

TOWARD A DIGITAL MULTI-MEDIA SPATIAL  
TOURISM INFORMATION SYSTEM

by

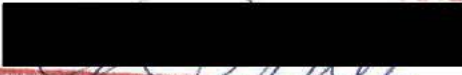
Lesley Anne Grant  
B.A. University of Western Ontario, 1988

A Thesis Submitted in Partial Fulfillment of the  
Requirements for the Degree of

MASTER OF ARTS

ACCEPTED


CULTY OF GRADUATE STUDIES


 in the Department of Geography

DEAN


8 JUN 94

We accept this thesis as conforming  
to the required standard

  
Dr. C.P. Keller, Supervisor (Department of Geography)

  
Dr. P.E. Murphy, Department Member (Department of Geography)

  
Dr. C. Benoit, Outside Member (Department of Sociology)

  
Dr. M. Wilson-Moore, External Examiner (Department of  
Anthropology)

© LESLEY ANNE GRANT, 1994

University of Victoria

All rights reserved. Thesis may not be reproduced in whole  
or in part, by photocopying or other means, without the  
permission of the author.

GA139

G72

ACCEPTED  
SCHOOL OF GRADUATE STUDIES

\_\_\_\_\_

Supervisor: Dr. C. Peter Keller

### ABSTRACT

Research reported in this study covers a methodological examination of official Canadian tourist maps, and a pilot survey of tourists. The purpose is to evaluate contemporary tourist mapping and to speculate on future tourism information delivery and needs.

The increasingly dynamic and competitive nature of the tourism industry is dictating the need for advanced information communication techniques to provide tourists with current information to assist in tourism destination decision making processes. A traditional and successful method of tourism information communication concerns the tourist map; for example, official provincial road maps are frequently used to assist in travel decision making.

Concurrent advances in digital mapping, geographic information systems (GIS), spatial decision support systems (SDSS), multi-media, and hyper-media have created ample opportunity for the tourism industry, geographers, and cartographers to advance the tourist map as a decision support tool. Therefore, it comes as a surprise to observe that there exists a paucity in the literature on tourist mapping; and the study of and potential for a digital cartographic tourism information system or a GIS-tourism information merger has been sorely under-realized to date.

This study explores the functional capabilities of contemporary GIS, SDSS, and multi-media to offer suggestions for the design of a cartography based tourism decision support database with basic and advanced query capabilities to assist in tourism decision making. The research reported here is a first step towards the design of a database for such a system and the identification of questions of potential interest to users.

This research concentrates on official provincial road maps frequently used by tourists for planning and tourism decision making. Moreover, specific surveys of provincial scale tourist mapping emphasize the provinces of British Columbia and Prince Edward Island, Canada. Research into the design of a provincial digital map-based tourism and travel information system is conducted by:

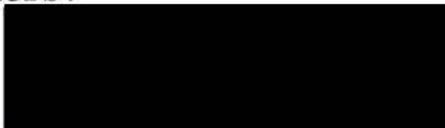
- ◆ comparing and contrasting content and design for existing Canadian official provincial tourist maps to derive information with regard to content and design;
- ◆ surveying tourists to obtain a sense of their reaction to existing tourist maps and to derive a list of simple and complex queries tourists may wish to ask of a cartographic tourism database at the provincial scale;
- ◆ and evaluating contemporary GIS, SDSS and multi-media functional capabilities to answer simple and

complex queries and to assist in tourism decision making at the provincial scale.


Research findings are considered in terms of their implications for provincial tourist mapping. The research yields a set of recommendations for a future digital tourism information system initiative. The thesis concludes with suggestions for further research dealing with tourist maps and tourism information systems.


Research reported here does not concern itself with questions of distribution of and technological access to innovative formats of tourism information delivery to tourists and tourism planners. Advances in electronic communications, digital home display systems, mobile digital information access and retrieval systems, digital networks, and personal computing are rapid, and their discussion would comprise materials for another study.

Examiners:

  
\_\_\_\_\_  
Dr. C.P. Keller, Supervisor (Department of Geography)

  
\_\_\_\_\_  
Dr. P.E. Murphy, Departmental Member (Department of Geography)

  
\_\_\_\_\_  
Dr. C. Benoit, Outside Member (Department of Sociology)

  
\_\_\_\_\_  
Dr. M. Wilson-Moore, External Examiner (Department of Anthropology)

## TABLE OF CONTENTS

ABSTRACT . . . . .	ii
TABLE OF CONTENTS . . . . .	v
LIST OF TABLES . . . . .	ix
ACKNOWLEDGEMENTS . . . . .	xii
CHAPTER ONE	
INTRODUCTION . . . . .	1
1.1 INTRODUCTION . . . . .	1
1.2 RESEARCH OBJECTIVES . . . . .	4
1.3 THESIS . . . . .	6
CHAPTER TWO	
RESEARCH RATIONALE . . . . .	9
2.1 INTRODUCTION . . . . .	9
2.2 TOURISM VERSUS TOURIST MAPPING . . . . .	11
2.3 THE TOURIST MAPPING LITERATURE . . . . .	14
2.3.1 Accurate vs. Attractive Maps . . . . .	14
2.3.2 Symbolization . . . . .	16
2.3.3 Scale . . . . .	18
2.3.4 User Feedback . . . . .	19
2.4 UNRESOLVED TOURIST MAPPING RESEARCH QUESTIONS . . . . .	21
2.4.1 State-of-the-Art Provincial Tourist Mapping: Consensus or Divergence? . . . . .	22
2.4.2 What are Tourist Map User Expectations? . . . . .	23
2.5 THE PROMISE OF ALTERNATIVE FORMAT TOURISM INFORMATION DELIVERY . . . . .	25
2.5.1 Analogue Maps . . . . .	26
2.5.2 Digital Mapping . . . . .	27
2.5.3 Geographic Information Systems . . . . .	29
2.5.4 Spatial Decision Support Systems . . . . .	32
2.5.5 Multi-media, Hyper-media and Virtual Reality . . . . .	34
2.5.6 Innovative Information Technology in the Tourism Industry . . . . .	37
2.5.7 Discussion . . . . .	38
2.6 POTENTIAL DRAWBACKS TO TECHNOLOGICAL INNOVATION . . . . .	39
2.7 CHAPTER SUMMARY . . . . .	43
CHAPTER THREE	
A CRITICAL COMPARISON OF CANADA'S OFFICIAL PROVINCIAL TOURIST MAPS . . . . .	45
3.1 INTRODUCTION . . . . .	45
3.2 METHODOLOGY . . . . .	46
3.3 EVALUATION OF MAP DESIGN AND CONTENT . . . . .	49
3.3.1 Introduction (The Twenty-four Maps) . . . . .	49

