



The Site:

The Lower Mainland Region of British Columbia as seen from space (this and all other plan views in this document shown with north up). Heavily urbanized areas appear grey. The City of Vancouver occupies the peninsula at the extreme left, bounded by the Burrard Inlet on the north and the Fraser River on the south. The Fraser River divides the urban area, Vancouver and Burnaby on the north shore while Delta and Surrey are on the south shore. Surrey's most populated area appears as the grey region just south of where the Fraser River turns to the southwest. The site is at the south end of this expanding urbanizing area and is identified by a red dot. Large un-urbanized zones lie to the east and to the south of the study site; these are the flood plains of the Serpentine and the Nicomekl Rivers respectively.

INTRODUCTION

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The Purpose of This Book

This book is about how to make our new neighbourhoods more sustainable than they are now. By sustainable, we mean the maintenance of the ecological health of our neighbourhoods and the provision of equitable access to affordable housing for our children. We hope that this book will be of interest to everyone; from the public officials and private developers who participate in developing and managing the urban landscape today to the secondary school students who will shoulder these responsibilities tomorrow. The book includes four different designs for the same 400-acre site in Surrey, British Columbia, each design having been produced by a team of architects and landscape architects, working "en charrette."

Each team had a clear goal: to *illustrate* a vision of what our communities could be like if they were designed to conform with emerging regional, provincial, and national policies for sustainable development. Currently, there are very few examples, or *illustrations*, of what more sustainable urban landscapes could be like. In British Columbia, many ministries and other sectors of government are developing policies and legislation aimed at enhancing the sustainability of future developments. This project was the first in British Columbia to *illustrate* the changes that these policies might bring to the texture and pattern of the urban landscape, should they be carried out. We hope that these illustrations will enhance public discourse by allowing citizens and decision-makers a chance to assess for themselves what a more sustainable urban landscape might look like.

The James Taylor Chair in Landscape and Liveable Environments

This charrette project is the first in a series of related projects sponsored by the University of British Columbia's James Taylor Chair in Landscape and Liveable Environments.

UBC formed this endowed chair in response to the 1987 United Nations World Commission on Environment and Development. In its assessment of the state of the global biosphere, the commission argued that the solutions to global environmental problems lay largely at the local level and, particularly, at the site-development level. Members of the Landscape Architecture Program at UBC realized that most ongoing research in landscape sustainability was being done at the ecosystem scale (landscapes larger than 3,000 square kilometres) and that very little work was being done at the site scale (landscapes of less than two square kilometres). In 1990, the Landscape Architecture Program presented a proposal for an endowed research chair in sustainable site design. In 1991, during the UBC's "World of Opportunity" campaign, the university received a gift to endow the James Taylor Chair in "Landscape and Liveable Environments." A central principle that informs all the chair's activities is this: the individual site, and even the individual house and yard, are to the landscape region what the single cell is to the human body. Just as the health of the human body is dependent on the health of all of its cells, so the ecological health of a landscape region is dependent on the health of its individual sites.

A Brief History of Design Charrettes

Most people are not familiar with the word "charrette." A charrette is a design activity where the participants are assigned a very complicated design project and are expected to bring it as close to completion as possible within a very short time. Members of the School of Architecture at the Ecole des Beaux-Arts in Paris coined the word at the end of the last century. The faculty in that school would issue problems that were so difficult, few students could successfully complete them. When the allotted time had elapsed, a pushcart, or, in french, a

charrette, trundled past the drafting stations. Students would throw their drawings into the cart at various states of completion, as to miss it meant an automatic grade of zero. It was in a similar environment that the participants in the Sustainable Urban Landscapes Design Charrette produced the designs and illustrations contained in this book. We gave them only four days to design a hypothetical community for 10,000 persons in Surrey, British Columbia. The "cart" came by at 7:00 AM on Friday, 15 September 1995, the morning of the presentation, and the designers threw their drawings into it. Those drawings are the ones reproduced on the following pages.

