

In our consideration of the potentials and opportunities for the study area we established the following as general guidelines against which our proposals were measured:

1. Stated and implied needs:
 - a) the Assignment and
 - b) what the people, past and present, are telling us.
2. The natural system and its components: what they are telling us.
3. Our input:
 - a) planning objectives established for the study area and the proposals.
 - b) simulations of how and by whom the proposals can be implemented.

Planning Objectives

As an opening position for policy discussions with Committees 'A' and 'B' and community groups, we formulated the following tentative planning objectives (aside from the general objectives stated in the Assignment) for a long range conceptual master plan:

- a) Maintain and upgrade the health of the river and the river valley system.
- b) Identify opportunities within and around the river valley system, based upon access points, vegetation, soil stability and its ability to absorb the impact of man.
- c) Identify a natural framework, based upon opportunities within the natural system, as a guide to needs and development.
- d) Provide direction and approaches for meeting future needs within the context of the prairie environment.

e) Reinforce the river as a form-giving natural feature for a prairie city and as a focus for activities that contribute to the unique identity of Saskatoon and surrounding rural areas.

f) Expand and reinforce existing opportunities for public use of the river valley.

g) Create new opportunities for future generations by:

increasing contact with the river and nature within the city;

increasing the range of activities that can take place within rural sections of the river valley.

h) Extend the natural framework of the river into: the city

new residential areas

the University

major residential areas

agricultural areas

small towns along the river

i) Define the boundaries of the river valley system as a zone within which development would be controlled by an appropriate authority and establish an additional buffer zone, including areas of influence on the river valley system.

j) Learn from the past and present activities of people to carry improvements and options into the future.

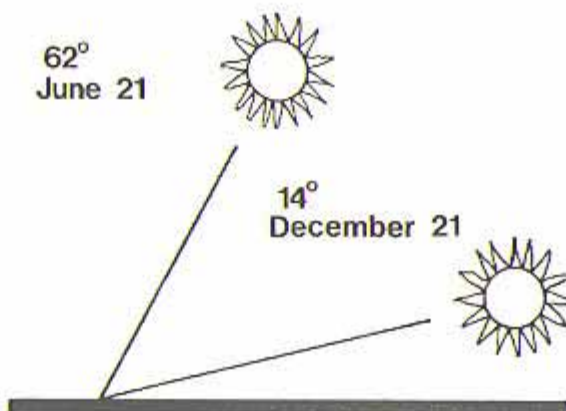
There was a general adoption of these tentative planning objectives. Of course, in the subsequent processes these were elaborated, expanded and refined. However, the essence remains.

In the light of the natural and human histories reviewed earlier in this study, let us now start with these aspects and ask:

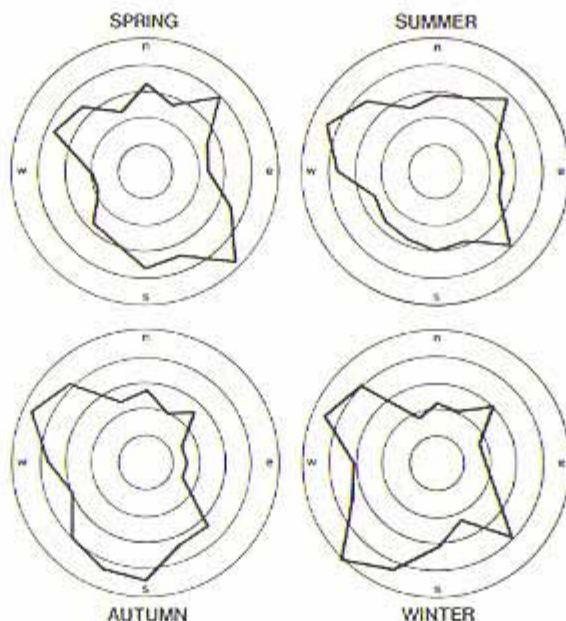
What do they tell us about today?

What do they indicate for the future?

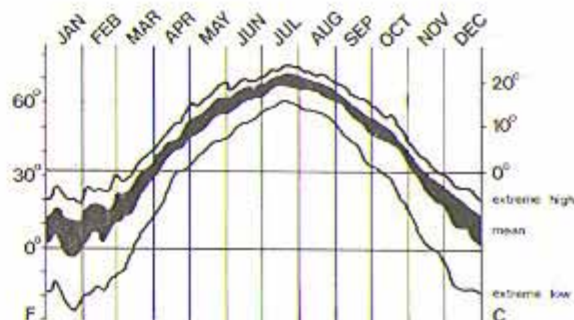
The natural history suggests that, for the foreseeable future, this region will be sunny, the angle of sun at noon varying 48 degrees between summer and winter.



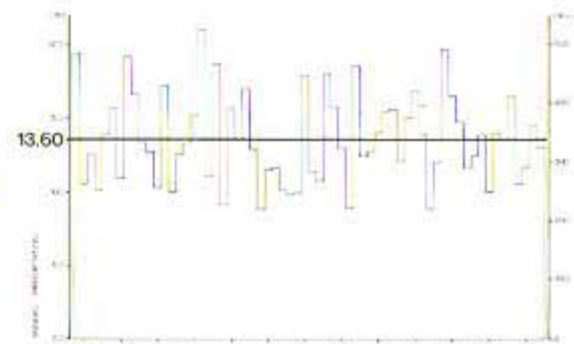
The wind will continue to blow and follow long-established patterns, as shown in the seasonal direction diagrams.

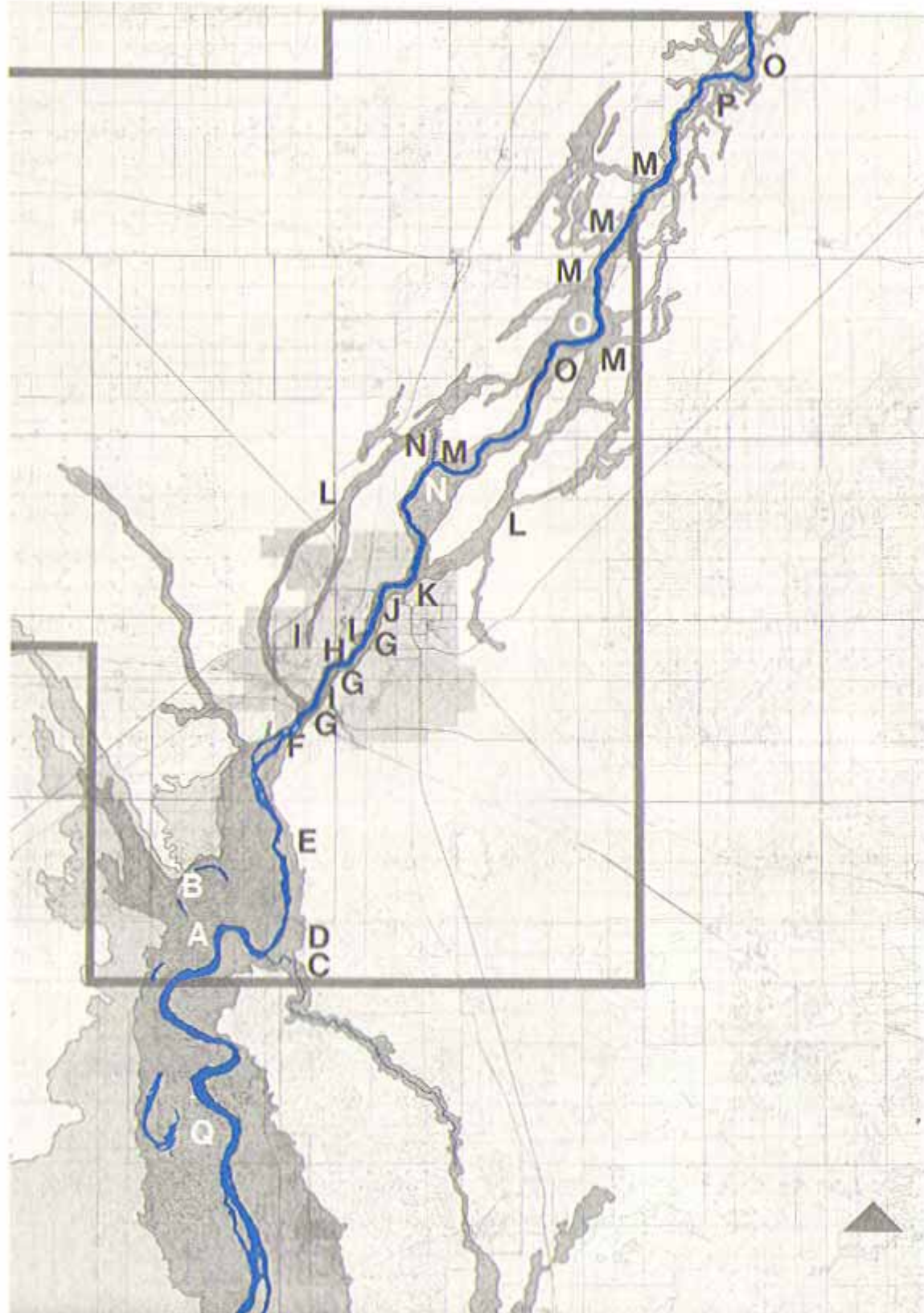


The average temperature variance during the past decades has been, and will continue to be, about 55 Celsius degrees. The extreme maximum variance is approximately 86 Celsius degrees, from a low of minus 48 degrees to a high of plus 38 degrees Celsius.



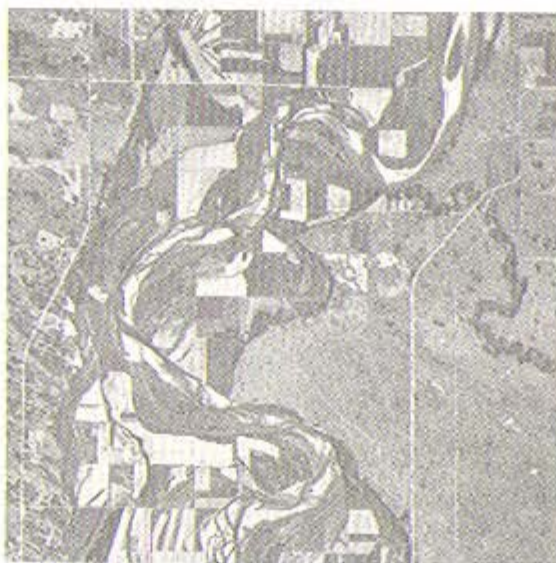
The land will remain sensitive and semi-arid, receiving a mean annual precipitation of 345 millimetres (13.6 inches) of rain and snow.



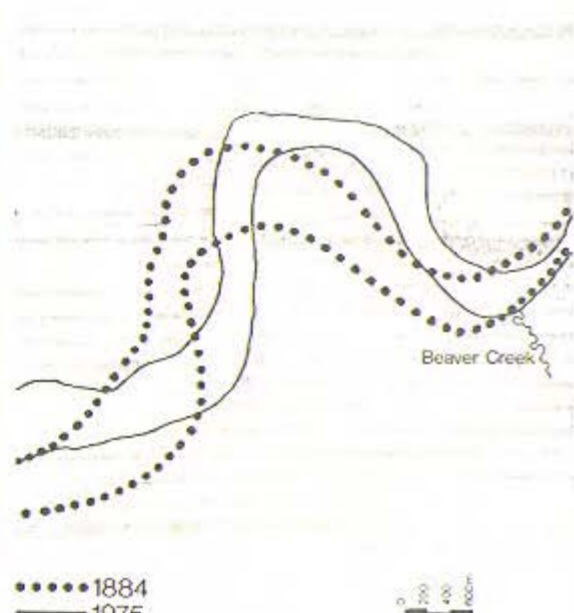
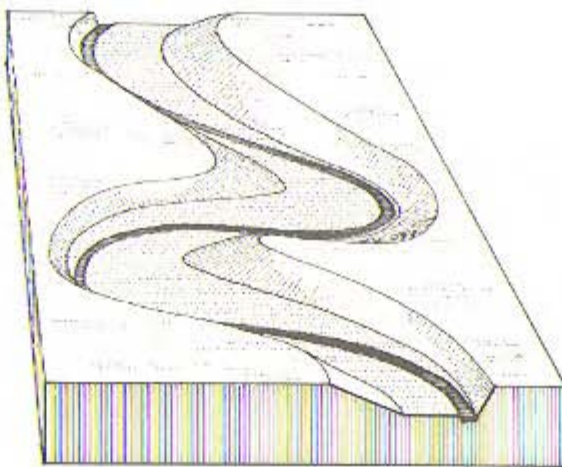


- A. Meander Plain
- B. Oxbow Lakes
- C. Beaver Creek
- D. Slump North of Beaver Creek
- E. Cranberry Flats
- F. Yorath Island
- G. East Bank
- H. The Downtown
- I. The River and the City
- J. Sutherland Beach –
The University of Saskatchewan
- K. Peturrson's Ravine
- L. Current Scars and Sloughs
- M. Coulees
- N. Tipperary Creek Area
- O. Paired Terraces
- P. Clark's Crossing
- Q. Context Beyond Corman Park

Let us now quickly view the physical characteristics of the various parts of the river valley and the constraints and opportunities they suggest and offer. We will start from the south end of the study area and proceed northwest and downstream through Saskatoon to the northern limits of Corman Park. This is an attempt not only to describe the diversity and richness of the natural system within this valley, but to relate this unique environment to human use today and to identify constraints and potentials for future use.



To the south and upstream of Saskatoon, the river continues to form a broad meander plain within easily worked sandy soil. This plain is a wide, flat valley below the prairie table land.



Migration of the River Bed

Because of the sandy geological medium within which the river is seeking to establish equilibrium, and the yearly cycles in flow volume, the river channel is continually shifting laterally – more than 0.5 metre a year. (It has shifted over 6,000 metres [20,000 feet] in about 9,000 years.) This dynamic process of erosion and deposition of new land along the river edge occurs at a rapid rate. The meander plain is also subject to periodic flooding in June and early July – another major on-going natural process.

The plain is bounded by eroded sand-dune areas to the north, the Vanscoy Hills to the west and the Moose Woods and Dundurn Hills to the east.

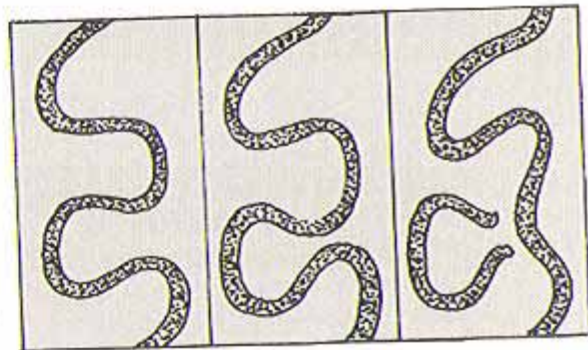
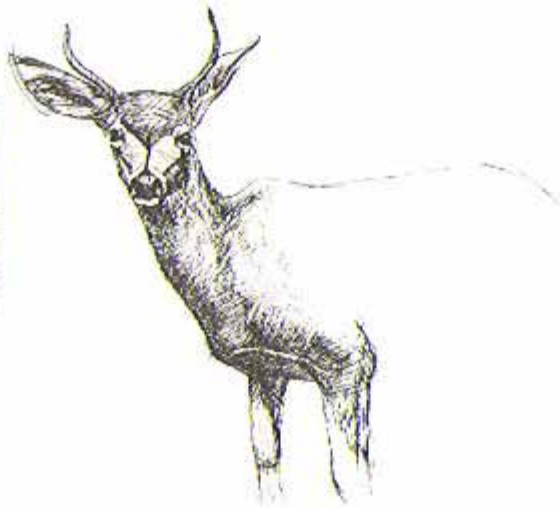
B. Oxbow Lakes

The wet environment supports a highly diverse ecosystem of plants and wildlife. Within this area can be found species which usually occur far to the north and the south. Within it grow the largest trees for hundreds of miles. Wildlife is abundant. It is one of the few remaining places on the prairies where a natural zoological experience is still possible. The river in the meander plain unfolds like a living textbook of animal life within a clear context of landform and vegetation.



The value of this oasis for present and future generations is seriously threatened by increasing pressures for recreation, housing, enjoyment of nature and for a large outdoor area in which to play. The use of the meander plain must be carefully balanced with the life existing on its delicate sand base.

To preserve the unique oasis for this and future generations to enjoy, care must be taken to manage, control and educate the users. This will be necessary if an important piece of our prairie and Canadian heritage is to be preserved, improved and passed undiminished into the future.



As the river meanders in the wide flood plain it occasionally cuts off the meander loops and leaves them stranded as oxbow lakes. Pike Lake, Moon Lake and Brown's Lake are examples of oxbow lakes. They have a tendency to slowly fill up with silt and organic sediments. Also, the oxbow lakes generally are at higher elevations than the present river channel; Pike Lake, for example, is replenished by artificial means to maintain acceptable water levels for recreation.



Beaver Creek, fed by the Brightwater Marsh and from springs along its course, is a scaled-down version of the South Saskatchewan meander plain. It courses through sandy soil to the river from the south and east, creating an increasingly wider and deeper flat-bottomed trough.

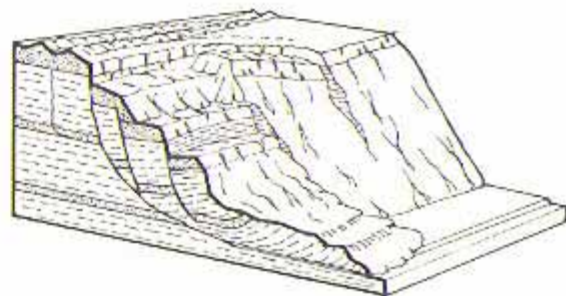
This water-created landform, lower in elevation than the surrounding plain, is also biologically rich. It too supports a highly diverse ecosystem of plants and animals. The creek appears as a ribbon of green making its way across miles of semi-arid prairie from the Brightwater Marsh to the South Saskatchewan River. Sandy soils allow rapid infiltration of rain, which precludes any need for the formation of drainage courses. Surface water percolates through the sand and migrates toward Beaver Creek and the valley wall, where it appears as springs. The creek, continually shifting within its meander plain, continues to shape and widen its own valley. Two former creek mouths are visible today, demonstrating the amount of shifting that has occurred.

In past years this area has been heavily populated by beaver, as evidenced by the remains of many dams and beaver-felled trees. Beaver still visit the area to a limited degree; mink, fox, deer and coyote are also present. If animals were to receive a measure of protection from disturbance the beaver would probably recolonize the area, constructing dams, ponds and lodges. While beavers are relatively common along the river, this area is one of the few places in which a typical beaver pond system could be constructed.

Maintained in a semi-wilderness state, the area would provide unmatched opportunities for the observation of rarer animals, including the otter and lynx.



All of the major slopes and steep valley walls within the study area have occurred as a result of erosion. This erosion is the result of water action and, to a lesser extent, wind and biological actions. In the southern section, the principal erosion is by mass slumping and wasting.



Slumping, or landsliding, occurs when a slope is eroded to a steeper angle than the soil strength can support. Then a large block of ground suddenly slides toward the valley bottom and slowly creeps towards the river over a period of many years. This landslide debris is eroded by the river and the process repeats itself until the valley reaches its maximum depth and width.

E. Cranberry Flats

This is the process acting on the eastern bank of the river from Moose Woods north to the University Bridge. The east bank is composed of weak, clay-rich soils. The groundwater regime within these slopes also contributes to their susceptibility to slumping.

Slopes with high groundwater levels, such as those north of Beaver Creek where the river is actively meandering its course into the high river bank, have been eroding at a rate of about 1.3 metres per year since 1944.