3.3.2	General Format . . . . .	51
3.3.2.1	Size and Coverage . . . . .	51
3.3.2.2	General Layout . . . . .	54
3.3.2.3	Method of Folding . . . . .	55
3.3.2.4	Format and Paper Quality . . . . .	56
3.3.2.5	Language . . . . .	56
3.3.2.6	Map Projection, Scale and Reference Grid . . . . .	56
3.3.2.7	Publication House and Year of Publication . . . . .	57
3.3.3	Map Elements and Insets . . . . .	58
3.3.3.1	Map Elements - Front Page . . . . .	58
3.3.3.2	Insets, Photographs and Advertisements - Front Page . . . . .	62
3.3.3.3	Map Elements - Back Page . . . . .	65
3.3.3.4	Insets, Photographs and Ads - Back Page . . . . .	68
3.3.4	Information Types . . . . .	72
3.3.4.1	Topographic Features . . . . .	72
3.3.4.2	Transportation Features . . . . .	77
3.3.4.3	Parks and Outdoor Recreation Features . . . . .	80
3.3.4.4	Tourism Features . . . . .	82
3.3.4.5	Service and Other Features . . . . .	84
3.3.4.6	Supplementary Text Information . . . . .	85
3.3.5	Additional Information . . . . .	91
3.3.6	Symbols . . . . .	91
3.4	DIFFERENCES BETWEEN 1987 AND 1993 MAPS . . . . .	100
3.5	CONSENSUS AND DIVERGENCE . . . . .	104
3.6	SUMMARY . . . . .	108
CHAPTER FOUR		
SURVEY METHODOLOGY . . . . .		110
4.1	INTRODUCTION . . . . .	110
4.2	SAMPLE DEFINITION . . . . .	110
4.3	SURVEY DESIGN . . . . .	112
4.4	USER SURVEY LOGISTICS . . . . .	119
4.5	SAMPLE SIZE . . . . .	121
4.6	SUMMARY . . . . .	123
CHAPTER FIVE		
UNIVARIATE RESULTS OF THE PILOT MAP USER SURVEY . . . . .		124
5.1	INTRODUCTION . . . . .	124
5.2	METHOD OF ANALYSIS . . . . .	124
5.3	RESPONDENT PROFILE . . . . .	126
5.3.1	Gender . . . . .	126
5.3.2	Estimated Age . . . . .	127
5.3.3	Employment Status . . . . .	127
5.3.4	Place of Residence . . . . .	128
5.3.5	Vehicle Driven/Number of Occupants . . . . .	129
5.4	GENERAL TOURIST ACTIVITY . . . . .	131

5.4.1	Preference for Holiday Types . . . . .	131
5.4.2	Preference for Package vs. Self-guided Holidays . . . . .	132
5.4.3	Purpose of Trip . . . . .	133
5.5	PROVINCIAL MAP COMPARISON . . . . .	133
5.5.1	Familiarity with BC/PEI . . . . .	134
5.5.2	Communication of Information Items . . . . .	134
5.5.2.1	The BC Map . . . . .	138
5.5.2.2	The PEI Map . . . . .	140
5.5.3	Missing Information . . . . .	143
5.5.3.1	The BC Map . . . . .	145
5.5.3.2	The PEI Map . . . . .	148
5.5.4	Unnecessary Information . . . . .	150
5.5.4.1	The BC Map . . . . .	151
5.5.4.2	The PEI Map . . . . .	153
5.5.5	Overall Satisfaction . . . . .	154
5.5.6	Open Comments on Both Maps . . . . .	154
5.6	ALTERNATIVE FORMATS FOR TOURISM INFORMATION . . . . .	158
5.6.1	Knowledge of the B.C. Tel 1-800 Number . . . . .	159
5.6.2	Use of T.V. Touch Screen Information Systems . . . . .	160
5.6.3	Multi-media Information Systems . . . . .	166
5.7	GENERAL COMMENTS . . . . .	171
5.8	SUMMARY . . . . .	173

## CHAPTER SIX

BIVARIATE RESULTS OF THE MAP USER SURVEY . . . . .	174
6.1 INTRODUCTION . . . . .	174
6.2 BIVARIATE RESPONSE PATTERNS . . . . .	175
6.2.1 Satisfaction with the BC and PEI Maps . . . . .	175
6.2.2 Interest in Alternate Format Technologies . . . . .	178
6.2.3 Variables Affecting Interest in Innovative Technologies . . . . .	180
6.2.3.1 Interest in Touch Screen Information Systems (TSIS) . . . . .	180
6.2.3.2 Interest in Multi-media Information Systems (MMIS) . . . . .	183
6.2.4 Variations Based on Profile Characteristics . . . . .	188
6.2.4.1 Variations as a Function of Gender . . . . .	188
6.2.4.2 Variations as a Function of Age . . . . .	189
6.2.4.3 Variations as a Function of Location of Residence . . . . .	193
6.2.4.4 Variations as a Function of Employment Status . . . . .	193
6.2.5 Media Types and Analytic Capabilities . . . . .	195

6.2.5.1	Preferred Combinations of Media Types . . . . .	195
6.2.5.2	Analytic Capabilities Preferred in Combination . .	197
6.3	CHAPTER SUMMARY . . . . .	198
CHAPTER SEVEN		
	DISCUSSION AND SUMMARY . . . . .	200
7.1	INTRODUCTION . . . . .	200
7.2	STUDY HIGHLIGHTS . . . . .	201
7.3	IMPLICATIONS FOR PROVINCIAL TOURIST MAPPING .	207
7.4	RECOMMENDATIONS FOR INNOVATIVE TECHNOLOGICAL TOURISM INFORMATION DELIVERY INITIATIVES .	209
7.5	RECOMMENDATIONS FOR FURTHER RESEARCH . . .	212
	LITERATURE CITED . . . . .	214
	APPENDIX 1: TOURISM MAP USER SURVEY . . . . .	221

## LIST OF TABLES

Table 3.1	Maps Used for Comparison . . . . .	50
Table 3.2	General Map Information. . . . .	52
Table 3.3	Front Page Map Elements. . . . .	59
Table 3.4	Use of Insets, Photographs and Advertisements - (Front Page). . . . .	63
Table 3.5	Back Page Map Elements . . . . .	66
Table 3.6	Use of Insets, Photographs and Advertisements - (Back Page) . . . . .	69
Table 3.7	Parks Matrix Information . . . . .	83
Table 3.8	Supplementary Text Information . . . . .	86
Table 3.9	Number of Additional Information Symbols Shown . . . . .	91
Table 3.10	Use of Symbolism . . . . .	93
Table 3.11	Aspects of Symbol Use and Design . . . . .	98
Table 4.1	Number of Surveys by Date . . . . .	122
Table 4.2	Number of Surveys by Sailing Time . . . . .	122
Table 5.1	Gender of Respondents . . . . .	126
Table 5.2	Age of Respondents . . . . .	127
Table 5.3	Employment Status of Respondents . . . . .	128
Table 5.4	Residence of Respondents . . . . .	129
Table 5.5	Vehicle Type . . . . .	130
Table 5.6	Number of Occupants in Vehicle . . . . .	130
Table 5.7	Preference For Holiday Types . . . . .	132
Table 5.8	Preference for Package vs. Self-Guided Holidays . . . . .	132
Table 5.9	Purpose of Trip . . . . .	133
Table 5.10	Familiarity with BC and PEI . . . . .	134
Table 5.11	Communication of Information Items: BC . . . . .	135
Table 5.12	Communication of Information Items: PEI . . . . .	135
Table 5.13	Respondents Citing Missing Information . . . . .	143
Table 5.14	Most Important Categories Missing . . . . .	145
Table 5.15	Respondents Citing Unnecessary Information . . . . .	150
Table 5.16	Most Important Categories Unnecessary . . . . .	151
Table 5.17	Overall Satisfaction with BC and PEI . . . . .	154
Table 5.18	Most Important Categories of "Likes" . . . . .	156
Table 5.19	Number of Categories in Multiple Responses . . . . .	156
Table 5.20	Most Important Categories of "Dislikes" . . . . .	157
Table 5.21	Number of Categories in Multiple Responses . . . . .	157
Table 5.22	Knowledge and Use of B.C. Tel's 1-800 Information Number . . . . .	159
Table 5.23	Use of Touch Screen Information Systems . . . . .	160
Table 5.24	Most Important Information Requests . . . . .	162
Table 5.25	Number of Categories in Multiple Responses . . . . .	162
Table 5.26	Willingness to Pay for Touch Screen . . . . .	165
Table 5.27	Possible Rates for Touch Screen . . . . .	165