The charrette recorded in this book is not the first one since the nineteenth century, rather, it is one in a long series of charrettes held since the tradition began. In our own Georgia Basin Region, the University of Washington's Department of Architecture has been conducting major design charrettes for more than a decade. In these charrettes, many design topics have been explored, from the reuse of de-commissioned military installations to the design of portable water closets for Seattle's homeless. One of the publications emanating from the Seattle charrettes that has influenced urban designers around the world is *The Pedestrian Pocket Handbook*, edited by Doug Kelbaugh and now in its fifth printing. As Professor Kelbaugh had organized all of the Seattle charrettes, we asked him to act as our advisor for this project and to participate as a team leader in our first charrette.

Early in our planning, Professor Kelbaugh cautioned us that the results of a charrette are always unpredictable. He told us to hope for the best but to prepare for the worst. He also encouraged us by stressing the one great advantage of the charrette model: it is the best way to get the most creative proposals for addressing the most difficult problems from the most accomplished designers in the most compressed period. In no other way would (or could) these individuals come together to stimulate each other, teach each other (and their student partners), and compete with each other to produce the best possible answers to a given design problem. An important cautionary point must be made, however. Given the short time in which they were accomplished, *no one* should think of the designs produced at this charrette as complete. These designs are beginnings, not ends. They provide a point of departure for later contemplation and elaboration. In short, *they provide the pic-*

tures of what a more sustainable future might be like – nothing more.

The Specific Goal of This Design Charrette

The goal of this project is to demonstrate what our neighbourhoods and communities could be like if they were designed and built to conform with emerging local, provincial, and federal policies for sustainable development.

We expect these policies will emerge and develop a great deal more in the future, as we learn more about the possible avenues towards increased landscape sustainability; but the first step towards a sustainable urban landscape is to accept and to work with these emerging and existing policies and to draw pictures of what it would look like. We do not believe that these policies by themselves guarantee sustainability, they do not, but it is clearly worthwhile to make the first step by illustrating their potential benefits.

The above-stated goal suggests the following more specific objectives:

1. To produce sustainable community design models for real British Columbia urban landscapes
2. To illustrate the design consequences of meeting disparate and often contradictory sustainability policy objectives
3. To illuminate the connection between sustainability and livability
4. To show how sustainable design objectives are influenced and/or impeded by typical community subdivision and site and traffic engineering regulations
5. To create a setting in which leading British Columbian designers can exchange ideas and viewpoints with outside experts in the field of sustainable design
6. To produce design proposals that may provide patterns, processes, and prototypes for other Georgia Basin communities
7. To broadly distribute the results of the charrette through a variety of means and venues - to citizens, elected representatives, policy-makers, students and designers - and thereby influence future public policy and legislative initiatives

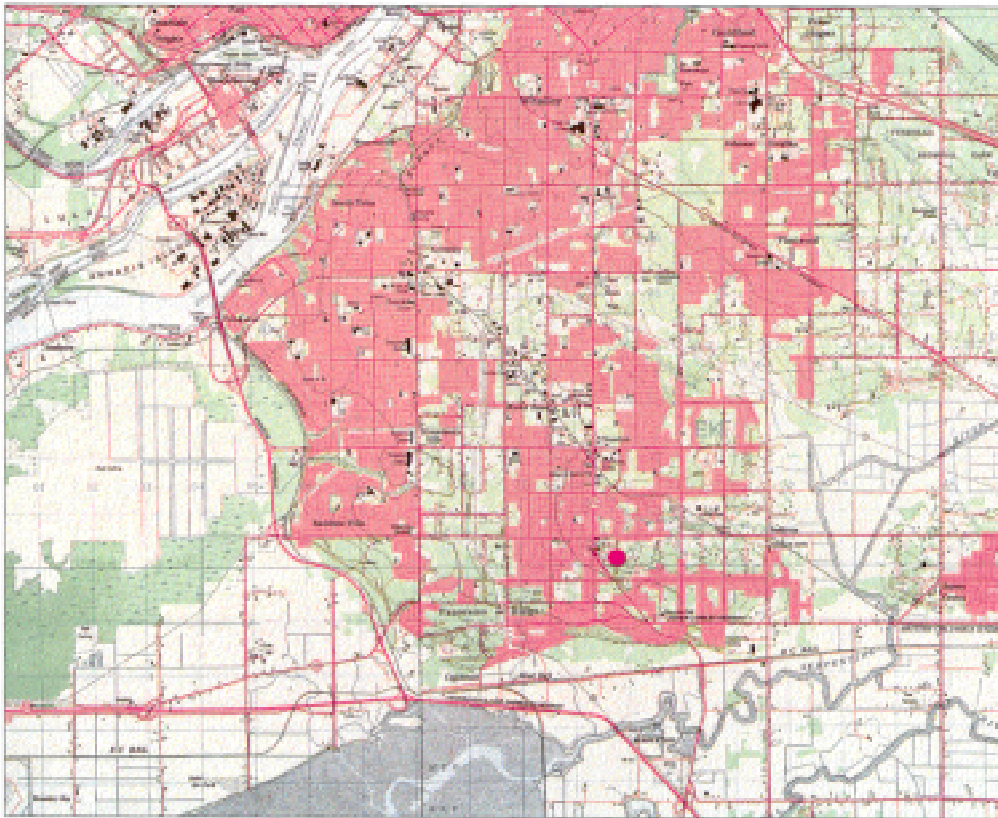
The Process of Choosing the Charrette Site