Cranberry Flats lies on the east bank of the South Saskatchewan River, within the sand dunes formed after the retreat of the glacier. The area is being actively eroded by the river, although the rate of erosion is not as extreme as that of the slump area near Beaver Creek. A thin mat of vegetation covers the dunes and provides a measure of stability which can be easily disrupted.

This vegetation, mostly short grasses and shrubs, protects the sand dunes from wind erosion. Without this mat of vegetation the area would become a desert of shifting sand. Within wetter areas along the river bank and in low areas there are substantial stands of trees. Here, more than anywhere else along the river, the thin cover of vegetation stabilizes the topography of the landform and provides food and habitat for wildlife.

Cranberry Flats is an accessible and popular area, primarily because of its unusual beauty, topography and relationship to the river. It is in danger of destruction or irreversible damage from overuse, particularly from the tearing action of motor vehicle tires. The use of Cranberry Flats has been intensifying in recent years. If the area is to be preserved for the recreation uses it can support, and protected for future generations, stringent new measures of planning, control and policing will be essential.

F. Yorath Island



In many ways, Yorath Island is a microcosm of the vegetation and wildlife of the entire meander plain ecology.

As the river erodes vast quantities of clay and sand from the meander plain, it creates within its channel numerous sandbars that shift and change from year to year. The sandbars are most prominent upstream and to the south of the downtown core. Several of these have been formed in areas where the river is depositing material at a faster rate than it is eroding. Yorath Island originated from one of these sandbars. It was first documented by John Lake's survey of the lands which were part of the original Temperance Colony grant. In 1884, the island was slightly over 100 feet long. It is now more than a mile long, the largest island within the meander plain. It is thickly forested, has several layers of dense underbrush and supports abundant wildlife. The island seems to be shifting northward and downstream.

Yorath Island is largely undisturbed and natural. The island offers potentials for passive recreational and research activities. However, to preserve the integrity of this natural area great care must be exercised in controlling its use. Its highest value exists as an undisturbed natural environment. To conserve this environment and learn from it will be both a challenge and an opportunity for future generations.



Those slopes that have undergone landsliding exhibit a distinctive overall pattern. In profile, they tend to be tiered. Each tier is slightly concave and bulged upward at the edge. Ponded water or luxuriant vegetation may be evident in many of the pockets in these slumps.

The erosion and slumping of the river bank has exposed important archeological materials and these await serious documentation.

G. The East Bank



Along the east bank of the river, within the city and downstream to the University, the river bank is unstable and actively slumping. The natural instability of this river bank is further aggravated by ground water, which flows along layers of clay to the edge of the bank. The water table throughout this area has been raised because of the effects of adjacent urbanization. Major slumps are occurring along the bank of Diefenbaker Park and at the Queen's House of Retreat. The banks along Rotary and Cosmopolitan Parks also show signs of instability. In the long term, as the natural process of slumping continues, residential development adjacent to the east bank of the river will be increasingly threatened. Every flood accelerates the problem.

It is noteworthy that the original settlers of the Temperance Colony avoided these slumping banks in the development of their community and dedicated the river bank as parks and natural areas. Today, Cosmopolitan Park, an unstable river bank site that the forefathers set aside, provides a unique opportunity for contact with a natural environment and wildlife within the centre of the city directly across from the downtown core.



The natural occurrence of slumping along the east bank of the South Saskatchewan River will continue. Its force is more powerful than any restraining measures that existing technology can offer.

What can be learned from this river bank, however, is that, respected and left alone, it will support intense vegetation and wildlife. These are of great benefit for research, education and recreation. Future planning along the east bank, south of the University, must recognize these opportunities.

H. The Downtown



The downtown is located on a river-created landform known as the Saskatoon Terrace. This landform was created by the river as it encountered difficulty eroding a course through glacial deposits to the west. It veered around this area, leaving the Terrace as it cut into the sediments that now compose the Nutana bank, opposite. Beginning with the arrival of the railroad in 1890, the Saskatoon Terrace has been continually developing as the commercial core of Saskatoon.

I. The River and The City

The southern sector of the downtown, adjacent to the river, is one of the few large areas along the river remaining to be developed as a link in the continuous system of parks that parallels the river in the centre of Saskatoon. This sector of the river bank lies between Victoria Park to the south and Kiwanis Park to the north. The site of the A. L. Cole Generating Plant is the northern terminus of a major north-south visual axis along the river that terminates in the south at Diefenbaker Park. The downtown core has largely developed away from the river and has generally ignored its presence. The most commercially intense area of the core is only two blocks north of the river. The intervening land is largely under-developed, as on-grade parking.

This link along the river edge, because of its nearly ideal sun exposure, firm soil and strong visual relationship to other parts of the city along the river, offers an excellent opportunity for introducing highly active, river-oriented community facilities along its edge. The close proximity to the commercial core also suggests the direction for expansion of the commercial core, southward to the river, to link with the river and expose new development opportunities. These could complement and balance new office areas developing to the north of the commercial core.

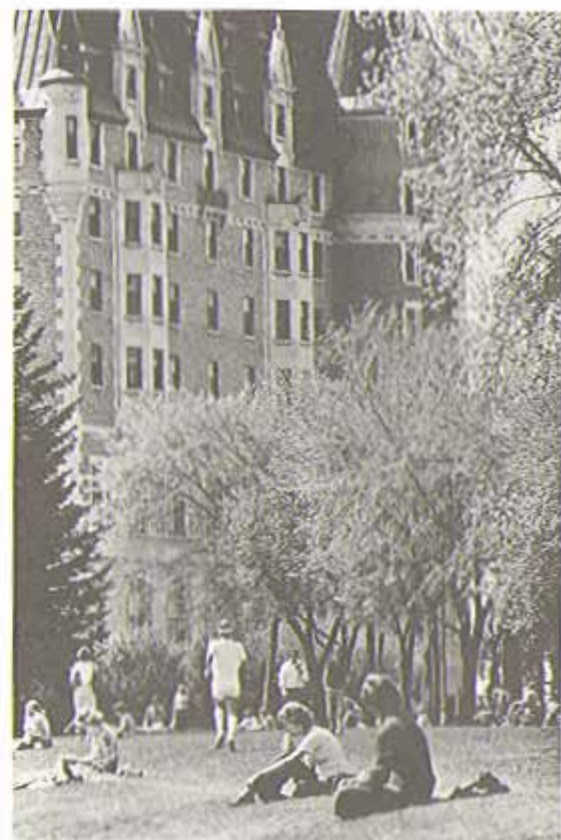


The river supports within the City an environmental framework of trees and green spaces that is repeated nowhere else on the semi-arid prairie. The parks developed along its banks provide a focus for neighbourhood and city-wide cultural, educational and recreational facilities. The natural system along the river can be extended into some areas from the river bank, into neighbourhoods via tree-lined streets and into neighbourhood parks and school yards.



The river is a natural form-giving element in the Saskatoon cityscape, not just because it is there, but because the people have recognized and increased the opportunities it offers for the enrichment of everyday life. It has always been a shared resource, the basis for a system of pedestrian links connecting streets, parks and open spaces with the river.

On a sunny late spring afternoon in Kiwanis Park the people speak through their actions – joggers puffing along the paths, office workers eating lunches under shady trees, a band tuning up in the band shell, school children playing with balls, people sunbathing on the sandbar, a young couple walking, holding hands, old men with their memories telling stories to youngsters.

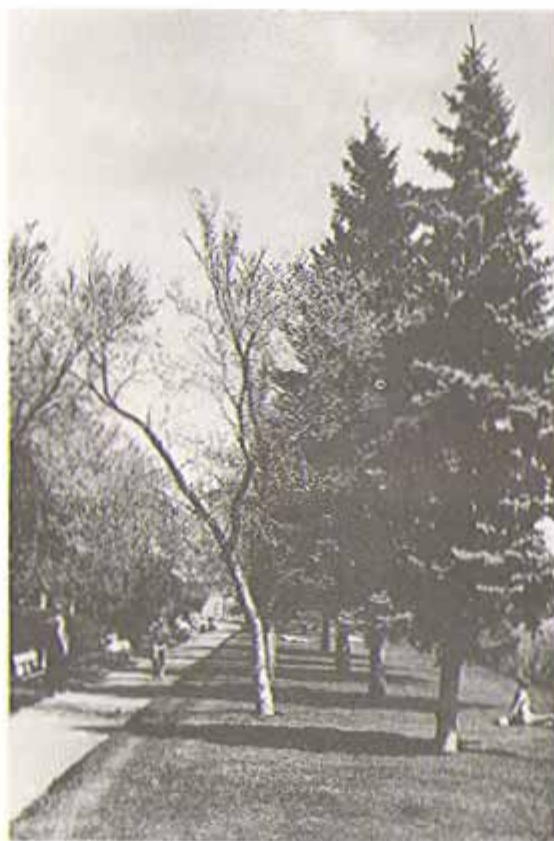


People today are enjoying the legacy created by the foresight and action of past generations. As the city and rural communities develop, the river continues to offer opportunities for the enhancement of life for present and future generations. With the co-ordinated efforts of all involved agencies, it would be possible to strengthen existing links and create new ones to unite almost all of the city's open spaces and tie them into the rural areas. The natural characteristics of the riverbanks, for example, could be extended into new areas in the city and into rural areas along the existing country roads.

The downtown core area is a good example of an important area adjacent to the river that could become more strongly related to the river and that could gain from the grace and dignity of its natural qualities.



In some locations the river has been used illegally as a dump. Not only are these dumps unsightly, they pollute the river as it erodes away the debris. Depending on the nature of the dumped materials, some of these sites constitute an outright hazard to the health of human beings and river wildlife.



The riverside trails and pathways already developed are heavily used in warm weather for jogging, walking and bicycling, and in the winter for cross-country skiing and snowshoeing. The topography of the riverbank provides a continuous opportunity for the extension of this pedestrian system to connect other natural areas and activity nodes within the city and extending to outlying areas south and north of Saskatoon. This would enhance the already strong relationship and interchange between urban and rural areas.

This relationship will remain important as demands on the river increase for irrigation, boating, and other functional and recreational purposes.

For some of these opportunities to be realized, however, co-operation and joint action by a number of agencies will be necessary.



Sutherland Beach is the second river terrace downstream from the City Core Saskatoon Terrace. Its gently sloping landform is the most accessible river bank downstream. Along the shoreline are willows and aspens, which are periodically scoured by spring ice and inundated by June floods. Upslope from the low, sandy shoreline are stands of mature willows and poplars which line the perimeter of Sutherland Beach. On top of the terrace, market gardeners have developed mixed coniferous and deciduous hedgerows that subdivide the farm fields. A small spring-fed creek flows down the north face of the terrace, sustaining large trees that line its banks. Wildlife abounds in the habitat provided by the vegetation on this river terrace.

The gravel bars in the river are major spawning grounds for fish. To the east of Sutherland Beach is the Forestry Farm, a living museum of vegetation.

Dumping is also occurring along the north slope of the Sutherland Beach Terrace. It is a blight and a potential hazard.

During the creation of this terrace the river has eroded away thousands of years of sediments to expose the remains of prehistoric mammals. These are extremely fragile and require utmost care if they are to be displayed to the public.

Many areas of the Sutherland Beach shoreline and terrace clearly show the glacial deposition and the dynamics of the South Saskatchewan River in finding a course over and through these deposits. The northern river edge of Sutherland Beach, for example, has been completely annulled by glacial boulders. The river has eroded through the till, carrying away fine particles and allowing the boulders to aggregate and form a stone-paved river bottom. Along the river bank near the railway bridge is a stratigraphic sequence exposing at least 3 glacial ages and sediments of glacial Lake Saskatoon.

The paleontological remains bound in time within these geological formations and the exposure of geological layers provide a rare opportunity for education and research in terms of formative processes and of the life that existed during these processes. The presence and involvement of the University add a unique potential that would not be possible elsewhere. It provides an opportunity to integrate several different types of existing and proposed research related to the life of the region. This research could focus on the existing and emerging problems of urban and rural life on the prairies. Such research, some of which has already been undertaken by the University of Saskatchewan, could be of great importance to regions beyond the boundaries of Saskatoon.



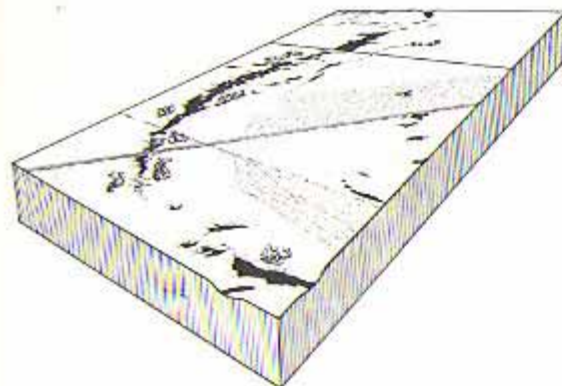
Peturrson's Ravine is a node of intense life within a ravine landform that is actively being created by groundwater seepage from aquifers. The water creating this landform is also sustaining the life within it. Peturrson's Ravine forms the southern terminus of an extensive system of scar channels (abandoned river courses) that lies to the east of the present river channel. These current scars or sloughs are maintained as wet areas throughout the year by a system of aquifers that lies close to the surface of the ground.

The plant life within the ravine is both beautiful and fragile. It is sustained by the highly mineralized water flowing westward into the ravine. The mineralized state of this water suggests that it has been centuries, perhaps thousands of years, making its way along the aquifer system and eventually flowing into the river. In one area of the ravine this water flows out half way up the slope of the bank. Above and below this life-giving water are two contrasting ecosystems. The one above the outflow is of the typical semi-arid prairie type. It is below the outflow that the true significance of water on the prairie is to be seen. This area is lush, green with tall grasses. It abounds with even taller shrubs. The ground water trickles into the river. As it moves down the slope the grasses give way to new species of plants that grow along the edge of the river.

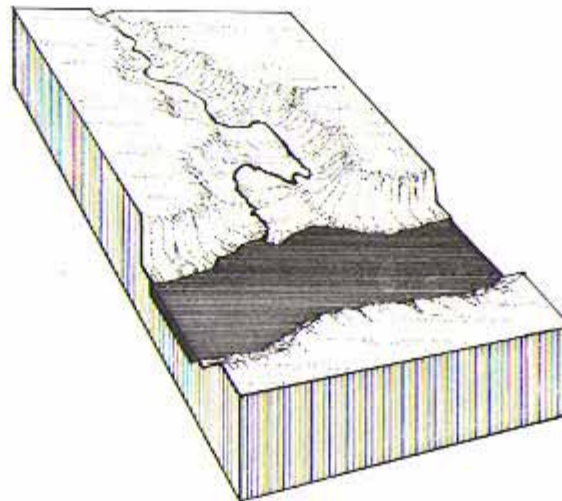
In another area of the ravine, water seepage from the aquifer is even more active. It has created a sharp V-shaped coulee. As the coulee works its way to the river edge the water is ponded up and within this shallow pond grow tall grasses. Prairie lilies and prairie roses are among the plants that encircle this pond. The songs of many species of birds fill the air. Farther north of the coulee, still within the ravine, is an area that served until recently as a sandpit. Excavations have exposed the swirling layers of sand, gravel and boulders that were laid down before the last ice age (37,000 years ago). Within these cliffs of sediments, Sand Swallows have dug their homes.



Peturrson's Ravine, despite its serenity and beauty, is being used as a dump. The upper reaches are slowly being filled in with construction debris and garbage. The garbage bursts into flame from time to time through spontaneous combustion. Lying on top of the aquifer that creates both the ravine and the life within the ravine is an open pit cordoned off with a chain-link fence and a sign cautioning: 'Danger, Radio-Active Materials'. Within this open pit are cartons bearing radioactivity labels and jars partly filled with chemicals.



Current scars or sloughs (like the Hudson Bay Slough) are abandoned river channels that once flowed as a broad sheet of water. They lie considerably above and on both sides of the present river channel. The current scars are incised within the glacial lake bottom that we know today as the prairie tableland. Since they have been scoured below the general elevation of the prairie, they are an integral part of the prairie surface drainage system. Over the centuries, they have accumulated some of the richest soils. Today, these sloughs are wet areas, oases on the prairie. They support rich communities of plants and wildlife.



The coulees that intersect with the river valley north of Saskatoon are formed by the erosion of surface runoff, usually channelled by creeks. These creeks are a link in the overall drainage pattern of the prairie tableland. They interconnect with the system of sloughs and form a pattern of wet areas that extend from the tableland to the river edge. On the prairie, where there is water there are plants and where there are plants there is wildlife.

In the north, as with the southern oasis, the water-created landforms retain water and support life. The treed areas within these landforms and the strongly enclosed sense of the northern river valley are a major natural resource. Its beauty and variety contribute to making the entire river valley a unique and vibrantly alive area within the prairie landscape.



The Tipperary Creek area is a microcosm of the river to the north of the city. It is composed of four major elements: the river and its tree-lined edge, gently sloping into the water; a large terrace, sloping from the tableland to the east bank of the river; a high steep-walled bluff, towering one hundred to one hundred and fifty feet above the western edge of the river; and the Tipperary Creek coulee, which cuts through the bluffs and extends deep into the tableland.

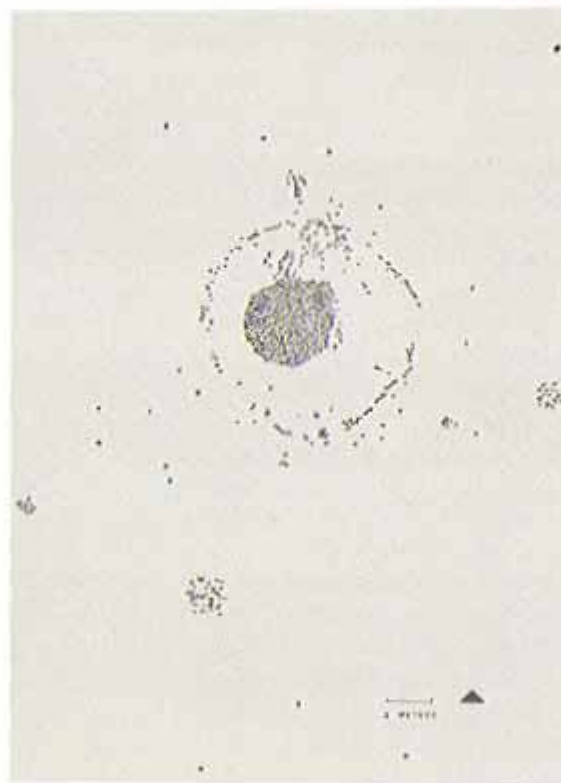


As the river has shifted off the terrace and cut into the tableland, creating the high bluffs, it has taken on the configuration of a large U-shaped meander, about three miles in length. Along the edge of the river are gently sloping banks which are treed with large poplar and aspen. All along the river edge walking is easy. The river bank provides continuous access; the trees give the feeling of a lush green park. In the early summer there are many flowers. The shallows teem with schools of minnows; crayfish make their way among the half submerged rocks along the shore. Hawks spiral high above the bluffs, riding the air currents, while smaller birds hunt for fish in the shallows.



High bluffs and trees along the river terrace enclose vistas of the river and impart a strong sense of the valley. The prairie, high above, seems remote, almost forgotten.