Table 5.28	Interest in Using a Multi-media Tourism Information System . . . . .	167
Table 5.29	Possible Multi-media Access Methods . . . . .	167
Table 5.30	Willingness to pay for Multi-Media . . . . .	168
Table 5.31	Possible Rates for Multi-media . . . . .	169
Table 5.32	Interest in Various Information Types in a Multi-media Information System . . . . .	170
Table 5.33	Interest in Various Analytic Capabilities in a Multi-media Information System . . . . .	171
Table 6.1	Familiarity with BC as it Relates to BC Map Satisfaction . . . . .	176
Table 6.2	Respondents Who Liked the BC Map a Lot . . . . .	177
Table 6.3	Relationship of BC Map to PEI Map Satisfaction . . . . .	178
Table 6.4	Interest in Touch Screen Technology as a Function of Satisfaction With the BC Map . . . . .	179
Table 6.5	Interest in Multi-media as a Function of Satisfaction With the BC Map . . . . .	179
Table 6.6	Interest in TSIS as a Function of Past Use . . . . .	181
Table 6.7	Willingness to Pay for TSIS as a Function of Past Use . . . . .	182
Table 6.8	Willingness to Pay for TSIS as a Function of Declared Future Use . . . . .	182
Table 6.9	Interest in Multi-media Among Those Preferring Package Trips . . . . .	184
Table 6.10	Interest in MMIS as a Function of Past TSIS Use . . . . .	184
Table 6.11	Interest in MMIS as a Function of Future TSIS . . . . .	185
Table 6.12	Willingness to Pay for MMIS as a Function of Interest . . . . .	186
Table 6.13	Willingness to pay for MMIS and TSIS . . . . .	187
Table 6.14	Gender Variations Among Respondents Not Familiar With BC . . . . .	188
Table 6.15	Gender Variations Among Respondents Who Were Unsure About Interest in Multi-media . . . . .	189
Table 6.16	Age Variations Among Respondents Unfamiliar with BC . . . . .	189
Table 6.17	Age Variations in Responses Citing Missing Information . . . . .	190
Table 6.18	Past Use of TSIS Among Respondents Aged 60 and Up . . . . .	191
Table 6.19	Age Variations Among Those Interested in Using TSIS . . . . .	191
Table 6.20	Respondents Aged "60 and Up" Who are Unwilling to Pay for TSIS or MMIS . . . . .	192
Table 6.21	Interest in Multi-media as a Function of Age . . . . .	192

Table 6.22	Retired Respondents Who Liked Both Maps A Lot . . . . .	194
Table 6.23	Interest in MMIS by Employment . . . . .	194
Table 6.24	Most Requested Pairs of Media Types . . . . .	196
Table 6.25	Number of Media Types Requested . . . . .	197
Table 6.26	Most Requested Pairs of Analyses . . . . .	198
Table 6.27	Number of Analyses Requested . . . . .	198

**ACKNOWLEDGEMENTS**

I would be remiss if I didn't acknowledge the support I have received from my supervisor, Dr. C.P. Keller. He has demonstrated an incredible patience and has been a constant source of encouragement. Thanks Pete.

I must also thank my other committee members, Dr. P.E. Murphy and Dr. C. Benoit. They have been instrumental in helping me to see a few other perspectives.

I would like to express my appreciation to colleagues, friends and family. Particularly, thank you to my parents who believed in my abilities when I wasn't sure of them myself.

Finally, I have to acknowledge Rob. Thanking you doesn't begin to say enough. No single person has tried harder to keep me on track, in perspective, and confident in myself. You are my best friend and my greatest source of happiness. That has made all the difference.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 INTRODUCTION

Planning a vacation and travelling requires access to information. Information about destination sites is available to tourists in a number of formats and media. Travel agents can supply fancy holiday brochures. Television brings visual images of destination sites into the tourist's living room. Books of facts and fiction try to capture a destination using words and the reader's imagination. Impressions about destinations are passed on by word of mouth through stories told by friends, relatives, and strangers. Finally, a lot of information about a tourism destination can be obtained by the study of maps.

Maps for tourists are the focal theme of this thesis. In the following pages it will be argued that maps for tourists are a neglected area of study. It will be shown that little literature has been published that deals with tourist maps, and that few researchers have bothered to inquire into what makes a tourist map a good tourist map and what it is that tourists are looking for when consulting one. Indeed, it will be argued that a foundation of research that summarises the contemporary state of tourist mapping does not even exist.

Despite the paucity of research dealing with tourist maps, it is an undisputed fact that tourist maps exist for almost every part of the world. Why do cartographers draw

these maps the way they do? How do tourism planners and cartographers select the information items to display on these maps? How do they decide on map format, selection of colours, and method of folding? This thesis explores some of the questions posed with respect to tourist maps. The reasons for the study are three-fold.

Firstly, tourist mapping is a neglected area of research in the disciplines of both cartography and tourism studies and something ought to be done about it. Tourist maps can only be improved through a greater understanding of the issues involved, particularly before any transfer to the digital environment is made.

Secondly, mapping and cartography are in the process of a major technological revolution brought about by the advent of digital computers. Digital technology is rapidly advancing society away from the traditional map and moving it towards digital information systems where the map is but a small component of a highly sophisticated decision support system.

Finally, society is increasingly becoming information oriented. This is an age where access to information plays an important role; an era where considerable research efforts are invested in advancing the understanding of the processes of information gathering, handling, and dissemination.

The above suggests that while the traditional tourist map is not well understood, the technological advances and

societal expectations exist which may allow the tourist map to move far beyond its traditional roles.

Advances such as digital mapping, geographic information systems (GIS), spatial decision support systems (SDSS), and multi-media systems have drastically changed our potential to approach mapping and cartography. Enhanced manipulation of the visual cartographic product increasingly can be combined with interactive analysis of spatial and associated non-spatial and/or non-visual data, using the analytical capabilities of GIS and SDSS. This increases the power of the map as a decision support tool.

Methods of cartographic presentation are beginning to involve much more than the paper map alone. Destination visualization increasingly includes the photographic media, graphics, voice, and video; that is, multi-media are gaining in popularity. Maps, tables, and other output are no longer constrained by production. They can be accessed and communicated using sophisticated digital media.

To date, application of these technologies within the tourism industry has been limited. Their uses have been in a predictive capacity for modelling and planning. Little research has considered the usefulness of these technologies in the production of tourist maps or as a tool for decision making by tourists themselves. Furthermore, little is known about tourists' actual needs and preferences for such systems. What are their opinions about current tourist maps? What do

they like and dislike about them? Are tourists interested in innovative communication technologies? What does an ideal map-based tourism information system look like? Research clearly is overdue, but the question arises where to start.

For the purpose of this study, it is argued that provincial scale tourist maps form a key component of a traveller's information system; they are used both for travel planning and for orientation when on the road. LeBlanc (1988) notes that tourist maps represent one of the most common forms of mapping used by the general public. As such, tourist maps are suspected to present a powerful media within which to examine content and design for a map-based tourism information system. Combined with other media, provincial scale tourist maps may play a similarly key role in a future tourism information system. Thus, this research focuses on official provincial tourist maps.