Early in the planning phase of this project we presented the charrette idea to participants at the November 1994 meeting of the Greater Vancouver Regional District's (GVRD's) Technical Advisory Committee, which is comprised of the senior planners from GVRD communities and other com-

munities in the region. The committee also includes representatives from the relevant provincial ministries and Crown corporations. We invited the participants to submit candidate sites from their communities for consideration, and five different Lower Mainland communities submitted a total of thirteen potential sites.

The Sustainable Urban Landscapes Design Charrette Advisory Committee then reviewed these thirteen sites. The committee selected the 400-acre site in the South Newton District of Surrey because it has several physical and cultural characteristics common to many other communities in the region. The committee also felt that Surrey's leading elected officials and its citizens were committed to preserving the natural beauty and ecological integrity of their city as it grew. The combination of physical site characteristics and an interested public made the 400-acre site in Surrey a logical choice for the first charrette project.

The City of Surrey is very large, 126 square miles, making it, physically, the largest of all Lower Mainland communities. It has a population of 294,000 and is growing by 4 to 6 percent per year. If this rate of growth continues, Surrey's population could surpass that of Vancouver, presently British Columbia's most populous city, in the year 2021. While a quick glance suggests that Surrey has a substantial amount of land available for building new neighbourhoods, closer examination shows that almost half of its land lies within the boundary of the protected Agricultural Land Reserve (ALR). These undevelopable lands are the low-lying flood plains of the Nicomeki River and the Serpentine River. An even closer look shows that the 'buildable' upland areas of the city are laced with protected salmon-bearing streams, which are very important to the ecology and aquatic productivity of the region. In summary, although there are enormous demands for increased development in Surrey, its remaining land base is crucial for habitat and local food production. We hoped that participants, through presenting intelligent designs, would be able to demonstrate ways to mitigate this potential conflict. The 400-acre charrette site includes upland regions and low wet areas. As such, it provides a representative cross-section of the surrounding city. The site is divided into sections by important salmon-bearing tributaries of Hyland Creek. It is located at the edge of a recently urbanized area - the Newton District - and is one of the next logical catchment areas for Surrey's population expansion. The city