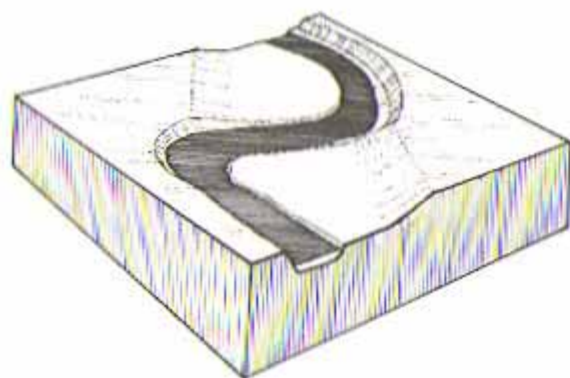
High above the level where the creek flows into the river are two prominent flat points of land, the edge of the prairie. The southern point commands a powerful view of the river valley, upstream and downstream, and overlooks the landscape of trees and creek in the coulee. This is the site of the most significant archeological find along the river: a Medicine Wheel. Standing at this site, speculating on the significance of the arranged stones and feeling energized by the beauty of the valley below, the contemporary visitor has the opportunity to link with whatever emotion it may have been that stirred the creators of the Medicine Wheel.



Another archeological site has been uncovered at the mouth of Tipperary Creek. It dates from around 8,000 years ago. Although pottery shards and other relatively recent artifacts have been discovered, the site has not yet been thoroughly excavated. These are precious resources, and should be protected.

To preserve this landscape, special management and care will be necessary. The Tipperary Creek area powerfully demonstrates with its archeological sites and artifacts that we are not the first to see and care for its beauty.





To the north of Sutherland Beach can be seen sharp boulder-strewn ridges formed of glacial till or very bouldery gravel. These are heavily armoured and resistant to erosion. These ridges, sculpted by fast-flowing water, probably mark the location of former rapids in a river bed that could not be eroded. The river, therefore, slipped off these slopes on to soils where a channel could be formed. This sequence of preferential erosion has led to a weaving course of the river and the development of a succession of alternating paired terraces. They are characterized by steep, high banks on one side of the river and low sloping terraces on the opposite sides.



Clark's crossing was one of the original places of settlement along the river. The river terrace on which J. F. Clark built in 1880 is the northernmost of the paired terraces. This terrace and the one to the south on which a Hutterite Community is located are at the northern end of the high bluffs forming the western edge of the river valley. The Hudson Bay Slough also terminates in the river valley as a large, mature, treed coulee. Several other coulees terminate in the valley within this area. Some of these extend many miles into the tableland. Because of their wet environments coulees extend the vegetation from the edge of the river up through them and onto the prairie.



Across the river from the Hutterite Colony is a succession of high bluffs. Some of these bluffs have eroded to form deeply etched, cone-like ridges. The riveredge that passes along the bottom of these sculptured bluffs is a gently sloped carpet of grasses, wild flowers and small shrubs. Viewed from below, the bluffs suggest a cathedral. Here again the observer gets an overwhelming sense of the beauty of the valley. The edges of the river are thickly treed. The coulees that open broadly onto the river valley are like gardens.

Below the transition point from prairie to river terrace the river has exposed underground springs. These support large pockets of trees, including birch and aspen. The forested areas generally occur within more recently abandoned river channels, which slope toward the river edge.

Vegetation on the slopes is sensitive. It grows slowly because of exposure to high winds and low winter temperatures.

One of the outstanding characteristics of this landscape is the unusual topographic forms to be found exposed along the river valley. In several areas, the valley is one hundred feet or more below the prairie tableland. The river terrace north of the cathedral-like bluffs slopes down along the river from a height of one hundred and fifty feet to the water's edge over a distance of more than a mile and a half.

The Clark's Crossing area, because of its topography, the character of the river valley, vegetation, wild life and accessibility to the river's edge, offers many opportunities for active recreation, camping, nature study and canoeing. An added dimension of opportunity can also be drawn from the original pioneer's settlement at Clark's Crossing. This area, given careful planning and management, affords a broad spectrum of opportunities and activities within a river valley environment that is not as geologically sensitive to disturbance as the area south of the City.

Q. Context Beyond Corman Park

Although our assignment was to create a conceptual master plan along 80 kilometres of riverbank within the Rural Municipality of Corman Park, we found it necessary to expand the context beyond Corman Park to gain a more comprehensive picture of our study area. The river cannot be considered in its Corman Park context alone because the influences that determine its flow and water quality occur upstream:

The flow begins in the Rocky Mountains;

The Gardiner Dam controls the flow;

Run-off from farm fields enters the river, creating a growth medium for algae by providing nutrients;

Other pollution comes from municipalities, farming, industry and dumping.

Understanding the Dynamics

The sloping valley walls and the action of the river present a challenging environment for designers and builders. The static parameters normally set for design do not apply here. All processes are dynamic. Gravity is working to reduce the valley walls. The river flow is continual, at varying depths, velocities and quantities. The interaction with biological systems presents a number of unique design considerations.

The physical processes in and around the river are constantly changing. The designers, for example, may never see the flood flow or the high flood stage for which they must design structures within the valley. Similarly, the stability of the valley walls and any sloping ground is related to time: processes that work to change the slopes may take decades or centuries to develop.

For these reasons, a philosophy of design must prevail which recognizes, understands, and gives due consideration to the effects of these processes. The dimension of time must be a predominant consideration.

Potentials

We believe that the general objectives stated by the four parties in the Assignment can be met, namely:

- a) the enlargement of educational and research opportunities,
- b) the advancement of the cultural arts,
- c) the conservation of nature,
- d) the improvement of recreational opportunities, and
- e) the furtherance of rural-urban relations.

We believe that the stated needs of the community groups in relationship to the river valley can be realized.

We believe that pollution of the river can and should be reduced; that orderly urban growth, integrated with the river valley, the prairie and the rural area, can be achieved; that development can be balanced with nature; and that the whole can be greater than the sum of its parts.



During the study, the project team found it necessary to:

- 1) test the conceptual plan to analyse its feasibility and methods of implementation; and
- 2) to construct, compare and select from several organizational models the ones best suited to carry out the project.

Our response to the first point is simple and straightforward. We have found that the concepts in the next section of the report are implementable over time.

We are also convinced that the Federal Government, the Province, the City of Saskatoon, the Rural Municipality of Corman Park, the University of Saskatchewan and/or the private sector, acting individually, cannot carry out the concepts separately for several reasons:

- a) the need for a broad overview covering a large area,
- b) the long range time scale,
- c) the need to overlap jurisdictions,
- d) the need to set clear priorities, within limited financial resources,
- e) the need for a single authority to co-ordinate the over-all objectives:
 - i) of where components should be located and their relationship to the whole,
 - ii) of when various stages of the project should be carried out,
 - iii) and how the parts should fit into the whole,
 - iv) and co-ordinate the information necessary for a comprehensive understanding of the river dynamics and related natural system.

For these and other reasons outlined elsewhere in this report we have concluded that an 'Authority', consisting initially of representatives from all four parties and aided by advisory boards consisting of citizen groups and professionals, is an essential first step. Let us now briefly describe its roles, its similarities to and differences from the Wascana Centre Authority.

The Wascana Centre and its success would not have been possible without a strong Act, a clear master plan and an effective, dedicated Authority. The role of The Meewasin Valley Authority, M.V.A., will be even more diverse. It will require the mandate to plan, fund, implement, and police. It should be empowered to raise funds from private sources to supplement revenues from public sources.

The Meewasin Valley Authority must have the potential to become:

- a) a preserver and conservator of the natural system of the river valley.
- b) an educator in the sciences and cultural arts.
- c) an educator and communicator to interpret the history and life of the valley.
- d) a developer working with public and private investment to take fullest advantage of the river valley environment.
- e) a restorer of historical sites and landmarks.
- f) an enhancer of the river for use by the public.
- g) a mediator among the various jurisdictions along the valley.
- h) a co-ordinator of plans and projects by jurisdictional bodies holding separate 'title' to the water and ownership of the adjacent land.
- i) an originator of research into options and directions for the future.
- j) an innovator to begin defining urban and rural forms of the future that relate closely to the prairie environment.
- k) an integrator of urban and rural life styles.
- l) a policing body to control and prevent illegal and destructive activities within the river valley.

The Authority should begin its tasks with University, City and Provincially owned land in the river valley area that directly affects or is directly affected by the river. This area is called the Control Zone and will be described later. There is no immediate need for change in ownership and usage, nor for purchase or expropriation of additional land. This will take place in stages over the next 100 years. In almost all cases, privately held land that falls within the Control Zone will be given the protection of policing and will be shielded against undesirable development.

One of the first duties of the Authority will be to select a director and to establish and organize a core staff and advisory boards. Another is to establish priorities.

In all its dealings, the Meewasin Valley Authority, in its philosophy, management policies and daily operations, must keep in mind the long-term concept of *health and fit*, strive for *balance* in planning, and keep open future *options*. When dilemmas arise, whether to develop or to conserve, decisions should favour preservation for future generations to decide.

Saskatchewan has an enviable tradition of taking bold and innovative steps to improve the quality of life of its people. The Province, Saskatoon, Corman Park and the University can now take new initiatives to further enrich the life of the region. Joint action aimed at preserving and improving the river valley can carry forward into tomorrow options and dynamics that would undoubtedly reach far beyond the scope of this project. The active participation of the University adds a dimension that could affect the development of Saskatoon, Corman Park, the Province and the prairies for generations to come, making this project unique.



Aerial view of a coulee south of Clark's Crossing.



Balance – Shifting Activities
to the North

To paraphrase John Ruskin:

When we think and plan

Let us think responsively and responsibly

Let us plan with foresight

Not for present use nor present delight alone

But let them be such thoughts and ideas

as our children will thank us for.

In the next 100 years the City of Saskatoon will grow and the character of the Rural Municipality of Corman Park will change. Individual and social awareness and needs will manifest themselves in different ways. Agricultural techniques will change and so will the quality and characteristics of life. Economics and politics will be both dictators of and responders to these changes.

Throughout these changes there must be a constant if society is to remain stable. In Canada, the civil liberty of each individual to grow responsibly to his or her own potential and contribute to the community, province and country, is such a constant. Individuals in such a society need to fulfill more than elementary needs for food and shelter; they require natural and social surroundings that make it possible to understand and take pride in their country, their region and their forefathers. Allowance must be made for spiritual as well as material fulfilment.

The concepts in this section do not attempt to provide all the social answers; no physical planning can. However, they recognize such requirements and should establish a part of that base.

As stated in the 'Introduction', the World Health Organization defines health as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity".

In the study area, the health of the river, the valley and the interconnected natural system are inextricably interrelated – to each other and to human health. What affects the quality of water affects the vegetation, the wildlife, and the people of the region.

The idea of fit as a supporting concept is a concept that establishes the principle of working in harmony with natural processes and with people.

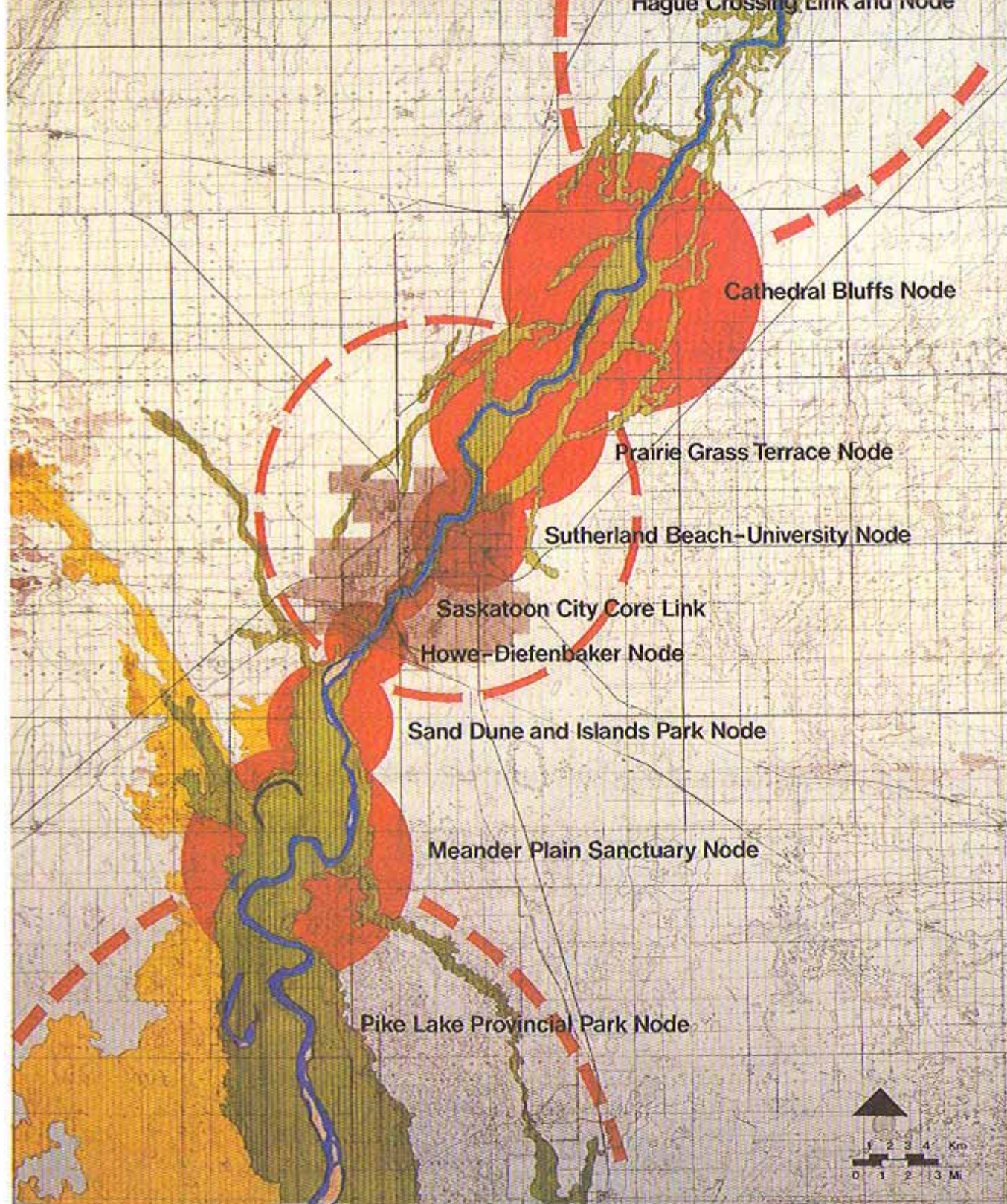
The umbrella concept of all planning presented in this report strives toward a *balance of health and fit*. In such a concept the natural framework and the degree and intensity of man's care are inseparable. This three-word concept will be expanded and given meaning in this chapter.

In the previous chapters, the following sensitive areas of the river valley were identified:

- a) Brown's Lake
- b) Moon Lake
- c) Beaver Creek
- d) Cranberry Flats
- e) Yorath Island
- f) Steep valley bluffs
- g) Peturrson's Ravine
- h) Tipperary Creek
- i) Aquifers.

a) to e), inclusive, are located to the south, upstream of the City, and are heavily used by people, especially in the summer. The pressures for active and passive recreational use of the river will intensify as population and leisure continue to increase. Without safeguards and balances these pressures would inevitably lead to extensive damage, irreversible in some cases.

Balance can be achieved by creating major active recreational, educational and cultural nodes to the north, downstream. Although there are many particularly sensitive areas in the northern sector – the examples f) to i) among them – the geology to the north is generally less susceptible to damage. A shift of development to the north, moreover, will provide new areas and potentials to serve the rural communities in this section. This balancing of activities in the south with those proposed in the north is an integral part of the broad concept.



Links and Nodes

The principle of *balance* leads us to a perspective of the river as a continuum and to the concept of an interconnected system of *Links and Nodes*:

Links

between the city and the rural areas,
between the river and the land,
between the north and the south.

Nodes

(focal centres within the system of links) for:
conservation,
research,
education,
urban-rural interface,
cultural arts,
recreation.

The idea of Links and Nodes, with the river as a spine, suggests improved *access* to and along the river for a rich and diverse range of activities and needs.

Although the drawing shows only the Links and Nodes within the City and the Rural Municipality of Corman Park (man-made boundaries that nature does not recognize), it also demonstrates that the study area is itself part of a chain to which other nodes in adjacent areas can and should be linked in due course. Co-operative 'links' clearly become necessary if other institutions, authorities, and governments are to help improve and safeguard the quality and quantity of water in the South Saskatchewan River.

Important aspects of this concept involve abstract, human perceptions. Chief among these are:

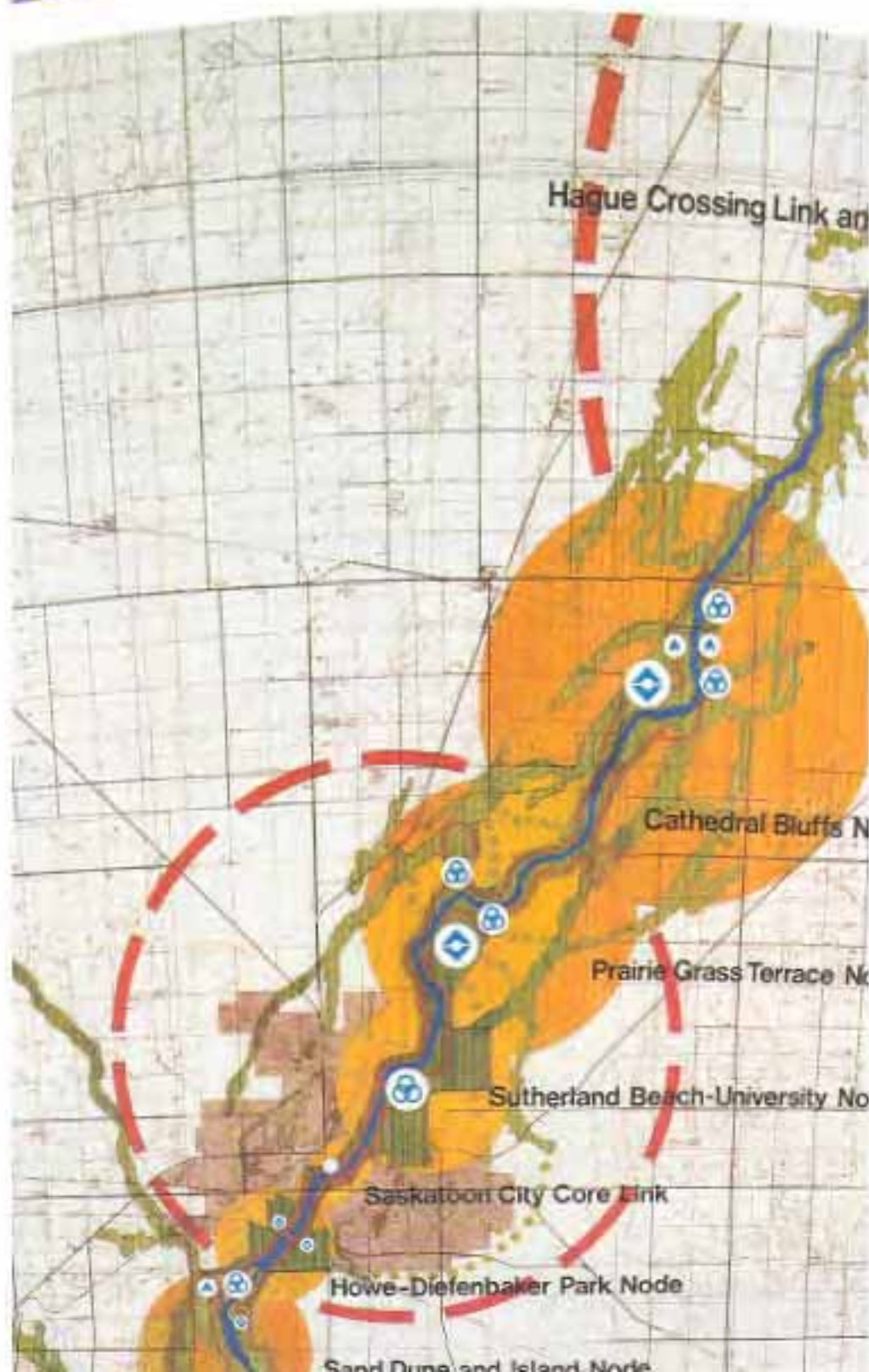
a time link

connecting and carrying the past and present creatively forward into the future;

a spiritual link

the relationship of people to nature, of urban society to rural society, of people to people.