## **1.2 RESEARCH OBJECTIVES**

The ultimate objective of the research reported here is to make suggestions for a future map-based multi-media tourism information system to assist in the decision making process of tourists when planning and executing a trip. Since there is no starting point or foundation of knowledge to achieve this objective, this research will provide that beginning. A number of research requirements need to be addressed:

- ◆ A foundation of knowledge regarding official tourist mapping is needed, by compiling a detailed inventory and analysis of current tourist mapping and information trends at the provincial scale using the technique of content analysis.
- ◆ Obtaining an understanding of the users' reactions to tourist maps is necessary, by conducting a pilot tourist map user survey. A previous survey of both map user and expert reactions to tourist maps was conducted by the map design speciality group of the Canadian Cartographic Association in 1988 under the guidance of LeBlanc (1988). Results of this survey have been made available to the Department of Geography at the University of Victoria for the purpose of this study although the data have not been fully analyzed to date by LeBlanc (personal communication, LeBlanc, 1994).
- ◆ An examination of tourists' attitudes towards innovative methods of tourist information dissemination using digital technology is required. These include touch screen information and multi-media systems, as part of the tourist map user survey noted above.
- ◆ An evaluation of contemporary mapping capabilities of GIS, SDSS, and multi-media is needed in order to

assess if these technologies are ready to meet the public's tourism information needs.

More specifically, this research investigates the following questions:

- ◆ What features are currently accepted as standard on Canadian provincial tourist maps, and what level of importance are attributed to them by map makers, publishers, and users? Do standards change through time?
- ◆ What are the information items and analytical capabilities that tourists expect of a digital tourism map information system, including potential multi-media capabilities? Would the public be interested in using such a system?
- ◆ Can contemporary capabilities of GIS, SDSS, and multi-media meet the user expectations identified in question two?

### **1.3 THESIS ORGANIZATION**

This study has been divided into seven chapters. Following this introductory chapter is Chapter Two which has

been divided into two parts.<sup>1</sup> The first part defines the tourist map, reviews past tourist mapping literature, and justifies the research conducted for the purpose of this thesis. The second part introduces advances in digital mapping including a discussion of contemporary capabilities of GIS, SDSS, and multi-media technology. The different mapping technologies are evaluated with respect to their present and potential application to tourism information dissemination.

Chapter Three consists of a lengthy summary of the design and content of Canada's official provincial tourist maps for two years: 1987 and 1993. In all, twenty-four maps were used to compile data for this chapter. This chapter functions as a foundation of knowledge about the state-of-the-art of tourist mapping. Building this foundation of knowledge is necessary to logically advance tourist mapping towards the technological challenges of the 1990's and beyond.

Chapter Four introduces a pilot survey which solicits tourists' reactions to two official tourist maps. The chapter introduces and justifies the sample, survey procedure, and questionnaire design.

Chapter Five reports the univariate responses to the map user pilot survey. Respondent profile information is presented first. This is followed by responses to questions regarding the comparison of two provincial tourist maps.

---

<sup>1</sup> This chapter provides a detailed discussion of previous tourist mapping research and of digital information technology. Disinterested readers should proceed to Chapter Three.

Questions concerning alternative formats for delivering tourism information are summarized next. The chapter concludes with some general comments offered by the survey respondents.

Chapter Six examines some specific bivariate relationships identified to be of interest from the map user pilot survey results.

Chapter Seven concludes this study by summarizing highlights of the previous chapters, speculating on the future research agenda for tourist mapping, and offering some general comments with respect to design and delivery of digital multi-media tourism information systems.

## CHAPTER TWO

### RESEARCH RATIONALE

#### 2.1 INTRODUCTION

Geography, that is the spatial distribution of phenomena and associated attributes, plays a key role in tourism decision making. Spatial distributions are commonly communicated via the map. Therefore, the map and cartography play a key role in tourism decision making. It is common practise to consult travel maps when planning a vacation and while travelling.

The subject of tourism and travel mapping has been poorly researched, with little material published in the literature. What is it that tourists wish to find out when consulting a map? Are some maps better at communicating tourism information than others? What information is most useful on a tourist map?

Answers to these questions are especially important given that the role and technology of mapping are in a period of turmoil: computer maps are replacing traditional paper maps, it is becoming possible to combine maps with other forms of information using multi-media technology, and it is becoming possible to interact with the map to conduct query and analysis. Today, maps produced in electronic format not only show information but also allow the user to interact with the data. These changes in mapping offer exciting opportunities

for tourist and travel maps. However, how can society plan to benefit from these cartographic innovations if so little is known about tourist and travel maps per se?

In order to appreciate and plan for this new mapping potential, a thorough understanding of a number of key issues must be brought to the table. First, an understanding of tourist mapping is necessary. What challenges are involved in the creation of tourist maps? Is there consensus about how to present tourist information? Are tourist maps successful in communicating what the map users need (and want) to know? Second, an understanding of the technological innovations in mapping is required. What are these innovations? What potential do they offer to tourist maps? Finally, what does the public know about these new technologies and how enthusiastic are they to embrace this progress?

This chapter explores some of the above questions and reports on previous research that has been undertaken. The chapter commences by defining tourist mapping, as distinct from tourism mapping, and explains the distinction. Research into tourist mapping is then reviewed to illustrate where attention has been focused in the past, and to identify what the literature has not addressed to date. Finally, methods to resolve unanswered questions are discussed.

Next, this chapter introduces recent innovations in cartography of relevance to tourist mapping. These developments are considered in terms of where they might fit

within the realm of tourist mapping and tourism decision making. Potential limitations to the adoption of these technological advances are highlighted.

## **2.2 TOURISM VERSUS TOURIST MAPPING**

Tourism mapping may be defined as the "mapping of the diverse phenomena that are associated with travel and how we [spend] our spare time" (Keller and Butler, 1990). The range of maps that this definition embodies is widespread; tourism maps exist at every scale from global to local. They can be viewed as serving three general purposes: to communicate the spatial distribution of industry information, to function as a marketing tool, and to function as a tool for tourism planning and decision making. The recipients of tourism maps may be tourism industry officials and planners or tourists themselves. These two audiences will have very different expectations of the maps.

For the tourism professional, maps are produced to visualize all facets of the tourism industry (Freitag, 1987; Mariot, 1978). Preconditions for future tourism development or activity may be mapped and used in planning. These may include diverse aspects such as population distribution, zoning, or soils maps for a proposed resort site. The facts of existing tourism infrastructure and activity may be mapped to communicate distributions, to indicate growth and trends,

and to estimate economic indicators, such as visitor expenditures at a destination. Finally, the impact of tourism activity may be mapped to gauge the results of previous decisions, such as the degradation of the environment in a provincial park (Mariot, 1978).

The products of cartography generated for tourists are different. Tourists want to know how to get to a destination site, what facilities are offered, how they can be accessed, and what the holiday opportunities are. Maps for tourists are numerous and may be ordered within the process of the tourism activity itself, from planning through to execution of a holiday. Freitag (1987) suggests four classes of maps which coincide with the functional order of tourism. They are:

- ◆ **Maps which depict tourist attractions.** The main purpose of these maps is to attract potential tourists. They are generally more artistic than accurate.
- ◆ **Maps for orientation in the moving of tourists from one place to another.** Road maps are clearly the most common example in this class which includes other navigation maps (such as air or sea).
- ◆ **Maps dealing with the movement of tourists within destination areas.** Included here are city maps, excursion maps, and special purpose maps. In effect, this group include the same types of maps

mentioned under the previous heading - simply at a different scale.