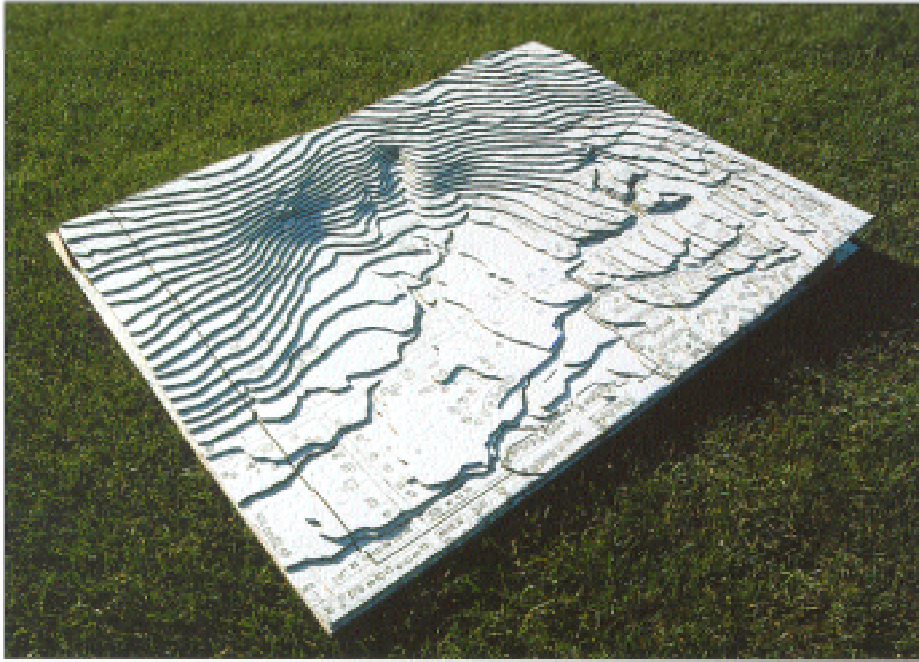
Left:

A topographic survey map showing the study site in its context. The study site is again located by a red dot. On this map, presently urbanized areas are shown in pink, forests in green, and agriculture in white. The Serpentine and Nicomeki Rivers, to the east and south of the site respectively, are bordered by wide agricultural flood plains. These flood plains divide Surrey into three distinct upland urban zones: (1) the Newton/Whalley/Guildford urbanization, to the immediate north of the study site, (2) the Cloverdale District, ten kilometres due east of the study site, and (3) South Surrey, seven kilometres due south of the study site.

Below:

The four-hundred-acre charrette site. Boundaries of the study site are shown with a heavy black line. This part of Surrey is drained by the Hyland Creek and its tributaries. The main stem of Hyland Creek forms the northern boundary of the study site. Several of Hyland Creek's smaller tributaries dissect the study site. Hyland Creek and its tributaries are clearly marked in the photo by the long lines of forest vegetation. King George Highway forms the western border of the site. Sixty-Fourth Avenue lies close to the northern edge of the site while 60th Avenue lies close to the southern edge of the site.





Left:

Topographic model of the site as seen from the northeast. Vertical change has been exaggerated by a factor of two for clarity. Stream channels are shown by the linear depressions.

Ground-water emerges from many locations near the base of the slope to feed the streams. The high southern edge of the site is part of the much longer Panorama Ridge formation. The soils on the site are of glacial origin generally unstratified deposits containing a high percentage of clay.

is presently planning to “upzone”, or increase, the allowable density in the area to accommodate this next wave of population growth. Approximately 980 persons live in the area today. Most of the site is privately owned, with parcels ranging between ten acres and one-quarter of an acre in size. Real estate investors own many of the parcels, and, generally, they are anxious to see the land “upzoned,” since this would dramatically increase the value of their holdings. Resident home-owners own most of the remaining parcels, and they generally enjoy the natural qualities of the site and are not anxious to see it change. The home-owners that we spoke to had little doubt, however, that change is inevitable; but they hoped the city could preserve the qualities of the site that they most enjoyed. Slopes on the site are quite moderate by local standards, ranging from 13 percent to 1 percent. The site is an inward-focussed bowl shape, with ridge-top parcels enjoying very good views to the east and north. Nine different threads of the Hyland Creek system incise this site.

The Charrette Program Brief

The charrette planners derived each element of the design brief by carefully culling the various sustainability policy statements of a variety of government or quasi-government sources published since 1990. If we felt that a policy objective had clear implications for site design, we used it to guide the design program. For example, we arrived at the 10,000 minimum population after studying a set of

interrelated policy objectives, all of which supported relatively high-density development. These policies included goals such as “accommodating walking distance access to services and transit,” “creating affordable housing,” “using developable land efficiently,” and so forth. This process ensured that the design illustrations would truly demonstrate what our neighbourhoods and communities could be like if they were designed and built to conform with emerging local, provincial and federal policies for sustainable development.