In this sense, as well as the physical sense, the theme of the Meewasin Valley Conceptual Plan is one of *linkage*.



The conceptual master plan and the recommendations concerning specific areas should be read and analysed in terms of the long-range 100-year time frame.

The intent is *enrichment of life*.

The spine is the *river*.

The base is *the natural system*.

The broad concept is *health and fit*.

The principle is *access* to and along the river.

The theme is *linkage*.

The operational model is one of *links* and *nodes*.

The parts are the *dreams* and *realities* passed down by the pioneers and the forefathers, the *perceived* and *stated needs* of the people today and the *observed needs* and *experiences* of the project team.

The key is *balance*.

The process links the *creativity of people* and the *dynamics of time* to the long-range potentials and options.

Following is a functional outline of links and nodes, starting from the south:

1. Meander Plain Sanctuary

conservation
research
education

2. Sand dune and Islands Node;

conservation
research
education

3. Howe-Diefenbaker Park Node:

recreation
cultural arts

4. Saskatoon City Core Link:

conservation
education
cultural arts
recreation
commerce

5. Sutherland Beach – University Node:

conservation
research
education
urban-rural relations
cultural arts
recreation

6. Prairie Grass Terrace Node:

conservation
research
education
urban-rural relations
recreation

7. Cathedral Bluffs Node:

conservation
research
education
urban-rural relations
cultural arts

****Pike Lake Provincial Park Node:**

This is a popular summer recreation area for many Saskatoon and Corman Park residents. It should be recognized as an important node, or 'anchor', to the south and included within the planning area of the Authority at the earliest possible opportunity.

****Hague Crossing Link and Node:**

The northern boundary of this area should be extended to include the east bank of the river north of Corman Park.

Such accretive actions should be studied by the Authority, other agencies and the adjoining rural municipalities to the south and north of the study area.

**** now outside the study area.**

Planning is for a balance between both conservation and development. The plan envisages the growth of Saskatoon to a population of more than 240,000. Unlike many growing cities in North America, where people are forced to travel long distances to find green space, Saskatoon can achieve through the plan all foreseeable development needs, together with a gradual increase in access to green space and to the river itself.

Let us now examine the concept in detail, starting with proposed roads and trails. The Rivervalley Parkway and trails, together with existing and future bridges and ferry crossings, form a scenic and functional access network for the whole project area. The Parkway follows both sides of the river north and south of the City. The Parkway, bicycle routes and trails connect with lookout points. These allow panoramic views of the river valley and the various interpretative and research field centres. Bicycle and hiking trails are separated from the Rivervalley Parkway by natural features. Each trail is located on the riverside. Main trails closely follow the river's edge but avoid sensitive banks and ecologically vulnerable areas.

In the Meander Plan Sanctuary and in specific areas such as Yorath Island and Moon Lake the Rivervalley Parkway follows two routes:

- 1) the 'high road' follows the top ridge of the ancient west bank, giving motorists opportunities to view the river valley to the east from high vantage points.
- 2) a 'riveredge drive' within the meander plain provides people with direct access to the river.

The Rivervalley Parkway is designed to respect natural contours. It avoids the river bank in potential slump areas and does not encroach on natural water areas and coulees. It consists essentially of two lanes and runs without interruption along the riverside through the city and rural areas. Routine highway traffic is discouraged; to achieve a leisurely pace, speed is restricted to 50 kilometres per hour and less where land features suggest.

The plan allows access to the river's edge without threatening sensitive natural areas or interfering with farming operations.

The Sutherland Beach-University Node is a central core vital to the entire project. The cultural, educational and functional facilities within the new 42nd Street Bridge structure will become the interpretative heart of the valley system. Its programmes and activities will tie into the informational, educational and cultural fabric of the city and rural municipalities. Also they will tie the programmes of the interpretative and research field centres in various nodes along the valley. This combined bridge and information centre could become the physical and conceptual symbol of the Meewasin Valley and should therefore be named *The Meewasin Bridge*.

A major recreational centre is proposed for the Cathedral Bluffs Node to counterbalance recreational pressures in the southern area. Another major 'in-city' recreational area, to be developed at a later stage of the City's growth, is shown on the bouldery river terrace opposite Tipperary Creek.

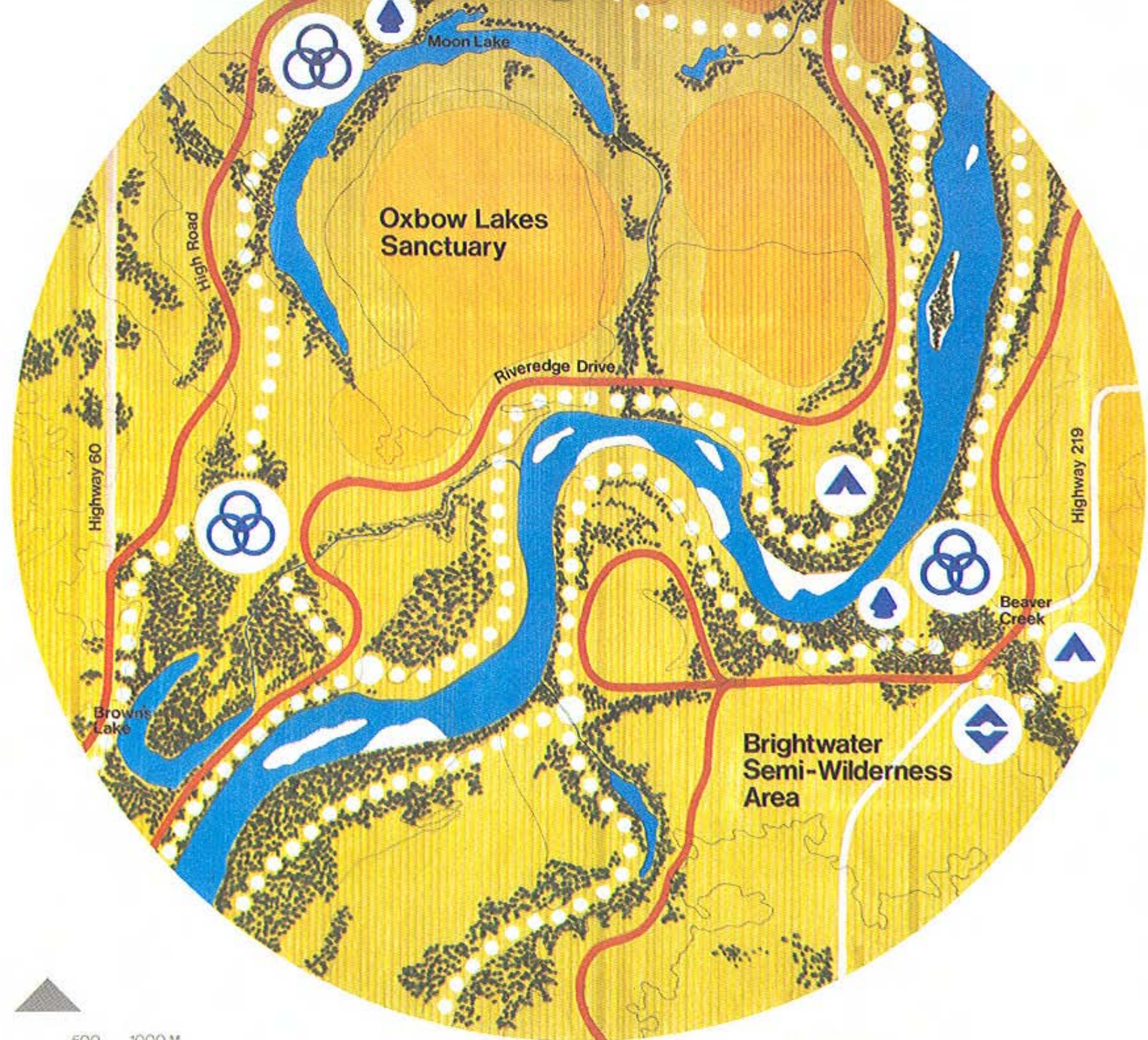
The University is assigned a special and challenging role in this project. The plan envisages a creative new use for the University's less-productive agricultural land. It will become a site for research and actual development of *experimental communities* suited to the prairie environment. These communities will provide opportunities for experiments in energy conservation, waste recycling and continuing studies of new social needs and patterns suited to the prairie landscape and form. Such experiments, whether completed or on-going, can directly affect the future growth pattern of Saskatoon, the physical urban-rural interface, and the development of towns, villages, and farms in the Province, the neighbouring prairie Provinces and States.

With the Saskatoon City Core Link the plan demonstrates that private development is compatible with conservation of the river edge and public accessibility. It also demonstrates how green and pleasant linkages can be improved or created to connect the river with the downtown and the neighbourhoods. It suggests how the new approach to activities on the river and the development of cultural facilities can improve economic prospects and encourage tourism in the City and its downtown core.

The plan makes provisions for greatly improved archeological exploration. The region abounds with human history about which we have little documentation or factual knowledge. Archeological finds and anthropological and paleontological studies can add richness and meaning to our heritage and thus to our own appreciation of the area and ourselves.

In the next section of this report we describe in detail essential features of the long-range plan, beginning at the south end of the study area.

The following concepts can be read in the context of the overall plan by leaving the 100-Year Master Plan folded out from the text as a visual reference.



1. Meander Plain Sanctuary Node

A) Oxbow Lakes Sanctuary

This southernmost section of the study area is serene, sensitive and biologically rich and diverse. It is an oasis within the prairie, consisting of two oxbow lakes a mile apart, Moon Lake and Brown's Lake. Its highest value is as a sanctuary for conservation, research and passive recreation.

With active recreational activities shifting to the north of the City, relieving demand pressure, this landscape will slowly heal and restore itself. Through careful management and education of users, the re-establishment of vegetation and wildlife can be accelerated.

An Interpretation and Research Field Centre, indigenous in character, contains displays for interpreting:

- The processes of glaciation, wind, and river movements that have formed the physical landscape.
- The human history of the area, including the Moon Lake archeological site.
- The plant ecology and wildlife of the Meander Plain.

It also contains laboratory and research facilities for University faculty and students and special facilities for instructing student groups and families.

Access to the various parts of the site is on foot or by canoe. Support facilities, including washrooms, rest shelters and canoe launching areas are positioned along the footpaths and hiking trails that lead from the Field Centre to the river and major outdoor areas. The trails should be laid out with sensitivity to the land and the needs of the young, the elderly and the handicapped. The Rivervalley Parkway, carefully positioned in and around existing stands of trees, provides ever-changing vistas along the west side of the river. Parking is provided in areas adjacent to the park. The park itself is to be experienced on foot.

A different perspective of the river and a new experience of the meander plain is provided by the High Road. It follows the escarpment through wooded areas of the Vanscoy Hills. Lookout points along the Parkway offer views of the river below and its surrounding environment, views impossible to experience from the river edge.

Overnight camping will not be permitted in the park. Farming and grazing will continue, but there should be no further clearing of woods in this area.

This is the Oxbow Lakes Sanctuary.



Landing a canoe near a field centre.



Hiking along a nature trail.

B) Brightwater Semi-Wilderness Area

This area, sometimes known as Beaver Creek, should also become a conservation and passive recreational node, but different in character and use from the Oxbow Lakes Sanctuary.

Beaver Creek is the only active creek in Corman Park. Its ravine is a miniature version of the South Saskatchewan Meander Plain. When destructive uses are halted within the creek ravine, the area will revert to its natural condition. In time, it will again become the home of beaver, mink, fox, deer, and coyote.



Uncovering artifacts at Beaver Creek Slump Archeological Site.

An Interpretation Field Centre will be integrated with the existing archeological site to extend the educational scope and significance of this location. This centre should be organized around two principal themes: archeology and an outdoor education programme for families and school groups. The indoor facilities provide information by means of audio-visual materials, displays, lectures and discussions.

However, much of the learning will be based on direct field experiences: seeing, smelling, hearing and touching the living examples of nature. What could be more compelling and energizing than to walk out to the eastern bank, high above the river, feeling the warmth of the summer sun or the invigorating cold of winter wind to view the river spread out below; to watch the changing patterns and textures of the sand bars and the changing mouth of the creek where it meets the river; to walk on the forms of massive slumps; to touch and smell the thin carpet of plant life on the tableland; and to see all this contrasted with the tall trees and rich soil of the creek valley?



The Outdoor Classroom.

Here is an opportunity, rare in the world, to learn from nature directly, to experience the river in the act of creating a new landscape.

A public campground, near the highway but away from the river will provide overnight accommodation. Closer to the creek and river, shaded day camp areas and family picnic areas would be appropriate on the tableland along the creek.

Across the river, on the west bank opposite the mouth of Beaver Creek, another site for family overnight camping could be developed with access directly from the river and the Riveredge Drive.



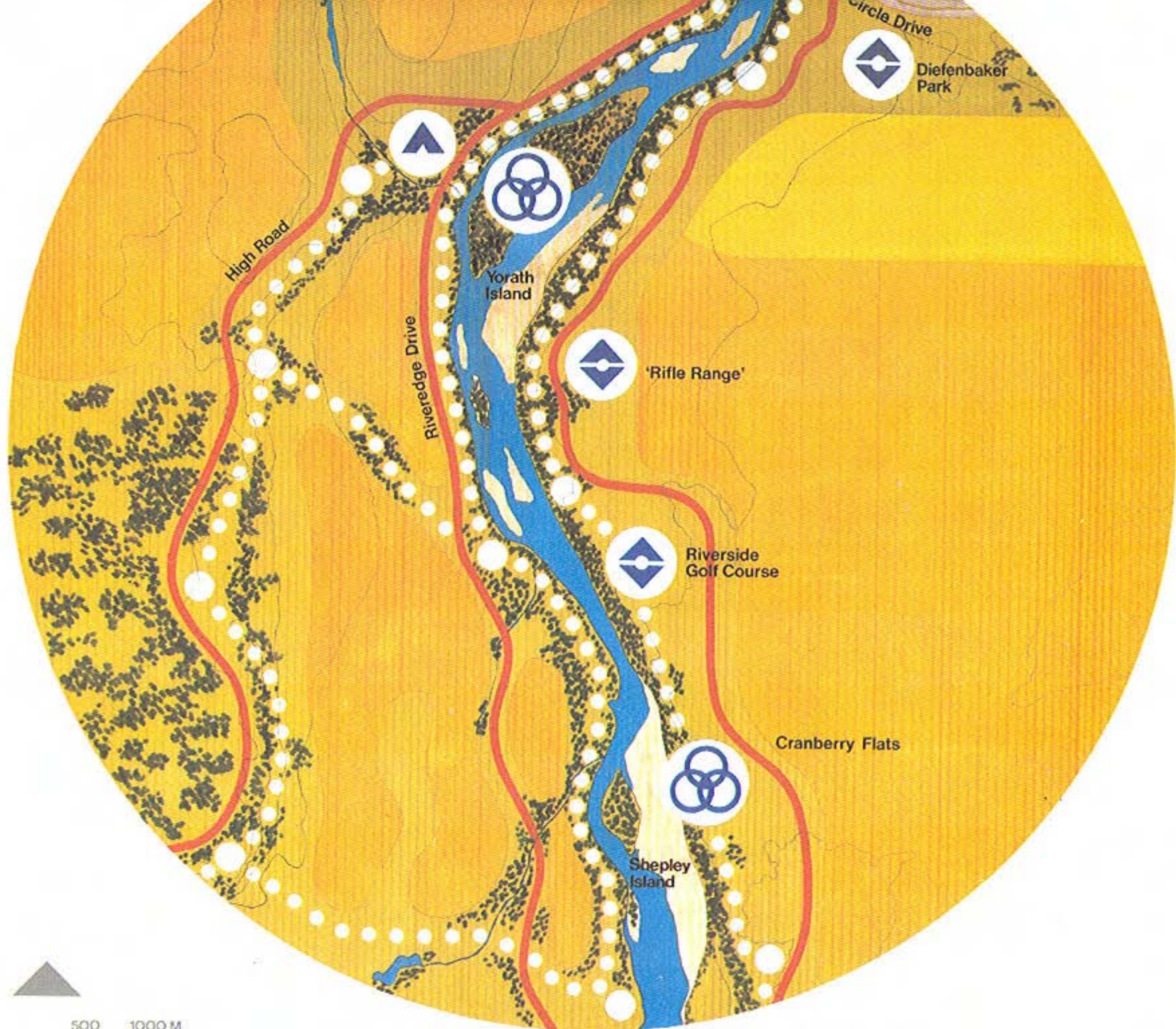
Family camping on the West Bank.

Minor trails could be established along the creek, with platforms to observe without intrusion, birds and animals and the drama of life related to them.

Appropriate management, aided by the education of visitors, will be required to preserve the area and protect the wildlife. In the long-term there is a potential to expand the extent of this Beaver Creek area through the acquisition of a portion of the existing military camp. This would allow greater public accessibility to the creek upstream.



The Meander Plain looking south.



Sand Dune and
Islands Node

A) Cranberry Flats

Cranberry Flats is a rare and delicate natural asset that has become a serious problem over the years through misuse and problems of control.

Its sand-dune topography, its thin and sensitive cover of ground-hugging, slow-growing junipers and colourful wild flowers, its height and relationship to the river and Shepley Island, and its proximity to the City have made Cranberry Flats one of the most attractive areas to the public. It is being destroyed. Criminal and socially undesirable activities are becoming common.

The conceptual plan presupposes three things:

1. The illegal use of Cranberry Flats will be terminated immediately by the City.
2. Alternative sites for all-terrain vehicles will be found and prepared for use within two years. (Abandoned gravel quarries nearby lend themselves to short-term use.)
3. Alternative types of policing and other control measures will be introduced by the Authority.

Cranberry Flats should properly become a conservation area and a domain for pedestrians.

The area should be enlarged and fenced, if necessary. Vehicles of all kinds should be banned from the site, with the exception of police and service vehicles. The area for parking adjacent to the existing grid road should be restricted and access limited to pedestrians

An Interpretative Field Centre close to parking would be a starting point for hiking trails with rest stops and look-outs. The views are varied, some intimate, others panoramic. In sensitive areas boardwalks and steps will be necessary to encourage recovery of the plant cover.

Access to Shepley Island, a conservation area associated with Cranberry Flats, should be restricted to canoes (by foot when water is low).

The Authority should investigate the possibilities of 'self-policing' at Cranberry Flats and some other conservation areas by incorporating a circle of specially designed residential developments around such conservation areas. There are pitfalls associated with this proposal, but such communities properly established and related to the natural and sensitive areas could provide 24-hour monitoring, reducing the overall cost of policing.



B) 'Rifle Range' Recreational Area

This slightly undulating area on the east bank should be developed for recreational uses.

Moderately active day camp, picnic and recreation uses are possible. These activities, however, should be limited to the tableland because the banks are steep and subject to slumping. A programme of tree planting could extend the wooded bank onto the tableland, creating sheltered areas, wind breaks and protective boundaries for playing fields. To provide maximum access for all, young and old, the Rivervalley Parkway will follow the river at a safe distance from the slumps and bank. From the edge of the bank, visitors will be able to study the life of the river: the evidence of beaver at work, birds diving for fish, geese urging the young to follow them into the river. There could be canoeing and boating, sites for families to explore and collect stones brought by the glaciers from the Canadian Shield hundreds of miles away.