- ◆ **Maps about the tourism industry and tourism industry planning maps.** This class embodies the types of planning maps described earlier.<sup>2</sup>

This study is not concerned with maps for the tourism industry. Instead this study focuses on maps for tourists, that is "tourist maps," especially tourist maps officially distributed by Canadian provinces and territories to their visitors.

At the provincial level, official road maps are distributed by Canada's provincial tourism agencies. LeBlanc (1988) notes that these road maps (or tourist maps) are the second most common form of mapping in the country, after journalistic mapping. Hence, the importance of the official provincial road maps with respect to tourism planning is beyond question and they may be considered as one of the most important forms of tourist mapping in Canada.

Road maps have the power to communicate tourism information to a large number of people in a widely available format and they are generally free of charge. Their popularity and familiarity make them a useful tool for gathering information about tourists' attitudes towards and

---

<sup>2</sup> While this research takes the perspective of tourist mapping as a subset of tourism mapping, Freiteg's classes suggest that the reverse is true; the distinction is arguable.

needs of tourist maps, the central research theme of this study.

## **2.3 THE TOURIST MAPPING LITERATURE**

As already noted, the tourist mapping literature is quite sparse. What has been published focuses on the problems of creating accurate yet attractive maps, the problems of symbolization, the question of appropriate scale, and the lack of adequate user feedback (Anderson, 1977; Blok, 1987; Clarke, 1989a; Clarke, 1989b; Davies, 1986; Essex, 1992; Forrest and Castner, 1985; Freitag, 1987; Gerber et al, 1990). Each of these concerns is described below to illustrate where previous research has been directed.

### **2.3.1 Accurate vs. Attractive Maps**

Tourist mapping has been described as being "as far removed from tight specification controlled standard mapping as is possible to imagine" (Davies, 1986: 37). Map purpose dictates, to a large extent, the content of a given map and the manner in which that content is presented. Once content has been decided upon the issue becomes one of providing informational accuracy and visual attractiveness, a balance sometimes difficult to achieve. Representatives from any destination want to characterize the image of that area in the

most appealing manner possible.<sup>3</sup> Does the cartographer depict what actually exists, what the tourism agencies wish to show, or some compromise of the two?

Ultimately, a map ought to provide an accurate depiction of locations and information about the features at these locations in order to be functional. Yet this may be contrary to the destination's marketing efforts. These cross-purposes may be viewed as the extremes of a continuum between accuracy and marketing attractiveness along which each map maintains a unique position. A recent study questions whether it is possible for tourist maps to achieve a "half-way house" along this continuum (Essex, 1992). Two tourist maps for the city of Plymouth, in England, were examined by map users in terms of appeal and usefulness. The findings of Essex's study indicate that visitors prefer the more functional map overall and suggest that tourist maps should not grossly distort reality. In contrast to these findings, Freitag (1987) suggests that artistic tourist maps are gaining in popularity as a means for communicating tourism destinations. Obviously, here is an area of tourist map research that calls for further enquiry.

For the purpose of the research documented in this thesis the concept of a continuum of accurate through to attractive maps may be resolved by default. Provincial tourism

---

<sup>3</sup> For example, there are two cities on Vancouver Island which are marketed as the "Salmon Capital of the World."

information in Canada is conveyed on official road maps. These official road maps tend to be highly factual because they focus on transportation infrastructure and tend to be limited in their 'artistic' presentation. Accordingly, examination and user reaction to artistic tourist maps is not investigated in this study.

### **2.3.2 Symbolization**

The subject of symbolization appears to be the most common research issue addressed in the tourist mapping literature. Symbols should be designed so that they are easily detected amid all the other information presented on a map. Simple symbols are more clearly found relative to other information items and produce a less cluttered map. At the same time, symbols should promote rapid and clear interpretation of the features they represent. The more a symbol resembles the feature it represents, the greater the understanding. These represent two particular challenges in the communication of map information: search time and identification; that is, the graphic design and the artistic design of symbols.

Search time and identification are particularly relevant aspects of tourist map symbology. People travelling in unfamiliar areas need to be able to easily locate and properly identify features of interest. A study of point symbols on tourist maps concluded that abstract symbols (particularly

framed and/or bold) were found faster in a search environment while pictographic symbols were more easily identified (Forrest and Castner, 1985). The compromise of these aspects can influence how successfully tourist maps communicate the desired message.

Other studies have stressed the need for improved symbol comprehension with an aim to improving user recognition. In some cases, this has involved testing existing symbols to identify those which exhibit poor performance (Blok, 1987; Clarke, 1989a). Poorly designed symbols are then recommended for further testing or revision. Alternatively, research has been conducted to create a prototype set of new symbols which improve the link between the symbol and the feature it represents (Gerber et al, 1990). Gerber, Burden and Stanton recognize the increasing importance of computer technology to the mapping process and are developing and evaluating computer generated symbols.

A well noted lack of consensus in the design of tourist map symbology exists. Authors recognize the need for a defined set of standard tourist mapping symbols (Blok, 1987; Clarke, 1989a; Gerber et al, 1990). For example, the British Tourist Authority (1978) publishes a guide to map producers encouraging the use of specific symbols. This set of symbols is based upon recommendations of the *International Organization for Standardisation* although there are doubtless many other such initiatives worldwide.

Any effort at standardization is a daunting undertaking. Before committing to standards it is important to evaluate and justify what works, what does not work, and why the proposed standards are best. Although this research does not address the issue of symbology explicitly, the subject is raised by some of the responses of tourist map users in this study.

### **2.3.3 Scale**

Scale refers to the difference between what exists in reality and how it is depicted on a map. The scale of a map will dictate what and in how much detail information can be mapped. The problems of scale are two-fold. Firstly, the content of any tourist map is limited by the scale chosen - the larger the scale, the greater the detail. Detail of local significance is rarely mappable on a provincial scale tourist map; for example, it is not possible to show locations of restaurants on a provincial scale map. Hence, tourists may be hampered by a scale of mapping that is inappropriate for a specific need, leading to occasional frustration.

Secondly, maps of varying scales are not readily compatible. For example, the classification scheme or symbol used to define parks on one map may not coincide with those used on another map at a different scale (because different scale maps will support different levels of detail). This may confuse the visitor who is unfamiliar with an area or who is not well versed in map reading.

Some of the technological innovations in mapping such as Geographic Information Systems (GIS), Spatial Decision Support Systems (SDSS), and multi-media have the ability to circumvent scale constraints somewhat. Through the use of intelligent zooming functions detail may be increased or decreased as required. For example, visitors may select a preferred route to a general destination on a provincial scale map. They may then zoom in on that destination to find the locations of all nearby restaurants and make a selection.

The potential gained through innovations in digital mapping has broad implications for tourist mapping and dispenses with the need for a single "ideal" map. A decade ago, the problem was one of isolating and meeting the needs of most map users (Marles, 1984). Today, given the advances in digital mapping technology, tourist maps no longer have to try to be all things to all people. Instead, they may be all things to each person as required or to specific groups of tourists based on interests, activities, or some other criteria.