In short, the program required the designers to find a way to house at least 10,000 persons on the 400-acre site, while preserving or enhancing the ecological function of the land and the surrounding landscape. We knew that it would be very difficult to fit that many people on the site and still preserve or enhance the existing ecology. We believed that this kind of challenge would bring forth the designers’ most creative responses, and we were not disappointed. We also asked designers to provide unusually large amounts of commercial and light industrial space. The designs would thus reflect “complete community” planning principles (i.e., they would provide enough employment and services within walking distance to drastically reduce the time, energy, and money consumed by driving).

The Composition of the Design Teams

Two professional landscape architects and two professional architects led each team. Each team included an even mix of archi-

tecture and landscape architecture students from the UBC School of Architecture and the UBC Landscape Architecture Program. Half of the team leaders were drawn from the region, and the other half were invited from other parts of North America. The leaders were chosen for their recognized accomplishments in urban design, their experience in similar venues, their understanding and commitment to the principles of sustainability, their capacity to work quickly and cooperatively, and their ability to work with students. With equal numbers of architects and landscape architects on each team, the design dialogue was intensified.

Conclusion

We hope these designs enhance the discussion about sustainable urban landscapes. We believe that by drawing pictures of what a more sustainable urban landscape could be like, public officials, developers, and citizens will be able to make more informed decisions than they do at present. The four designs included in this book all represent practical ways to make our urban landscapes much more sustainable than are our present ones. We feel that they are economical, safe, and attractive alternatives to status quo suburban development. We also feel that they accurately reflect how the urban landscapes will change as the emerging sustainability policies for our region are actualized.

We hope, too, that this book illustrates the importance of design in the quest for sustainable urban landscapes. In

our charrette, it was design which first revealed and then resolved the contradictions embedded in the sustainability policies used to guide the design brief. For example, the design brief required that the community be both densely populated (to conserve energy) and ecologically preserved or enhanced (to protect the streams). Reason suggests that you cannot do both these things at the same time. Neither science nor planning, by themselves, can overcome this seeming contradiction. Scientists agree that when a site is changed, even in the simplest way, the ecological consequences are not completely predictable; the relationships between the various systems are simply too complex. As you add urban uses to a site, the number of variables approaches infinity. Issues of sustainability and ecology are thus inherently complex, and science falters when confronted by so many variables. Design, however, is quite at home with complex problems, for even the simplest design problem has many variables and many acceptable solutions. Often these acceptable solutions are pleasing and practical in proportion to the designer's success in balancing the contradictions embedded in the design problem. Design may not be able to find the absolutely correct solution, but, when such a solution is not possible, it can find a number of very good solutions. Four very good solutions to the problem of urban landscape sustainability are bound between these covers.

One closing point: the solutions in this book may tell us how to move towards urban landscape sustainability, but they do not lead us all the way there. However, even moving towards sustainability requires dramatic changes to the status quo. If history is any guide, it could take many decades to significantly change old ways of city-building. But we should at least begin. We hope that the design visions illustrated in this book will contribute to that beginning.

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Notes:

1

The Greater Vancouver Regional District (GVRD) is a provincially enabled public agency that is, among other things, charged with coordinating growth in the Vancouver metropolitan region. Certain of the key documents informing the design program were produced under the direction of the GVRD, notably, *The Livable Region Strategy* and *The Livable Region Strategic Plan*.

2

The complete program is included in the appendix, and careful review of it is recommended.

Top:

Aerial view to the east from above the western edge of the site. The Public Market building, located at the intersection of 64th Avenue and King George Highway, is prominent at lower left of the photo. The charrette site occupies the foreground and the middleground of the view. The flood plains of the Serpentine River and the Cloverdale district of Surrey are in the distance.

Bottom:

A typical view from within the site. This view is to the north from the upland southern edge of the site. The encroaching urban development of the Newton District can be seen on the ridge in the middleground. The North Shore Mountains, thirty kilometres to the north of the site, are visible in the distance.