C) Yorath Island Conservation Area

The thickly forested Yorath Island is the largest of the islands in the study area. It will be a conservation area, connected to the west mainland with a single suspended foot bridge. An Interpretative Field Centre of low scale can be built on stilts to rise gently above the island. It would be the only building permitted on the island. Island trails should be narrow. Where access to a sensitive area is necessary, board walks should be provided. The island should be restricted to daytime use. Students, campers and overnight tourists could be accommodated in a new camp ground and a lodge in the wooded area immediately to the west of the island, on the west bank. Hikers and cross country skiers should be provided with rest-shelter-cooking facilities.



This is an active recreational node, divided by the river. It also includes the Exhibition Grounds.

This divided area can be converted into a single, cohesive unit by providing a special river crossing for pedestrians, joggers, cyclists, and hikers. Such a link could be suspended under the future vehicular bridge planned to complete the Circle Drive. This would assure a convenient pedestrian bond between two active areas and a connection to riverside trails and roads on both banks.

The proposal includes:

- a) maintenance of and additions to existing functions, including such facilities as a new multi-purpose arena in the Exhibition Grounds.
- b) upgrading of existing facilities, where appropriate.
- c) improvements to grounds and landscaping.

Additional recreational lands can be developed to the south of Diefenbaker Park (on the south side of the present CNR line) and connected to the park. The cross-country equestrian events in the 1979 Summer Games are to be held in this area. Later, this use could be maintained and/or a park with a golf course added.

The M.V.A., with the co-operation of other parties, will prepare a comprehensive plan of this area incorporating a 10,000 seat multi-purpose indoor arena, the existing agricultural exhibition, the race track and the Western Development Museum.

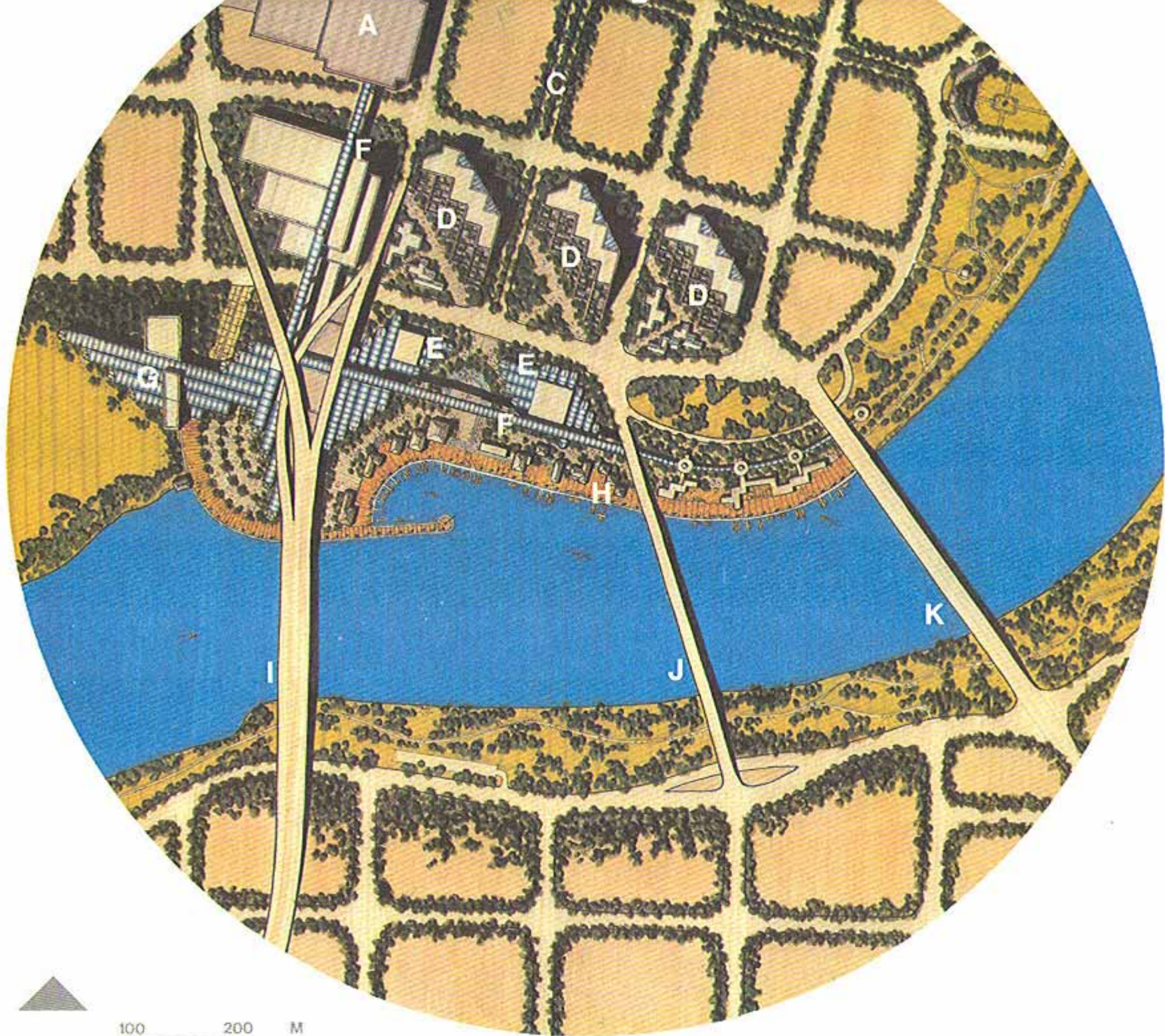
In 100 years, the Queen Elizabeth Generating Station may no longer exist in its present form. Meanwhile, a study should be carried out by the M.V.A., in co-operation with the City and the Saskatchewan Power Corporation, to analyse the economics of recovering the station's waste heat. This heat can be put to use in new developments in the downtown riverside site, including the Winter Garden, greenhouse, nursery, and community and civic complexes. The economics of recovery and recycling can only improve with time and increasing fuel costs.

4. Saskatoon City Core Link

One of the long-term aims of the 100-year conceptual plan is to achieve in the City Core a continuous open space providing access and pedestrian links along both sides of the river. Another, continuing with the tradition established by the original temperance colony settlers, and to quote the words of John Lake in 1883, is to "bring the good character of the countryside – open space, grassland and trees – into the town". In the South Downtown Concept that follows, we wish to demonstrate that these aims and those of new development and greater density of people in the downtown area can be mutually supportive if carried out with clarity, sensitivity, and skill.

Before outlining the concept we should make two observations. First, Saskatoon is fortunate to have many buildings of architectural and/or historical significance. Many of these are within the study areas. These buildings should be studied and catalogued, and those judged worthy should be retained to help present and future generations understand and appreciate their cultural heritage.

Second, historical sites, such as the original (1883) headquarters of the Temperance Society (now demolished) at Broadway and Main and the original downtown commercial area at 1st Avenue and 20th Street, suggest certain character, planning and design inspirations that can add another depth of meaning and feeling to the area. They should be important influences on the design of new developments.



South Downtown Concept

Legend

- A Midtown Mall
- B 21st Street
- C 2nd Avenue
- D Commercial/Residential Development
- E Civic and Cultural Complex
- F Enclosed Walkway
- G Winter Garden
- H Riverside Promenade
- I Idylwyld Bridge
- J Traffic Bridge
- K Broadway Bridge

A) South Downtown Concept

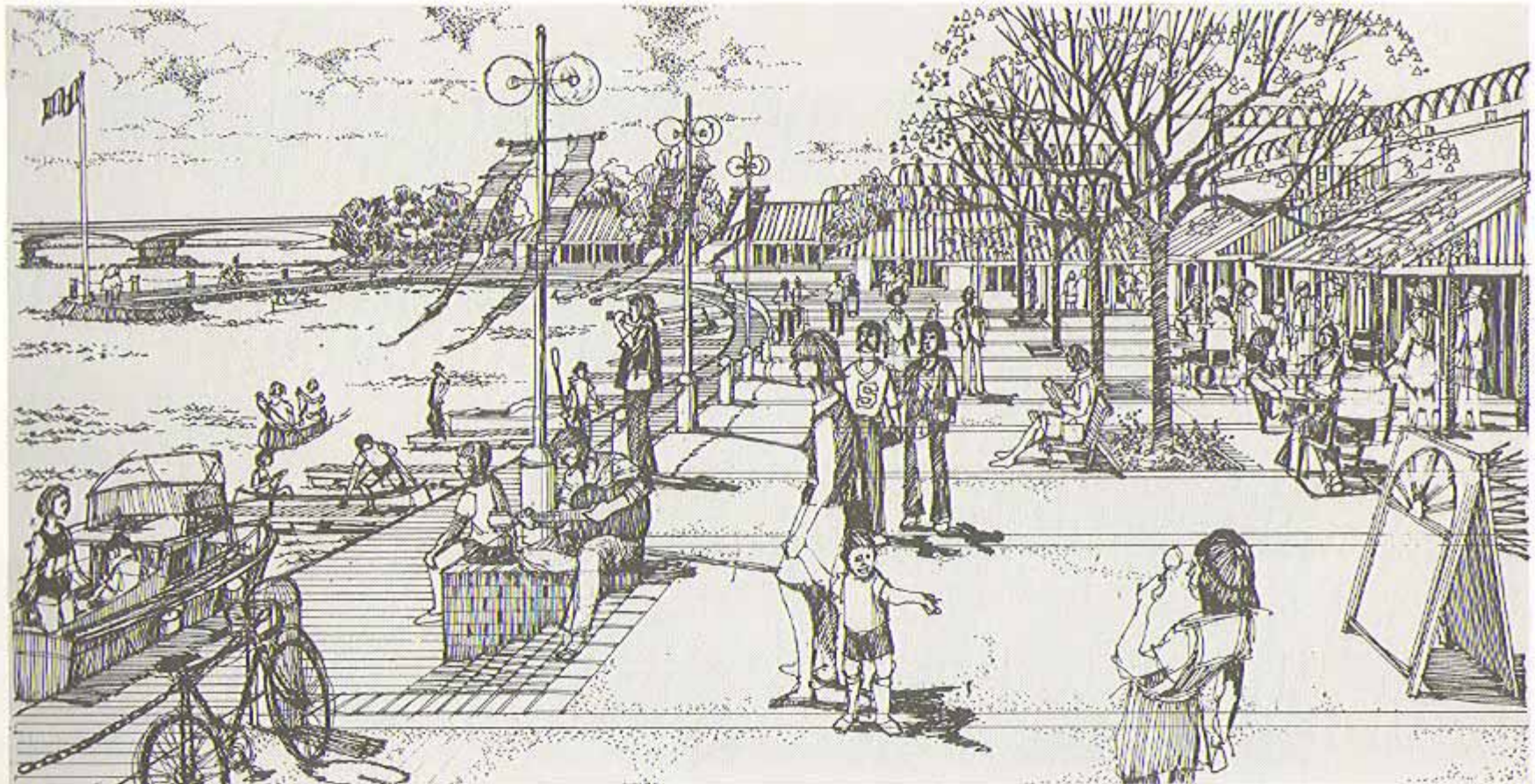
This is a sample concept dealing with the South Downtown area. It does not exclude other balanced development of the 'East Downtown'.

The South Downtown area can become a major activity focus within the City and balance the office development north of the commercial core.

In the concept we see two continuous river edge pedestrian linkages extending from Victoria Park to Kiwanis Park and forming a clear east-west axis. The one along the river is an open air, riverside promenade; the other is at a higher elevation and is enclosed. It provides a clear view across the river and down to the river's edge. The enclosed linkage offers a comfortable alternative for pedestrians in winter.

The riverside promenade has an atmosphere of gaiety and some of the bustle of a wharf. There are marinas, boat-launching and service areas, small shops, restaurants, boutiques and marine equipment stores. Bollards, banners, colourful signs, flags and traditional street lights will help make this an attractive place for people and activities.

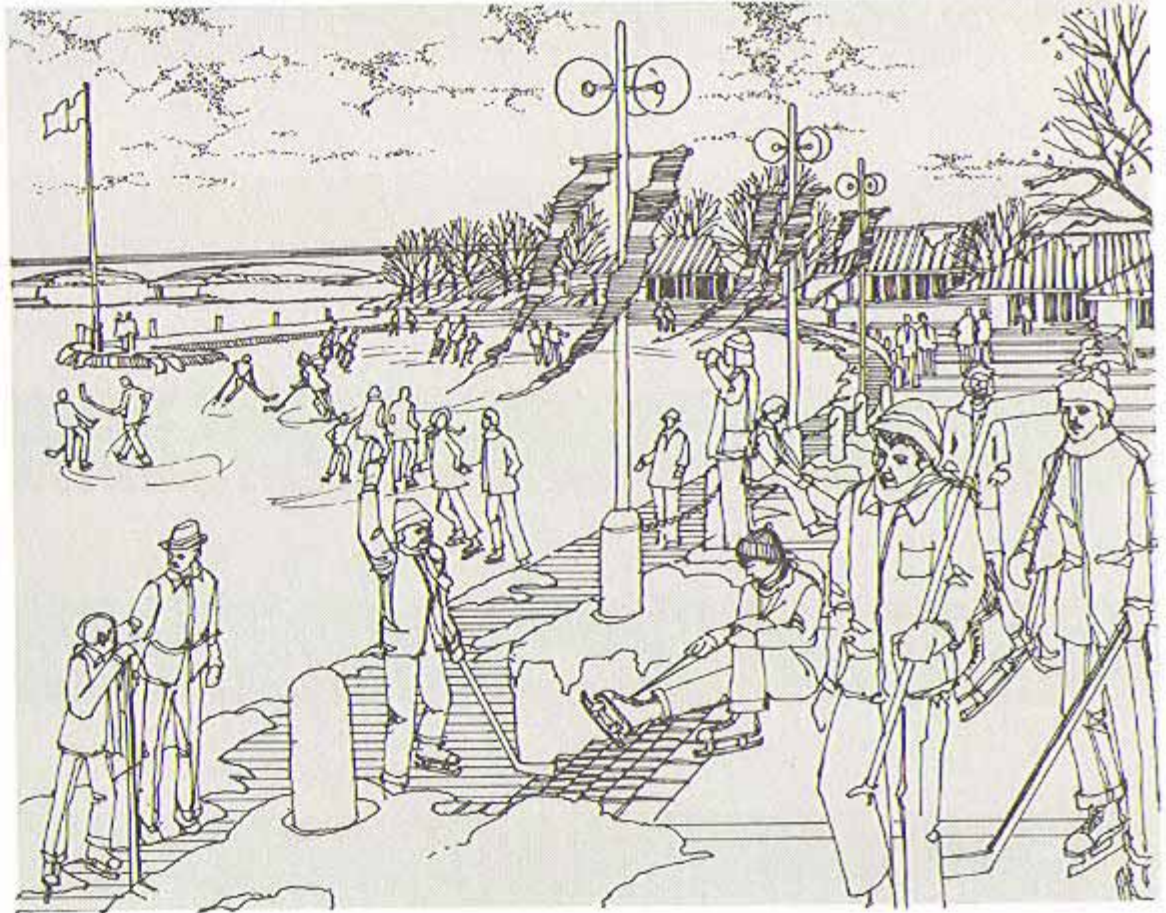
In summer, there should be music in the air, bands playing and the laughter of children. The ambience recalls Ghiardelli Square and Fisherman's Wharf in San Francisco and the Tivoli Gardens in Copenhagen.



The Riverside Promenade

In winter, it is a place for skating, and a gathering place for cross-country skiers, joggers, hikers and shoppers. North of the enclosed walkway are public, civic, cultural and recreational facilities – a small theatre, playhouses, a community hall and an amphitheatre/garden. The new City Hall could be located on one side of this garden, with views overlooking the river and marina. The City Hall can be a catalyst to accelerate this development and associated commercial development by the private sector.

Both east-west pedestrian linkages extend under the Idylwyld Bridge and connect, immediately to the east of it, into a terraced riverside horticultural garden.

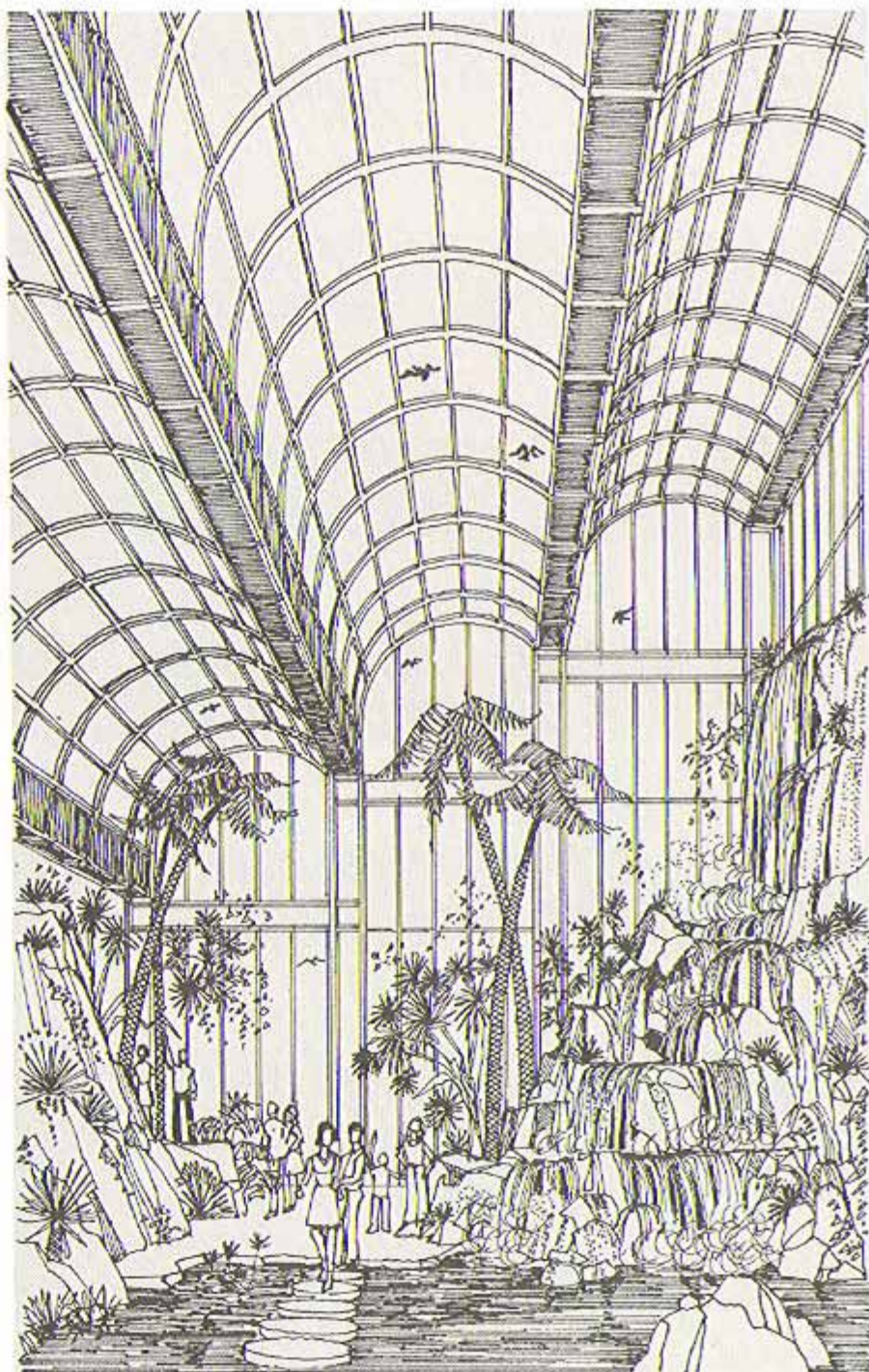


Adjacent to this tiered garden stands the Winter Garden. Like the original Crystal Palace, this structure of glass rises out of the river edge in a series of vaults to integrate into the converted A. L. Cole Plant. Viewed from Diefenbaker Park and the river, the Winter Garden shimmers and sparkles in the sun and moonlight. Within it is a multi-tiered tropical garden and a "forest" of tall tropical trees interspersed with walks, streams and waterfalls – a joy in summer and an elevating experience in winter. This and other structures in the area are heated by recycled waste heat from the Queen Elizabeth Plant. Parts of the A. L. Cole Plant are demolished, some of it continues to be used as a switching station, while other parts are renovated for active indoor sports and community activities.