#### **2.3.4 User Feedback**

Another research area in tourist mapping concerns what information to show or to exclude and how to evaluate user reactions to it. There are general studies of map user surveys which question public satisfaction with cartographic products (Kirby, 1970; McGrath and Kirby, 1969). Fewer

researchers have conducted user satisfaction surveys which specifically address tourist mapping. While some projects have examined road maps, these studies have not explicitly focused on tourists' needs or satisfaction (Astley, 1969; Anderson, 1977).

Anderson's (1977) study of North American road maps highlights the difference between a road map that fails to communicate what is depicted and one that fails to communicate because it does not depict the correct information. Definition of "correct information" depends largely on the map users needs. Kolacney (1969: 47) introduced the concept of "cartographic information", which implies that the map maker must pay the "fullest regard to the needs, interests and subjective conditions of the map user" as an integral part of the creative process. Thus, the primary concern in the creation of tourist maps should be the accurate depiction of information in consideration of the tourists' needs.

Anderson's study (1977) called for a focus on map user requirements. Other research also has stressed user feedback as a technique for improving the communication of tourist map information (Yarnal and Coulson, 1982; Clarke, 1989b; Zhou and Liu, 1993). Nevertheless, despite these calls for tourist map user requirement and attitude studies, no such research has been published. Research reported in this thesis provides preliminary insight into user expectations' of tourist maps and points the way for further research.

## 2.4 UNRESOLVED TOURIST MAPPING RESEARCH QUESTIONS

Some tourist mapping research considers the problem of creating accurate yet attractive tourist maps, the problem of appropriate scale selection, symbolization, and the need for market research to identify user satisfaction with and user expectations of tourist maps. What little literature exists certainly has not reached a consensus or provided definitive answers about the problems of tourist mapping. What is evident is that the inter-related challenges of tourist mapping can not be considered in isolation. For example, the content of a visitors map will depend on the scale chosen, the purpose of the map, the information selected for display, and the symbols chosen to achieve that display. The success of the resulting map will depend on the actual needs of the map user and how well the user understands the information portrayed.

The eventual success or failure of a tourist map is further complicated by factors beyond the control of the map maker. It is unrealistic to assume that all tourists will have the same expectations and needs of a tourist map. Demographic and socio-economic variables, familiarity with a region, travel expenses, personality, and perception influence both user need and user satisfaction. These issues have been raised by Clarke (1989b), Gerber et al (1990), and LeBlanc (1988) and this research investigates these hypotheses.

Research reported in the following chapters will focus on the provincial scale of tourist mapping. More specifically, the research aims to build a foundation for tourist mapping research by summarizing the state-of-the-art of existing provincial tourist mapping. Beyond that, the research conducts a preliminary investigation of tourist's attitudes and reactions to existing tourist mapping, and their willingness to explore innovative new methods of tourism information delivery.

#### **2.4.1 State-of-the-Art Provincial Tourist Mapping: Consensus or Divergence?**

Consensus is defined as the "agreement of opinion, testimony etc" or "the majority view" (Sykes, 1982: 200). How does one measure the degree of consensus between official Canadian provincial tourist maps? It is argued here that one method of objectively determining consensus in tourist maps is to compare their design and content. Comparison defines what information is delivered and how it is presented on provincial tourist maps. Research supporting the comparative study includes examinations of atlases by Kent and Tobias (1990), Hocking (1991), Hocking, Keller and Peterson (1991), and Hocking and Keller (1992, 1993a, 1993b) and of road maps by Anderson (1977) and Noyes (1979).

Of course, comparison of design and content will not provide an evaluation of success or failure and thus is not an objective in this research. Moreover, the success of a map

will depend on a number of factors, not all of which are controllable. Furthermore, as one author notes regarding road maps, it is often subjective preference which forms the basis for judgements, making map evaluation an inexact technique (Noyes, 1979). For the purpose of this part of the study, user preferences will be ignored and content alone will be considered. Chapter Three reports on the comparison of the official Canadian provincial maps, while Chapter Five considers user preferences (more subjective assessments of the maps).

#### **2.4.2 What are Tourist Map User Expectations?**

Little published research has solicited tourists' input in the design of tourist maps. This is true despite the fact that market research and common sense recommend the use of user input in product design and delivery. We do not know what the user's expectations are of a tourist map or what criteria users rate as important when judging the quality of a tourist map. The value of this type of user information is to isolate consensus and specific positive or negative comments regarding map design and content. These opinions should help to shape the form and presentation of tourist information delivery in the future.

Previous research of expert and user reactions to the design and content of provincial scale tourist maps is limited to one study. LeBlanc (1988) in conjunction with the Canadian

Cartographic Association, conducted a survey to evaluate current official Canadian "tourism/highway" maps. The purpose of this study was to assist in the production of better maps by evaluating current maps. The research targeted four specific groups of respondents: the general public, cartographic experts, tourism officials, and transportation officials. Each respondent offered comment on all or a subset of the twelve official Canadian provincial/territorial maps. Respondents were asked to comment in general and to answer a specific questionnaire.

LeBlanc's preliminary conclusions indicate that the importance of specific map features ranges anywhere from 4.66 for *highway number* (on a scale from 1 to 5, where 5 is most important) to 1.61 for *meteorology station*. Road, distance and certain services information appear to precede tourist, park and alternate transportation details in importance. Factors found to influence ratings are regional, urban/rural and professional differences between respondents. In terms of overall design, the twelve maps are rated on a scale from 0 to 3 (where 3 is excellent). LeBlanc reports that British Columbia receives the lowest rating (1.67) while Newfoundland maintains the highest (1.91). Nevertheless, she concludes that none of the maps are viewed as markedly superior.

The LeBlanc study does not prove entirely sufficient. Although it does offer insight into expert's evaluations of the twelve maps, actual map users in her study represented

only thirty percent of a rather small sample. Therefore, her study results are biased toward the perspective of the cartographers and tourism professionals. Expert views on what comprises the optimum tourist map may not necessarily reflect the preferences of map users. Research reported here provides the tourist map user perspective, using a larger sample.

Comparison of the results of the LeBlanc survey with those obtained here is of interest, and will help define the priorities for a future digital tourism information system. Chapters Four, Five, and Six outline the methodology used to conduct the user survey and discuss the results obtained from univariate and bivariate analyses respectively.

## **2.5 THE PROMISE OF ALTERNATIVE FORMAT TOURISM INFORMATION DELIVERY**

A number of technological innovations have radically altered the mapping process. They include digital mapping, Geographic Information Systems (GIS), Spatial Decision Support Systems (SDSS), and multi-media. These technological developments offer innovative methods of tourist map information delivery of which a digital multi-media tourism information system is just one possibility. Not only do they offer the opportunity to explore new presentation media, they also promise the potential for interaction with a tourism information database for query and analysis. Two questions come to mind. Can tourist mapping benefit from these new

technologies? As well, is the user of tourist maps interested in innovative information presentation and delivery? An in-depth answer to the first question presents a thesis in itself and is addressed only briefly here. Answers to the second question are more pertinent to the present study and have been incorporated into a user survey.

It is important that the reader be reasonably familiar with the new mapping technologies. Thus, the following discussion aims to introduce and provide an understanding of these technologies. Potential applications of GIS, SDSS, and multi-media to tourist mapping are explored, to highlight those formats which offer the greatest immediate benefit. Finally, possible drawbacks to these technologies are considered.