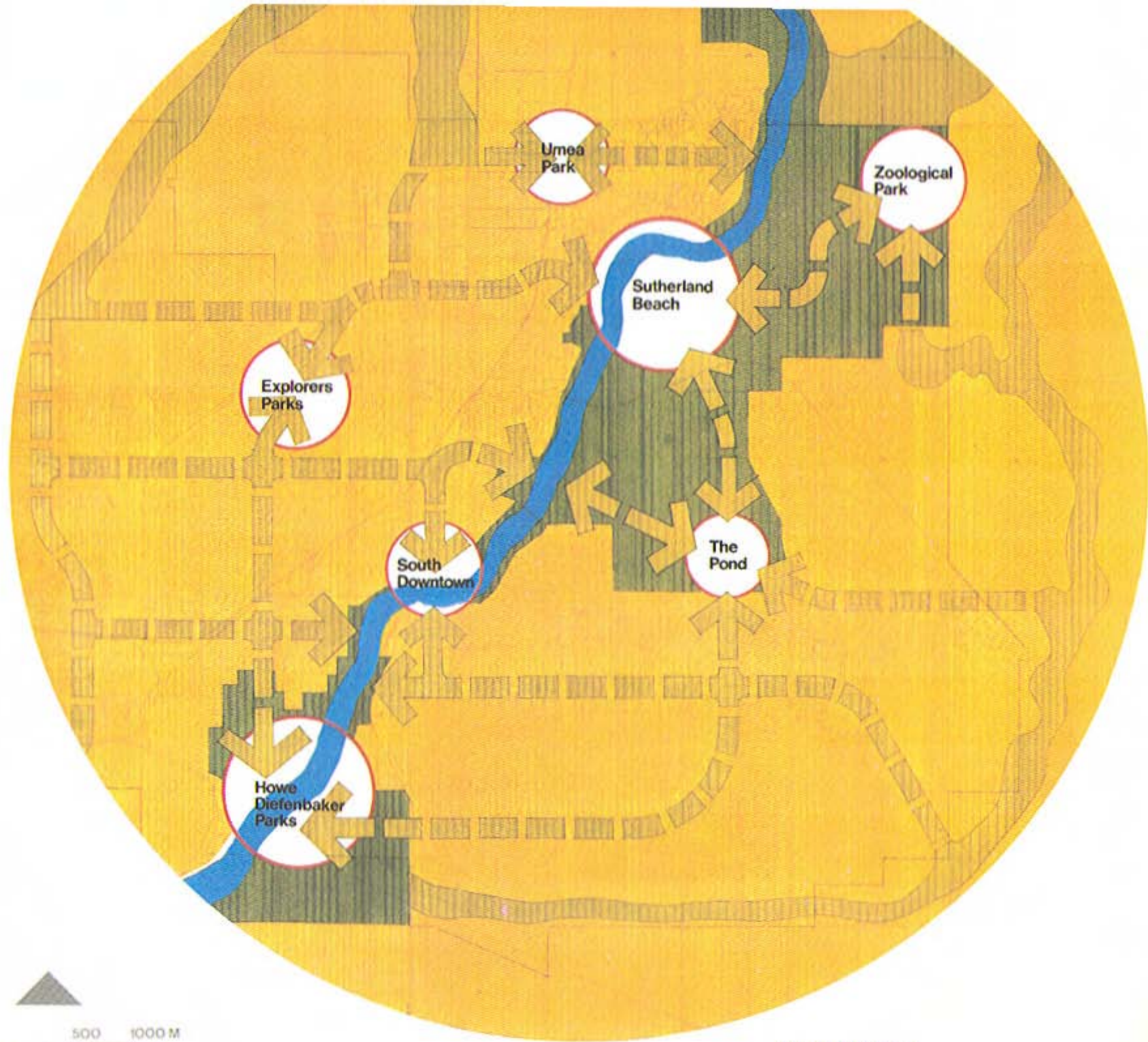
From the Winter Garden, people can walk northward, again having a choice of walking indoors or in the open. On the block immediately north of the A. L. Cole Plant they can walk into or through a new shopping centre, perhaps a new convention or trade centre, before entering the present Midtown Plaza.

To the north and east of Idylwyld Bridge, between 19th and 20th Streets, is a high-density complex of commercial and residential development, nestled in and rising from tree-lined streets. We see buildings tiered upward from the south to the north, taking advantage of the sun for heating, and for growing flowers and vegetables on balconies. All the structures in this area are tiered upward and away from the river. Diagonal landscaped walkways within each block give passersby and residents greater freedom of access to the river.

The higher density of people in the downtown adds life and greater economic potential to the downtown before and after five o'clock. It assists greatly in the self-policing of the area, especially by those people who own apartments. This kind of development and the Meewasin Valley project are mutually beneficial. Together they will encourage a flowering of the Downtown Core.



The Winter Garden

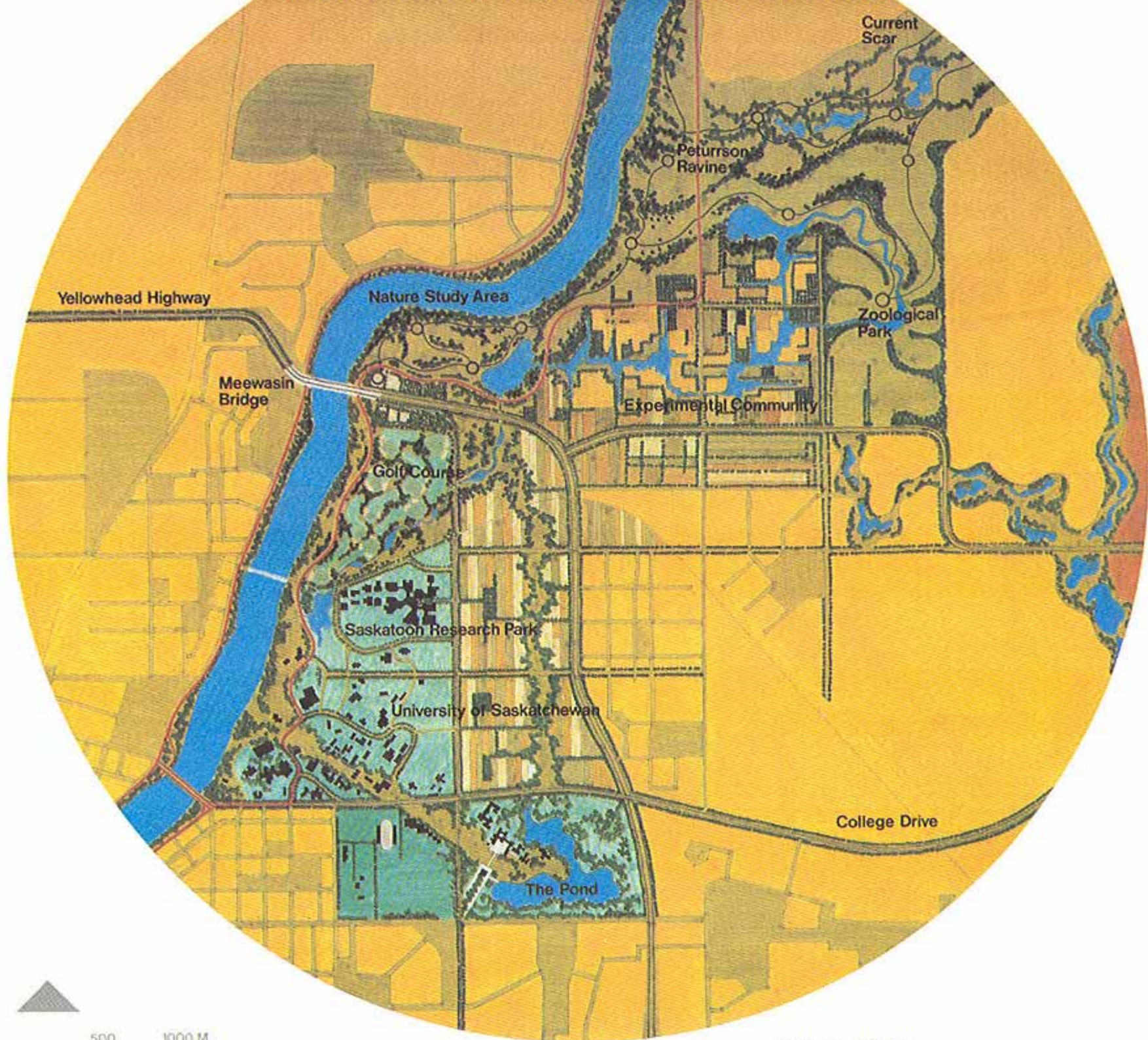


Potential Linkages

B) Potential Linkages within Saskatoon

The plan shows diagrammatically that a continuous linkage of green and open spaces for pedestrians, hikers, joggers and cyclists is possible within the City. It reinforces access to the river and ties the city together in a natural way – with a winding ribbon of green. Much of the space already exists in neighbourhood parks, school grounds, and around institutions. With imagination, long term policies and co-ordinated activities this linkage can be accomplished. Some of the connections may be as straightforward as the 'greening' of laneways. In some cases, additional parks are added as land becomes available. In other cases, through development controls, private developers are induced to add the linkage within their projects.

In the future growth and development of Saskatoon, this concept of linkage should be as dominant as the present neighbourhood planning around schools and shops. Moreover, it should help to articulate the physical linkage between the rural and urban areas.



Sutherland Beach –
University of Saskatchewan North

5. Sutherland Beach University Node

This node is the core, the physical and spiritual heart, of the Meewasin Valley project.

The basic components within this node, shown in the conceptual plan, can be simply listed as including:

The University of Saskatchewan;

The 42nd Street Bridge, Circle Drive and the Yellowhead Highway;

The Central Interpretative Centre and The Outdoor Interpretation 'Backup';

The Forestry Farm and Zoological Park.

However, to consider such components in isolation, as technical or design problems, is to minimize the potentials and discount the minds, hearts, and wills of the participants, and thereby losing the essence and clouding the essentially human challenge inherent in this project.

In the broad concept, the stated aim was the achievement of *health and fit*. Let us now look at the above components and examine how they can help to realize this aim.

A) Experimental Communities—University of Saskatchewan

The University of Saskatchewan has been among the leading Canadian universities in its recognition of responsibilities within the community it serves. It provides services of many kinds to the Province of Saskatchewan and to the wider prairie region beyond, with special emphasis on service to agriculture and the farming communities. For many years it has been sharing its facilities and findings with, and extending its services into, the rural and urban communities.

The faculty members welcome opportunities to apply diverse disciplines in new ways and there is, in this university, an earthy spirit of adventure. Also, within the university grounds there are areas of bouldery till unsuitable for experimental farming.

The question and the challenge is this:

Is it possible to build a series of *experimental communities* of different population densities for regional research purposes on 500 acres of university property?

As one of the participants in the M.V.A., the University (with the co-operation of M.V.A.) is capable of such a bold new research initiative in community and rural living on the prairies and in the special rural-urban interface in this semi-arid land.

There is a need to define these communities, but to define prematurely is to kill their potentials: if they could be clearly defined in advance, there would be no need for research and for 'live-in' testing. However, some of the unresolved problems in the prairie environment that the research should address are:

- a) increasing demand for water,
- b) alternative sources of energy,
- c) energy conservation,
- d) waste recycling,
- e) food growing (hydroponic, fish, meat),
- f) social organization,
- g) densities in urban and rural areas,
- h) materials and forms indigenous to the land,
- i) relationships to natural frameworks (sloughs, coulees, aspen rings),
- j) better adaptation to the climate of the area,
- k) methods of treating and using highly mineralized ground water,
- l) maintaining acceptable water quality in lakes for recreation.

Another problem of importance in this research is the question of water retention on the prairie tableland, where water is a precious commodity. The sloughs of the region are important water retention areas, although they are perceived by many as nuisances, impediments to farming. Ponds and small lakes, or chains of them, fed by stormwater and surface drainage, can foster and enrich plant and animal life. They can also form parts of links between urban green spaces and existing rural sloughs and coulees, which are one physical form of desirable urban-rural interdependence.

B) The Interpretation Centre/Bridge

In addition, new studies can be initiated to learn more about the balances of wildlife and natural insect control; the balances of aquatic life and control of algae; the problems of saline conditions; and the establishment of improved standards for depths, gradients of 'shorelines', rates of recharging, limits and types of use.

Moreover, the experiment should include studies of linkage systems that will provide greater public access to neighbourhood and community ponds and greens without unduly encroaching on the privacy of adjacent residents.

Words like 'bold' and 'new' are appropriate here because intensive 'all-out' research of this nature has not been carried out in the prairie environment. If successful, even in part, it could affect not only the future development of Saskatoon, but also the development of the whole Province and surrounding prairie regions, including Alberta, Manitoba and the mid-western United States. It could become a significant influence upon prairie architecture, for example, and, more significantly, help improve man's perception of himself, his relation to the semi-arid land and his relationship to others sharing the prairie environment.

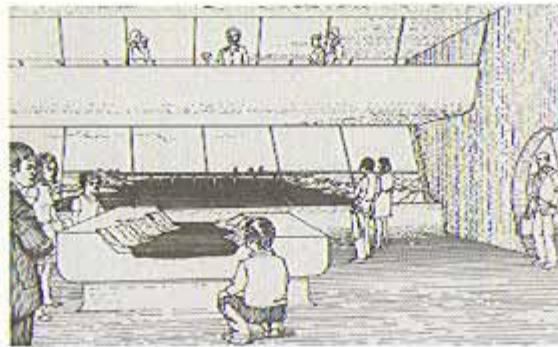
The participants in the Saskatoon Research Park, a project already proposed within the University grounds, can contribute another powerful dimension of research and development to the research and experimental communities.

As the experimental communities represent the promise of the future, so the 42nd Street Bridge, the Meewasin Bridge, has the potential to become the educational, cultural and interpretative heart of the Authority. It can become the physical and spiritual symbol of the Meewasin Valley project.

Initial planning has commenced for a new conventional vehicular bridge at this site to complete this section of Circle Drive. It will be the only bridge to carry the Yellowhead Highway, (the alternative to the Trans-Canada Highway) across the South Saskatchewan River.

This bridge could be six lanes wide. Initially it could be four lanes with two middle lanes open to allow light into the Interpretative Centre below. In the future when traffic demands increase, the two middle lanes could be utilised to make up the six lanes.

If this bridge is to be built, what could be more appropriate or symbolic of linkage than to have the heart and nerve centre of the Meewasin Valley 'slung' beneath this bridge, with a separated pedestrian and bicycle route alongside, linking the two banks and connecting riverside trails.

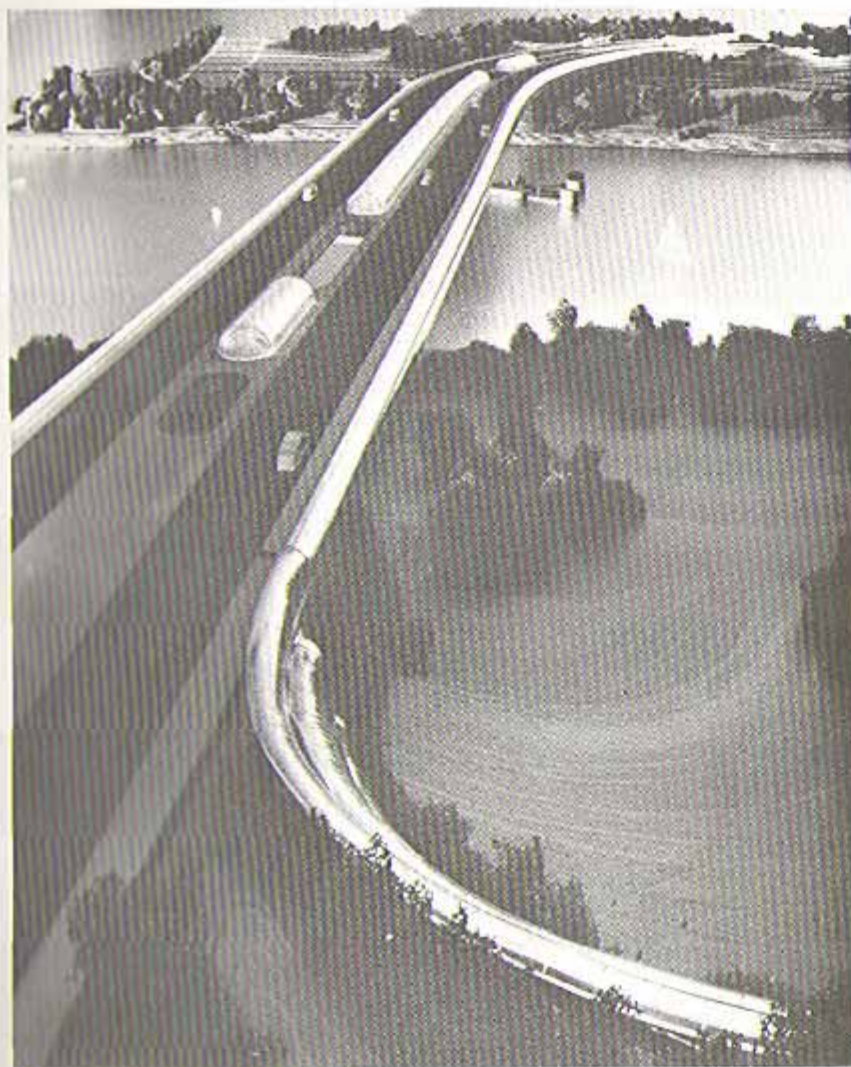


Such a centre, providing visitors with vistas of the river and, at the same time, allowing direct access down to the water surface is both practical and exciting.



Interpreting the dynamics of the river.

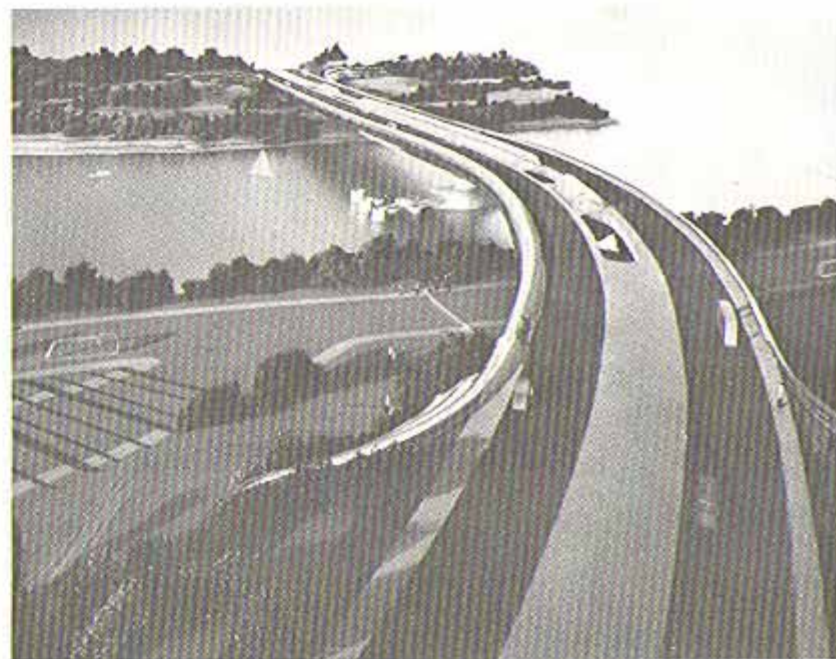
The Interpretative Centre itself is envisaged as an active, participatory, educational and cultural centre. It is a new kind of institution, open and diversified, that can entertain and educate. It should captivate visitors, citizens, students, tourists alike while it unfolds the story of the region: the arrival and growth of life, the creation of land forms, the dynamics of the river (recreated in a working model), an audio-visual display of human settlement, starting from 25,000 to 40,000 years ago (the crossing of Beringia and the migration southward, the late prehistoric nomads following the retreat of Wisconsin glaciation 20,000 to 6,000 years ago, and on, up to and including the early Indian settlement), the coming of Kelsey and Henday, the struggle of Temperance Colonization, the vision of J. F. Clark, the drama of the Riel Rebellion, the story of the ill-fated Northcote and "the last naval battle on the North American Continent", the floods of 1903 and 1953, the sinking of the "City of Medicine Hat", the struggles of the early pioneers, the droughts, the dust, and the Depression.



View of the Meewasin Bridge looking west.



The Interpretative Centre 'slung' beneath the Meewasin Bridge.



View of the Meewasin Bridge towards the Sutherland Nature Study Area.

C) Sutherland Nature Study Area



The Northcote on the South Saskatchewan in the "Last Naval Battle in North America".

Moreover, it can generate ideas for the future. Principles and concepts such as those to be developed in the experimental communities or the over-all Meewasin Valley concepts of *health and fit* can be demonstrated, thereby heightening public perceptions and concern about the future.

The Meewasin Bridge will also announce to casual drivers on the Yellowhead Highway that they are crossing the South Saskatchewan River, a place rich in history, and that they are in the Meewasin Valley and Saskatoon, the green heart of it all.

At the east end of this Bridge, are two parking areas, sited among existing trees. Facing the river under the abutment and road, is the Meewasin Valley Authority Headquarters, unobtrusive and accessible. Design requirements for the Headquarters should be established early enough to be incorporated in the design of road and bridge. To the south of this area, a golf course is a possibility; to the north is the outdoor interpretative back-up for the centre.

On the Sutherland Beach terrace, on the east side of the river and north of the Authority Headquarters, is the Sutherland Nature Study Area.



The Outdoor Interpretation Area.

There will be trails for hikers, joggers and cross country skiers. Separate from these major trails will be a system of narrower trails for students of archeology, anthropology, geology and ecology. For all these groups, and more, this rich area provides unusual opportunities. The paleontological site is one of these opportunities. With proper safeguards, much of this educational resource could be made accessible to the public.

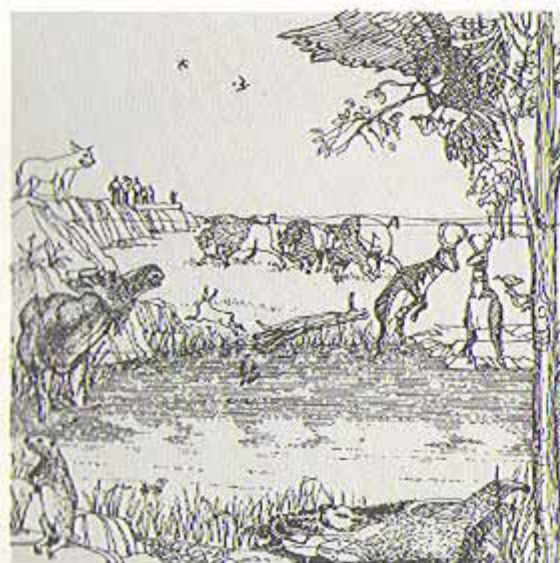


Winter activities in the Outdoor Interpretation Area.

D) The Forestry Farm and Zoological Park

The existing Forestry Farm presents a rare opportunity to create an outstanding Zoological Park, to reinforce the concept of *health and fit* by adding another dimension of experience – in this case of man's relationship to the animal domain.

Let us imagine some possibilities. For example, a zoological park could be conceived and planned by continents (i.e.: Asia, Europe, North and South America, Australia and Africa, with their environments, animals and birds) and developed in stages.



Animals of North America.

With the initial emphasis on animals native to North America, another dimension of relationship to the local region, its environment and indigenous animals and birds would emerge. As the park is enlarged and expanded, so is the visitors' experience and knowledge of the world.

Such a concept could be thematic. The core area in this park might, for example, illustrate the genesis of life. A valid design approach might be to enclose the people and let the animals roam.

The area covered by this park could include the Forestry Farm and extend north and west to meet the river near, but without including, Peturrson's Ravine.

South of Peturrson's Ravine, canoes could be made available for rent. Visitors could be able to move slowly downstream to study the diversity of indigenous wildlife along the riverbank. Thus this river environment immediately becomes an extension and elaboration of the Zoological Park. Visitors would dock and return canoes on the east bank, opposite Tipperary Creek. From this river terrace they could then walk east to the slough and south along the slough back to the Park, studying the geology and wildlife en route. This could be an enlightening, enjoyable experience for both children and adults.

E) The University of Saskatchewan Campus Plan

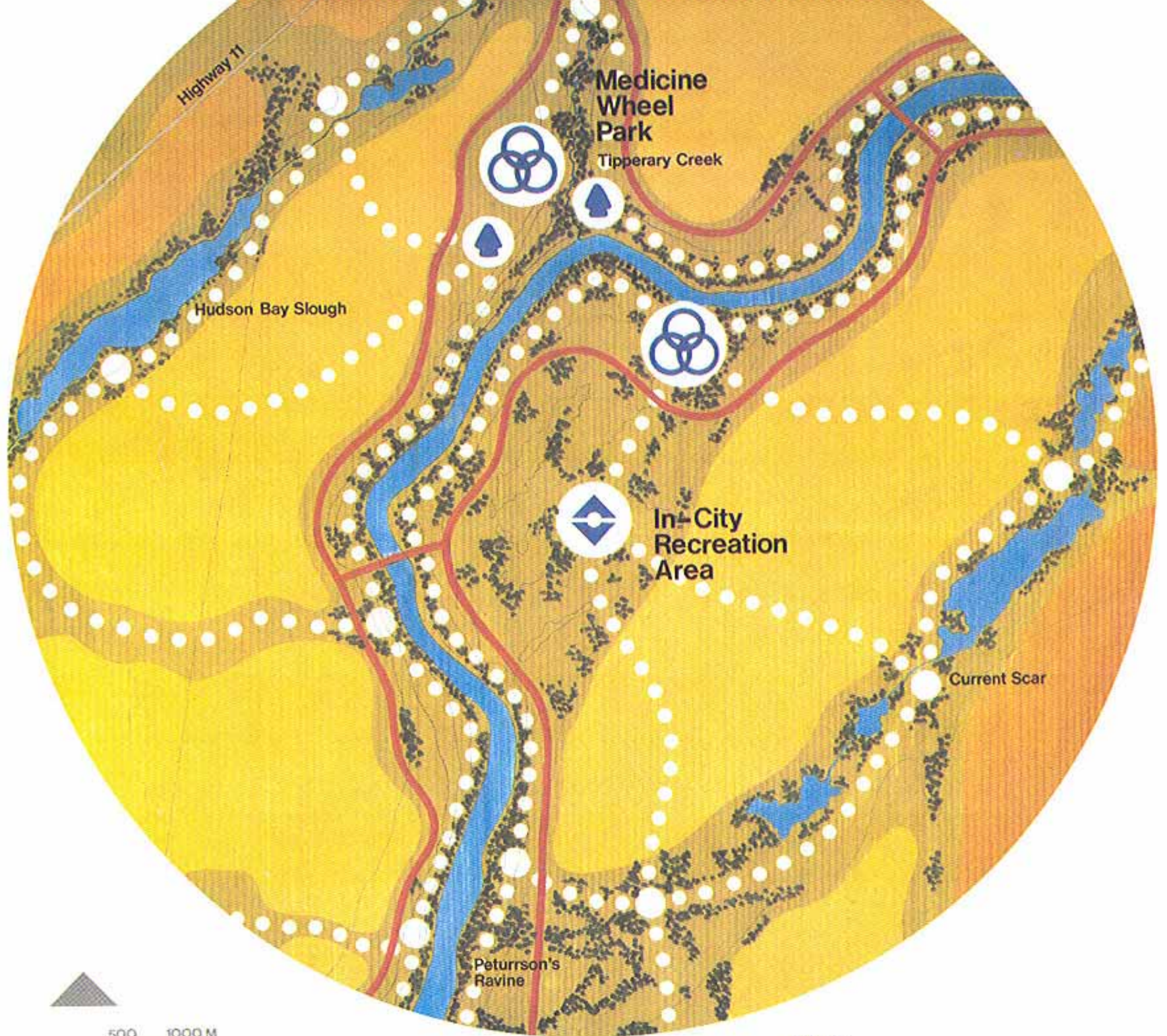
Future university buildings for research and academic pursuits should be built in keeping with the present character but perhaps clustered closer together and around a spine consisting of open space. This spine extends southeastward from Devil's Dip in the west to terminate at the Pond to be created south of College Drive. Here, the University links into the community and the residential area through parks and the urban linkage system.

F) Peturrson's Ravine Conservation Area

This area includes not only Peturrson's Ravine but the underground water emerging at the bank west of the penal hospital, rare sedges and saline vegetation 300 to 350 metres south of Peturrson's Ravine, together with essentially undisturbed geological formations showing the series of glaciations. Illegal dumping is damaging this area.

There are only two sets of words to describe the area and to suggest action:

It is beautiful; clean it up.



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Prairie
Grass Terrace Node

A) Medicine Wheel Park

Tipperary Creek, an area unknown to many people in Saskatoon, is also a place of rare beauty. It is a natural setting for a park. The archeological resources in this area, including the Medicine Wheel, are the most suitable by far for public education purposes. With the safeguard of basic research, this area could be developed into a unique park with emphasis on the prehistory of the Saskatoon region and the Northern Plains in general. The proximity to other archeological sites is particularly valuable and the tourist potential of such a park is great. However, the City is rapidly encroaching on this area. Protective measures are urgently required.

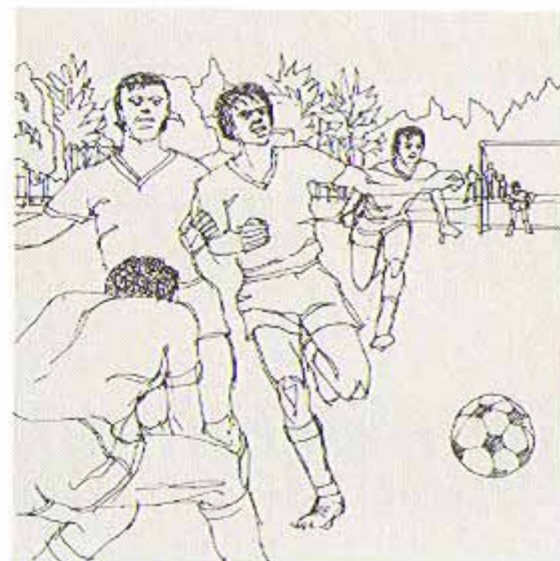
B) Future Development and Expansion of Saskatoon

The Prairie Grass Terrace Node and adjacent areas offer enough evidence for the City to fully investigate as one option the possibility of urban expansion into this area. Using the sloughs ravines and geological information as a natural framework, we find there are possibilities for three 'satellite' communities, including an industrial area on the west. The option is presented to the City and the public as an alternative to conventional satellite cities. We find such an arrangement natural for a prairie environment. It provides access to natural amenities, it does not diminish the quality and character of the downtown, it does not reduce the quantity of productive agricultural land and it does not lead to amorphous urban development provided nature is respected at all stages of planning, design and construction.

The findings from the experimental communities, whether completed or on-going, should provide information, planning and design potentials and guidelines to open opportunities for an exciting development in this area.

C) In-City Recreational Park

On a terrace opposite Tipperary Creek and Medicine Wheel Park, centrally placed between these three 'satellite' units, a major In-City Recreational Park is proposed. Its development should be tied to the needs of the new communities as well as to future needs of the City to take the pressure off the southern areas.



In-City Recreational Park



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Cathedral Bluffs Node

A. The Lake

This is the major year round 'northern' recreational node, designed to relieve demand pressure in the 'south' – in the Pike Lake, Moon Lake, Cranberry Flats areas. This development will also provide convenient recreational facilities for those living in the northern section of Corman Park and adjacent rural municipalities.

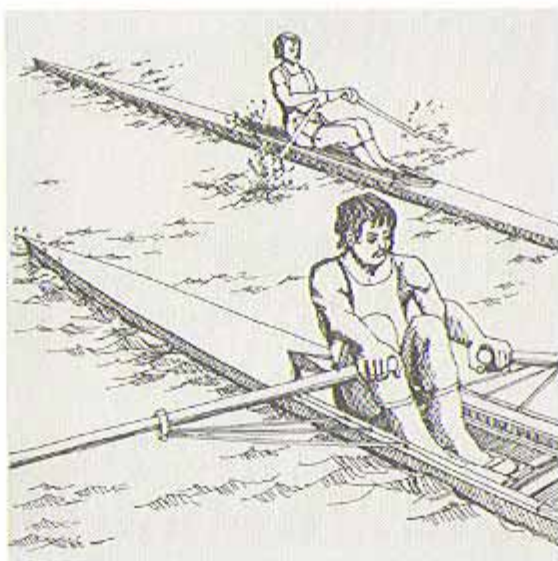
The major emphasis is placed on four components:

- a) creation of a large lake,
- b) establishment of an interpretative and research field centre,
- c) creation of a ski hill and
- d) creation of a 'living' pioneer village.

A bridge will be required in this area, not only for the convenience of picnickers making a Rivervalley 'loop' here, but also to cope with additional traffic between the two banks.

On the west bank, above the Cathedral Bluffs and stretching back into the plain, is the north end of the Hudson Bay Slough. A lake of two miles or more in length may be created here by enlarging or damming this slough. *Further feasibility study is required.* The lake should be large enough to become a major regional attraction. It should be deep and wide enough to hold rowing regattas, and allow dingy sailing, swimming, canoeing and fishing in summer. In winter ice fishing, snowmobile competitions and skating should be possible. On the southeast shore of this lake we envisage a series of camping grounds.

Also camping facilities, convenient to canoeists, could be located nearby on the west bank of the river. Rest shelters for the convenience of hikers and cross country skiers could be integrated with the trail system around the lake and on both sides of the river.



Regatta on the Lake.

B) Interpretative and Research Field Centre

Upstream from Clark's Crossing, adjacent to a wooded coulee and creek, a major Interpretative and Research Field Centre is proposed. It will interpret the natural system and unique geology of the northern section of Corman Park. The contrasts between the south and the north river valley will become clear when people compare the contents of this centre with those in the Brightwater Semi-Wilderness Area and the Oxbow Lakes Sanctuary.

For those with a special interest in this area, camping grounds are planned on the east bank near this Centre. Also to the east of this Centre, adjacent to a recreational area on the tableland is another camping area. On the river's edge will be boat launching areas, trails, camp sites and, farther back, the Rivervalley Parkway. A weir might be built farther downstream, subject to further study, to improve boating, fishing and canoeing.



Along the trail system in winter.

C) Ski Hill and the 'Mountain'

A ski hill can be developed between the Lake and high Cathedral Bank. By following the terrace topography the run can be as long as one and a half miles, especially when the river again freezes in winter (after waste heat from the Queen Elizabeth Plant is recycled). It includes areas for tobogganing, cross country skiing, snowshoeing and skating – winter activities for the whole family. Activities can be expanded to include indoor recreation such as curling and skating in the winter and year round social recreation such as dancing, banquets, club meetings and community festivals. The buildings to house these activities can be located to capture the spectacular view of the river valley.

If the nearby Lake is to be formed by excavation, the hard excavated materials can be compacted in this area to heighten and lengthen the ski hill. Planting to create wind breaks and snow retention must be studied, but the man-made 'mountain' promises to complete this area as a spectacular recreational node.



The Ski Hill.

D) Clarkstown

J. F. Clark had a vision nearly 100 years ago. He saw his homestead at Clark's Crossing as a lonely beginning of a busy town. Perhaps his vision can be realized with the creation of *Clarkstown*, a heritage village and interpretative centre proposed for the land immediately south of Clark's Crossing.

This will be a living village, as important to the region as is Black Creek Pioneer Village to Metropolitan Toronto or Heritage Park is to Calgary. It could contain homesteads, stores, tinsmith and blacksmith shops, livery barns, Temperance Colony Headquarters and other reminders of the past.

In Clarkstown the public will experience the life of the early pioneers and settlers. (Students and senior citizens dressed in the costumes of the 1880's and 1890's could play roles and discuss in the language of today who they represent and what worries them, makes them happy or sustains their hopes and aspirations). Shops and a restaurant serving homebaked bread and homecooked meals could all help recreate a living experience of the past.

Clarkstown will link people to people through various activities, such as an annual Pioneer Festival Day and other events related in living ways to the heritage and spirit of the pioneers.



Clarkstown street scene.



The Clarkstown General Store.



The intent is *enrichment* of life.

The spine is the *river*.

The base is the *natural system*.

The broad concept is *health and fit*.

The principle is *access* to and along the river.

The theme is *linkage*.

The operational model is one of *links and nodes*.

The parts are the *dreams* and *realities* passed down by the pioneers and the forefathers, the *perceived* and *stated needs* of the people today and the *observed needs* and *experiences* of the project team.

The key is *balance*.

The process of achievement links the *creativity of people* and the *dynamics of time* to the long-range potentials and opportunities.