### **2.5.1 Analogue Maps**

The conventional analogue map has repeatedly been criticized for being static and explicitly scale dependent. As soon as data is collected and mapped it is out of date; the map becomes a representation of a specific moment in time only. There is also a problem of parsimony due to the physical limits of the amount of data that can be shown (Tomlinson, 1988). Once data are mapped at a given scale, information of greater detail is lost and can not be viewed or analyzed. This generalization has left provincial scale tourist maps very constrained in their information content

when it comes to depiction of local detail. Finally, what is shown on a paper map is not subject to advanced analysis. Data retrieval is visual and manual, and is usually very time intensive (Tomlinson, 1988).

The time and expense required to produce analogue maps has traditionally meant that maps were assumed relevant for long periods of time. Today, greater volumes of information are required in an increasingly timely manner and a constantly changing world. The need for rapidly updated information is quickly making the analogue map obsolete as developments in microcomputers and information technology lead to digital map design, production and reproduction.

Computers are now used to create, analyze, and use maps as the basis for entire information systems. The digital impact on mapping is so profound that researchers forecast that attitudes may change until people view maps as (and/or maps become) digital displays rather than printed materials (Monmonier, 1985; Taylor, 1974, 1991a). Thus, the traditional paper map is threatened by the digital revolution and the cartography of tomorrow will look very different from today's (Taylor, 1991a).

### **2.5.2 Digital Mapping**

Digital mapping involves the automation of traditional map production and reproduction techniques. It resolves some of the problems traditionally involved in the cartographic

representation of data, although it has also introduced entirely new challenges (Aangeenbrug, 1991). Particularly valuable is the time dimension associated with digital mapping as maps may be produced, edited and generated rapidly (Goodchild, 1988). Today, a range of mapping software exists that has made the map a more accessible communication tool (Day, 1986; Keller and Waters, 1991).

From a tourist's perspective, digital maps are accessible in a number of formats. These may include home computer, video, cable and touch screen monitors. Each of these formats is widely available and may offer ready access to digital tourist information. This research examines user reaction to these access formats.

While digital mapping techniques are computer-based, the information content and objectives of computerized map generation are similar to those of traditional mapping. The map maker is still producing the same maps, just with a new technology and in a different medium. Of course, digitally produced maps can still be reproduced in analogue format. What digital cartography does not address is the computer's ability to go beyond map production to map information query and analysis. This is achieved by geographic information systems (GIS).

### 2.5.3 Geographic Information Systems

The combination of digital mapping techniques with basic and advanced analytic capabilities is achieved using the technology of GIS. Although numerous definitions of GIS exist in the literature (for example Antenucci et al, 1991; Aronoff, 1989; Burrough, 1986; Maguire, 1991), for the purpose of this study GIS are defined as computer systems which allow one to digitally enter, store, manipulate, analyze, display, and output in hard copy spatial data and associated non-spatial attribute information.

GIS developed out of a merger between spatial analysis and cartography and involve aspects of a number of related information technologies, notably: computer science, information management, photogrammetry, remote sensing, geodesy, and data communications (Antenucci et al, 1991). The growth of GIS in their thirty year history has paralleled concurrent advances in computer hardware and software (Coppock and Rhind, 1991; Tomlinson, 1984).

The map forms an integral part of GIS although it is viewed as a means for accessing and manipulating spatial information (Bylinksy, 1989). It is the query and analysis of this information which is key to GIS - not the cartographic process of displaying it. GIS are truly unique in their ability to perform two particular functions: spatial search and overlay.

Similar to digital cartography GIS have the potential to deliver real-time information as data are easy to update and modify. At the same time, the database and spatial relationships within GIS are very structured; data are integrated using precise and unambiguous location references focusing on topological encoding (Shepherd, 1991). Consequently, GIS require considerable effort to conceptualize and implement.

The managerial implications of implementing GIS are of concern as well. Understanding about GIS and their capabilities is often lacking, especially as related to tourism data (Li, 1987). Further, there are numerous problems regarding acquisition, implementation, security and updating of data in GIS (Antenucci, 1991; Aronoff, 1989). GIS are very expensive and the technology is still undergoing rapid advancement and change; the technology is unstable and awkward for routine information query and analysis.

The application of GIS for tourism planning and decision making has not been widely addressed in the literature. Some examples do exist but they are better classified as general resource management applications, such as the creation of panorama maps using digital terrain models (Wood and McCrorie, 1993). The British Automobile Association uses a GIS to merge text and map databases to plan routes and itineraries for its members (Robbins, 1993). Li (1987) outlines other existing and possible tourism-related applications of GIS, including:

- ◆ **Data Manipulation** - Various GIS capabilities may be employed to solve a range of problems. For example, a buffer zone generated for a main travel corridor can give a better picture of accommodation within the area.
- ◆ **Spatial Modelling** - Functions such as network analysis, resource allocation, and market catchment simulation models are available. Various planning alternatives may be compared for facility siting, marketing, investment, management, and policy formulation.
- ◆ **Events Planning** - GIS may help identify overlaps and market potential for competing events. In the case of Quebec winter carnivals, 50 mile buffer zones were generated and identified conflicts were resolved.
- ◆ **Tourist Information** - Data may be both provided and captured through interactive sessions at remote terminals as in the Manitoba Telidon Study.
- ◆ **Marketing** - GIS may serve as tools for market identification, simulation, analysis, and maximization of advertising dollars.
- ◆ **Data Display** - GIS allow for the creation of maps and other graphics for presentation and analysis by industry officials and for tourists themselves.

These applications primarily emphasize the needs of the tourism planner and industry professionals not the needs of the actual tourist. Requesting the tourist map user to comment on the perceived need for or potential use of GIS as a substitute for the traditional tourist map may be premature given the high cost, complexity, and dynamics of this technology in the early 1990's.

#### **2.5.4 Spatial Decision Support Systems**

In recent years, criticism levied against the lack of optimization capabilities in GIS has made way for a new technology - spatial decision support systems (SDSS). A SDSS is a computer system within which GIS play a central role, combined with advanced and customized analysis capabilities and a strong user interface. SDSS derive from developments in decision support systems (DSS) in business applications, but focus on the unique problems of spatial data (Densham, 1991). Spatial features are inherently difficult to evaluate in problem solving or modelling situations where solutions may involve opinions or objectives which are not easily defined. This inflexibility is reconciled through an "iterative, integrative, and participative" process in SDSS (Densham, 1991, 406); one in which the user is able to vary the relative value of individual factors and generate solution alternatives. Thus, human judgement remains an important aspect of decision making.

SDSS users participate directly in the problem solving process by interacting with the system. The user has the ability to conduct sensitivity analyses and to explore a variety of solutions to what Densham (1991: 403) referred to as "ill or semi-structured" problems. SDSS are generally very application specific, whereas GIS tend to cater to a broad range of applications. Examples of recent applications include the use of SDSS for solving land consolidation problems (Strapp, 1992; Keller and Strapp, 1993), for evaluating local social programs (Wong and Meyer, 1993), and for transportation planning (Denno and Brail, 1993).

The potential for the design of a tourism SDSS exists, yet to the author's knowledge SDSS applications in tourism are virtually non-existent to date. Nevertheless, an interactive spatial decision making environment could prove invaluable to the professional tourism planner as well as to tourists themselves. Marketing scenarios, development alternatives, and travel itineraries represent just some of the possible uses.

The tourists could use SDSS to evaluate different destinations and to explore alternative routes to get there. Using the analytic capabilities of SDSS the system would incorporate hard information as well as user preferences to guide decisions. Unfortunately, the technology is not ready for widespread implementation and acceptance given the considerable hardware and software costs that continue to be

associated with it. Hence, for the purpose of this study it is still premature to discuss the likely use or acceptance of SDSS by tourists.