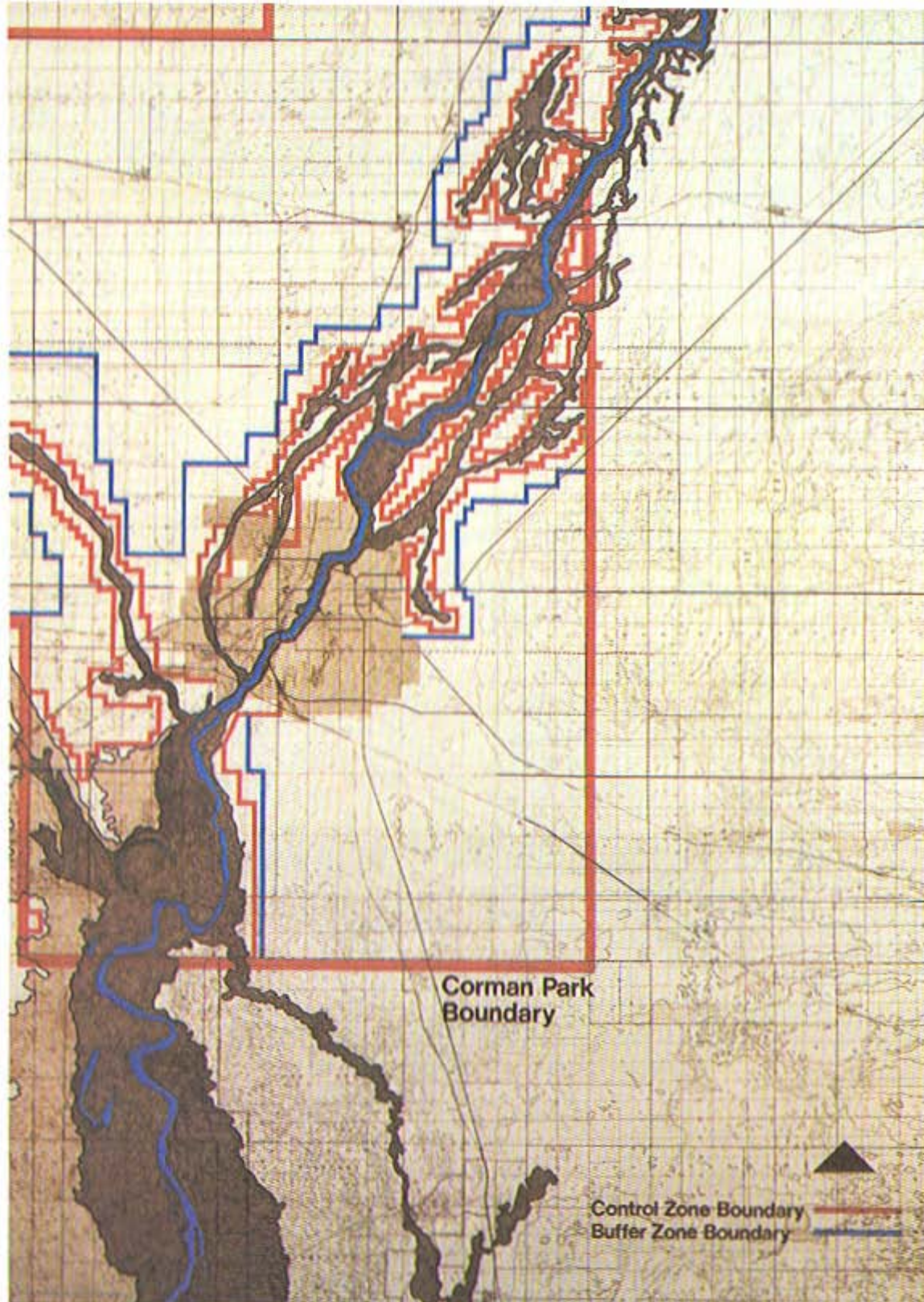
In summary, then, it is our opinion that if the ideas above and the concepts and examples given in this report are followed with sensitivity and care, and if the Zones and Recommendations in the subsequent pages are heeded, the general objectives for the study area stated in the Assignment can be met, namely:

- a) the enlargement of educational and research opportunities,
- b) the advancement of the cultural arts,
- c) the conservation of nature,
- d) the improvement of recreational opportunities, and
- e) the furtherance of rural-urban relations.

The need for good Legislation and for an effective Authority to realize the plans and the objectives cannot be overemphasized.

The Authority, however, will need the support and co-operation of many groups, including all levels of government. Perhaps what it needs most will be the understanding, enthusiasm and creative inputs from a vast number of interested citizens, including the young and senior citizens.

The river, with all its subtle and sometimes violent voices, speaks a unique and special language in this prairie environment. It would be wise to learn that language, and listen to it, before acting.



The boundary definitions are based on the principle of *health and fit*, and the objective of *balance*, with the *natural system* as a base.

There are two types of zones defined by the boundaries:

The *Control Zone*

and

The *Buffer Zone*.

The Control Zone (shown in red) covers land areas that directly affect the river or are directly affected by the river. i.e. flood-prone areas, coulees, sloughs, ravines, creeks, slumps and river terraces.

The Buffer Zone (shown in blue) is a zone of influence and covers land areas that indirectly affect the river, i.e. the aesthetics or physical infringement of new developments on secondary watercourses, including known springs. It is a zone of fusion, between the tableland and the river valley.

In the Control Zone, the M.V.A. has full control and management over all matters including preservation, conservation, design, development, monitoring and policing.

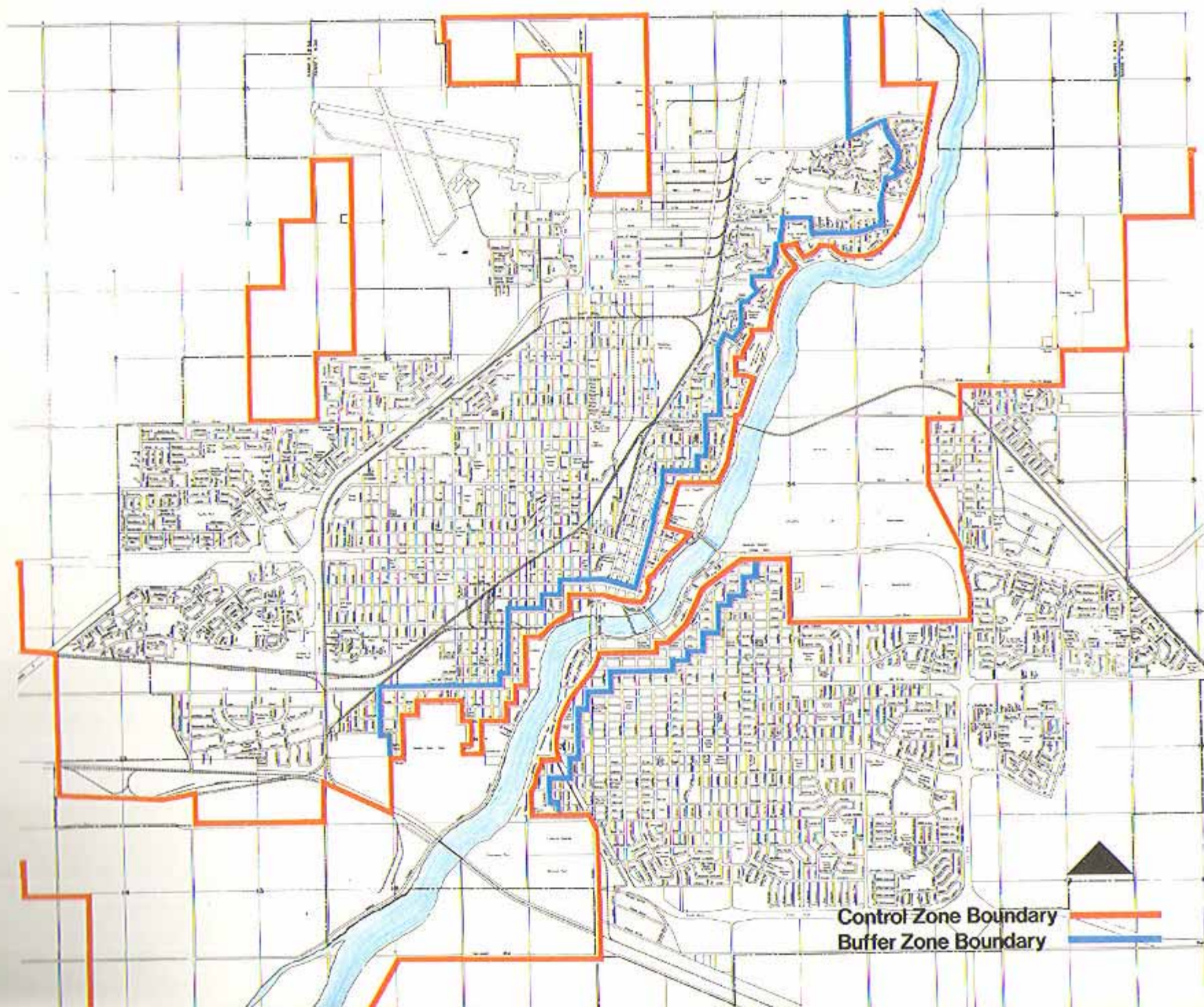
In the Buffer Zone, the M.V.A. is to be consulted on all new developments prior to any approval by the Province, the City, the University or the Rural Municipality of Corman Park.

It should be noted that constraints of time and funds prevented detailed surveys of boundary lines. In Corman Park, the boundaries follow section lines, the smallest increment being a Legal Subdivision containing 40 acres. In the City of Saskatoon the boundaries follow street allowances and legal land holding descriptions.

Additional analysis will be required to ensure that both boundaries meet the intent of the two zones. Adjustment must be made where necessary.

**Rural Municipality of
Corman Park Authority Boundaries**

City of Saskatoon
Authority Boundaries



1. The adoption of the *100-Year Conceptual Master Plan*.
2. The adoption of the *Report*.
3. The adoption of the *control zone*.
4. The adoption of the *buffer zone*.
5. The adoption of the name, *Meewasin Valley*, for the project area defined by the control zone.
6. The drafting and the passage of *provincial legislation* to bring into being a *new authority* to be known as the *Meewasin Valley Authority (M.V.A.)*.
7. The adoption of the broad concept of *health and fit*.
8. The adoption of the theme of *linkage* with the river as a *spine*.
9. The adoption of the principle of *balance*.
10. The acceptance of the *natural system* as a base for planning.
11. The recognition of the *river valley* and *water* as *valuable resources* now and in the future.
12. The acceptance of the *principle of public accessibility* to and along the river's edge.
13. *Official review and updating* of the conceptual master plan at *five year intervals*.
14. The *general objectives* of M.V.A. to be:
 - a) the conservation of nature.
 - b) the improvement of water quality and reduction of pollution.
 - c) the enlargement of educational and research opportunities.
 - d) the improvement of rural-urban links and relationships.
 - e) the advancement of the cultural arts.
 - f) the improvement and extension of recreational opportunities.
15. The initial *composition* of M.V.A. to consist of members appointed by the Province of Saskatchewan, the University of Saskatchewan, the City of Saskatoon and the Rural Municipality of Corman Park. M.V.A. be authorized to extend the boundaries of the project area, and to appoint additional members representing the accreted area(s).
16. M.V.A. should establish *advisory boards* including (but not excluding the addition of others):
 - a) Citizens Advisory Board – with representation from Saskatoon Environmental Society, Natural History Society, Archeological Society, Horticultural Society, Board of Trade, Community Planning Association of Canada, Saskatoon Heritage Society – to assist the Authority in establishing policies.
 - b) Long Term Planning, Architectural and Engineering Advisory Board – consisting of planner, architect, landscape architect, geotechnical engineer, river engineer, ecologist, wildlife specialist, recreation specialist, educators and others – to advise the Authority on long-term planning studies and short term reviews of work. (Detailed river engineering guidelines should be established to provide an engineering philosophy consistent with the long-term development plans.)
17. M.V.A. be empowered to:
plan
fund
develop
monitor
maintain and
police the project area
18. M.V.A. be empowered to employ staff and consultants, to appoint advisers, and to set up other advisory committees as necessary.
19. M.V.A. be empowered to:
 - a) enter into agreements with any level of government, and with public and private agencies,
 - b) acquire and dispose of land and property (first right of refusal),
 - c) negotiate water quality and rights,
 - d) protect public health and prosecute offenders.
20. M.V.A. be empowered to raise revenues, excluding taxation.
21. M.V.A. be empowered to establish a *fund or trust foundation*, for the purpose of advancing its objectives. (e.g. scholarships, research grants and related matters.)
22. M.V.A. establish *priorities* and keep future development options open.
23. M.V.A. review all available studies and carry out on-going studies, commencing with those deemed necessary as bases for future development decisions.
These should include:
 - a) a comprehensive study of the river dynamics and other river engineering considerations to determine acceptable lines of the river edge, particularly in relation to the urban area. Consideration must be given to such aspects as siltation of the channel, erosion and scour control, regulation of channel infilling, and delineation of control lines and elevations for design high water flows.
 - b) review of low-flow criteria on the river, with the Saskatchewan Department of Environment and the Saskatchewan Nelson River Basin Authority.
 - c) participation in the Federal-Provincial Flood Damage Abatement Programme already underway in the Saskatoon area and use of the results of this study in

- i) zoning based on flood line mapping,
- ii) flood control structures,
- iii) flood control education,
- iv) comprehensive inventory and study of biological resources and their interrelationships.

d) review of planning principles affecting projects in the river valley, including:

- i) protection and preservation of natural river banks under bridge structures and embankment approaches to ensure continuous trails along the banks.
- ii) utility and power line crossings to be co-ordinated with overall planning; transmission corridors to be routed outside conservation and slump areas.

e) detailed geotechnical evaluation of the project area to delineate:

- i) the detailed physical environment, including the stratigraphy and groundwater levels.
- ii) the extent of aquifers, particularly near urban areas or areas of intensive or unusual use.
- iii) reserves of aggregate and building materials and an appropriate management plan.
- iv) control zones to monitor and protect slope stability for the various landforms within the project area.
- v) existing landslide areas and remedial and monitoring procedures.

f) a water quality standard and enforcement programme to include:

- i) secondary sewage treatment by the City of Saskatoon to control undesirable organic and nutrient wastes.
- ii) improved sewage dispersal methods in the river channel to minimize the channelizing of effluents and inhibiting biological action, at lower river flows.
- iii) measures to reduce nutrient-laden storm runoff in the river course.
- iv) functional studies to establish new landfill sites

v) a comprehensive survey of underground aquifers to determine:
precise locations,
water quantities,
methods to protect quality,
restrictions for sand or gravel filtration areas.

vi) study and implementation of recommendations to limit the damaging effects on water and vegetation or airborne and surface pollutants from nearby power stations, potash mines, chemical plants and industries.

vii) measures to require that all properties without access to a sanitary sewage system within the area provide sewage containment and treatment systems.

viii) restriction of agriculture feedlots near the river, creek or active drainage courses. (See "The Pollution [by livestock] Control Act 1971").

ix) agreement with the Saskatchewan-Nelson River Basin authorities on water standards and monitoring of:

agricultural practices that dispense undesirable nutrients to surface waters;
erosion and its effects on nutrient loadings;
mercury and other significant heavy metals in the South Saskatchewan River.

g) a survey with the Saskatoon Heritage Society of historical sites and buildings worthy of preservation within the Control and Buffer Zones; those accepted to be identified with plaques of acceptable design and made accessible to the public if possible.

h) in conjunction with the Saskatoon Archeological Society:

- i) a survey of archeological sites within the Control Zone, and
- ii) long-term provisions to document, preserve and develop the archeological and paleontological resources within the area and to make them known to the public; such studies to commence immediately in the Moon Lake, Beaver Creek, Sutherland Beach, Saskatoon site, Medicine Wheel and Tip-

i) detailed transportation studies, within the framework of the master plan, to include:

- i) rapid transit potentials and locations.
- ii) location of future arterial road corridors and bridge crossings.
- iii) a definitive functional plan for a continuous river edge with provisions for hiking, horseback riding, skiing, bicycling, jogging trails with appropriate shelters, rest stops and outlooks.
- iv) potentials for cable car and ferry crossings, to integrate with Rivervalley Parkway and trails.
- v) canoe and boat launching sites.
- vi) control measures and safety guidelines for canoeing, water skiing and power boat operation.
- vii) a co-ordinated network of scenic Rivervalley Parkway.

j) an inventory of flora, fauna and geological materials.

k) establishment of wildlife management policies, in conjunction with the Department of Tourism and Renewable Resources, University of Saskatchewan, Department of Biology, and Canadian Wildlife Service.

l) outdoor education programmes, in conjunction with School Boards, the College of Physical Education, the University of Saskatchewan and participating citizens groups.

m) uniform policies, standards, and by-laws for reviewing future developments in the Control and Buffer Zones.

24. That specific actions be taken *before* M.V.A. is established on the following:

a) *Illegal Dumping*

The City of Saskatoon, the University and the Rural Municipality of Corman Park to prohibit by regulation all illegal dumping on the river edge, and in ravines, creeks or slough drainage courses within the Control Zones.

b) *Restricted Access*

The City of Saskatoon, within its existing powers, restrict all illegal use of the Cranberry Flats and establish, in conjunction with the Province, alternative site(s) for all-terrain vehicles within two years.

c) *Alternative Utility Routes*

The City of Saskatoon study and establish alternative utility routes, preserving the natural Hudson Bay Slough area for more appropriate public uses.

25. Consideration of the following urban planning principles:

a) That the City of Saskatoon develop, through the built-up area a continuous linkage of parks, boulevards, laneways and public spaces with connections to river edge parks.

b) That expansion and development of the City be integrated with sloughs, creeks, coulees, river banks and terraces.

c) That the zoological park be located at the Forestry Farm and eventually connected to the river.

d) That any future city hall be located in the South Downtown Area near the river.

26. Construction of a distinctive *Meewasin Valley Interpretative Centre* under the proposed 42nd Street Bridge.

27. An early start on the establishment of *experimental communities* by the University of Saskatchewan on university lands.

To prepare a 100-year conceptual master plan of this magnitude in such a short time requires the knowledge, dedication and efforts of many people. We wish to acknowledge and extend our gratitude to all of those who contributed. We wish formally to acknowledge in particular the cooperation and contribution of the following people:

Honourable G. MacMurchy
Minister of Municipal Affairs – Province of Saskatchewan

Honourable W. E. Smishek
Minister of Finance – Province of Saskatchewan

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Honourable R. Romanow – Attorney General, Province of Saskatchewan

Reeve V. Sommerfeld – Rural Municipality of Corman Park

Mayor C. Wright – City of Saskatoon

'B' Committee:

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R. M. Cope, City Planner, City of Saskatoon

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D. Moroz, Director, Saskatchewan Social Planning Secretariat

A. D. Reed, Superintendent, Buildings and Grounds, University of Saskatchewan

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A. K. Gillmore – Chairman, "A" and "B" Committees

The Members of the Legislative Assembly from the City of Saskatoon and Rural Municipality of Corman Park:

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Honourable J. H. Brackelbank

Honourable E. Cowley

B. Dyck

R. Katzman

H. Lane

P. Mostoway

G. H. Penner

Honourable W. Robbins

Honourable H. Rolfes

The Board of Governors, University of Saskatchewan:

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Rt. Honourable J. G. Diefenbaker

D. E. Gauley

I. Gorski

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V. W. Hay

E. Kasper

J. Y. McFaull

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M. Chernesky

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J. Fowler – District Engineer, Inland Water Directorate, Fisheries and Environment Canada

D. L. MacLeod – Director, Hydrology Branch, Water Management Service

R. A. McDonald – Director, Water Pollution Control Branch, Environmental Protection Service

I. McLeod – Indian Cultural College, Saskatoon

G. Michael – Planning Services, Tourism and Recreation Planning

G. Mitchell – Deputy Minister, Department of Environment, Province of Saskatchewan

P. J. Moran – Executive Director, Wascana Centre Authority

B. Paterson – Director, Maintenance and Development, Wascana Centre Authority

R. S. Pentland – Water Management Service

W. Taylor – Saskatchewan Research Council

The City of Saskatoon:

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B. Brown, City Engineer

I. Brand, Streets and Traffic Engineer

S. Dietze, City Commissioner

P. Kabatoff, Parks Department

The University of Saskatchewan:

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N. K. Cram, University Secretary

G. Hamilton, Chairman, Planning Committee

I. Innis, University Architect

J. A. Pringle, Vice-President, Administration

S. Rowe, Department of Plant Ecology

E. K. Sauer, Department of Civil Engineering

E. G. Walker, Department of Anthropology and Archaeology

B. W. Whale, Director of Extension

Citizens Groups:

Saskatoon Archaeological Society

Saskatoon Board of Trade

Saskatoon Environmental Advisory Council

Saskatoon Environmental Society and Natural History Society, Joint Riverbank Committee

Saskatoon Heritage Society

Saskatoon Horticultural Society

Saskatchewan Parks and Recreation Association

Saskatoon Parks and Recreation Board

Community Planning Association of Canada – Saskatoon Branch