#### **2.5.5 Multi-media, Hyper-media and Virtual Reality**

The effort to incorporate poorly defined, subjective variables into the decision making process has led to the development of exciting new techniques for delivering information. Multi-media systems represent one such development. Multi-media has the potential to incorporate some of the techniques of GIS and SDSS as well as other information media, in a more comprehensive environment (Forer, 1993; Kindleberger and Meyers, 1993). A multi-media system allows the user to access a range of information types from a variety of sources (Shepherd, 1991). Data may be accessed interactively in the form of maps, tables, videos, sound, photographs, and text. In multi-media, the map is part of a larger database which links these information items together (Taylor, 1991b). Multi-media systems tend to be highly structured and the user has little control over the sequencing of information flow.

The extension of multi-media is hyper-media (Shepherd, 1991; Davis and Deter, 1990). Hyper-media involves a multi-media system where the user is free to browse the information in whatever sequence desired, using what is called hypertext software (Ravenaeau et al., 1991). Shepherd (1991) contrasts

GIS and hyper-media, viewing the former as a toolbox of spatial analysis functions and the latter as a browsing technique for handling spatial data in conjunction with other data in a variety of media. Shepherd (1991:353) suggests that the challenge ahead will be to incorporate hyper-media into mainstream GIS systems; the map would then serve as the "geomatic hypermap" or "home hyperdocument" for managing other information. This would permit individual users to select the approach most suitable to their specific spatial information needs at the time.

Virtual reality systems represent the logical extension of interactive hyper-media systems. In virtual reality users enter a multi-sensory environment where they interact, modify, and receive feedback in a number of forms (Shepherd, 1991). While GIS primarily involve traditional two-dimensional visual interaction by observing a monitor, virtual reality will enable the user to view the data in three dimensions, and to use innovative input devices to interact with the data (to the point of becoming part of the data).

For example, virtual reality may be used by destinations such as national parks. Eventually, people may be able to travel to national parks and elsewhere without ever leaving home. Can this help to offset the damage to the natural environment? Will there be as much economic and cultural interaction among different groups of people? Can virtual reality be used in travel preparation, for example to

ameliorate the effects of culture shock? Will the "tourist experience" be altered to the point where the entire concept of travelling is changed? Virtual reality offers exciting prospects indeed, while at the same time suggesting some serious implications. Nevertheless, the technology is still in its infancy and is not immediately relevant to this study.

A related digital mapping application of a more comprehensive approach has been the development of electronic atlases and electronic mapping systems (Asche and Herrmann, 1993; Taylor, 1991b). These range from what Taylor (1991b) terms "view only" systems, where the user simply observes digital images similar to the pages of a paper atlas, to more interactive systems like the BBC Domesday Interactive Videodisc (Openshaw and Mounsey, 1987; Slocum and Egbert, 1991).

The latter is an interactive system developed to provide *snapshots* of the United Kingdom. Data are provided on two video discs and include geographically referenced data as well as text and photographs. Users with only limited training are able to browse through the information by keying on maps, tables, or photographs. The map, while only one component, serves as the link which ties the information items together. Digital atlases are not considered to be an alternative option to the tourist map for the purpose of this study, although the Domesday Project does offer exciting potential.

For the tourist, multi-media allows one to use a map to key onto areas of interest and to view a range of information in various forms: photographs of local scenery, videos of annual events, text descriptions of the history of an area, and music indicative of the culture to name but a few examples. The possibilities are limitless. Multi-media may allow users to obtain routes, review travel requirements and select destinations. Tourists may also create special-purpose maps, depicting the information items they have requested. What makes multi-media particularly valuable is that the technology can be made readily available in many visitor information centres. Consequently, it offers perhaps the most promising potential for delivering tourism information in the immediate future.

#### **2.5.6 Innovative Information Technology in the Tourism Industry**

The extent of innovative information technology used within the tourism industry in recent years is an important issue. Much of the literature in this regard concerns the use of technology for improving internal data handling as in the use of DSS by managers (Gamble, 1988). Relatively less focus is placed on methods for improving the communication of information to tourists.

Interactive videotex holds promise for allowing more self-service by tourists by allowing them to view videos of destinations and make reservations in advance (Andersen & Co.,

1988; Bruce, 1987). Poon (1988: 542) alludes to the potential for "interactive databases accessible to consumers via their personal computers at home." Others foretell of systems which plan itineraries and routes based on user defined preferences (Andersen & Co., 1988; Crouch, 1991). While there is no suggestion of multi-media type interaction or of maps providing a basis for these information systems, Sheldon (1993), in a discussion of destination information systems does note that this situation is changing.

#### **2.5.7 Discussion**

The previous sections have introduced a number of technological innovations in cartography, ranging from digital mapping to sophisticated and expensive GIS and SDSS systems. Obviously, some of these technologies are not ready for consideration as widely available tools to complement or substitute for the traditional tourist map. Other technology is widely available today which has immediate application to tourist mapping, notably the digital map and multi-media.

A number of concerns arise. Firstly, an evaluation of what is happening to the quality of cartography and the tourist map as we change from the traditional paper map to digital cartography and multi-media is required. This issue is considered below along with a discussion of the societal impacts which may derive from these new techniques. Secondly, we must consider whether the users of tourist maps are willing

to embrace these new technologies and whether they are willing to pay to access tourist information using electronic media? Answers to these questions are attempted in the tourist map user survey which follows.

## 2.6 POTENTIAL DRAWBACKS TO TECHNOLOGICAL INNOVATION

Change is inevitable and the innovations in mapping discussed above imply changes in cartographic practice that are impacting cartographers, tourists, and tourism planners alike. The impact of digital technology on the discipline of cartography is widely addressed in the literature and raises a number of general concerns.

One concern is that the integrity of maps must be maintained in the digital environment. In other words, the cartographic process must not be sacrificed in the course of creating and using digital maps. Often, the people who use GIS, SDSS and multi-media systems are not trained cartographers. As Monmonier (1984: 89) warns: "if anything, the computer seems to give many aesthetically insensitive, geographically ignorant people the opportunity to create cartographic monstrosities with unprecedented ease."

This struggle between the art and science of cartography is not a new one, but it is given a new dimension in the computer age. Brannon (1989, 1991: 8) notes cartography's "wholesale decline into mediocrity" in the age of

heterogeneity and mass-production and stresses more training in map design as a means to offset this.

Another concern is the need to define a new concept of cartography (Stefanovic, 1987; Taylor, 1991a; Ahner, 1993). The traditional paper map risks becoming obsolete and the mapping process is relatively ignored in the development of new information technologies. Taylor (1991a and 1991b) suggests that "visualization" may be the key to revitalizing the map. This concept embodies technology, cognition, and communication with stronger emphasis on the visual than is currently the case with GIS or SDSS. It takes advantage of visual display of data to express relationships not otherwise readily apparent. Multi-media is viewed as a preferred environment for achieving this (Asche and Herrmann, 1993, Buttenfield and Mackaness, 1991; Taylor, 1991b).

The adoption of digital technology by tourists will be affected by personal factors, many of which are intangible. People are often adverse to change and wary of new developments (Andersen & Co., 1988). Furthermore, some people are easily intimidated by new technology. In order to promote digital tourist map use, designers will have to create inviting, user-friendly systems where human interaction with the system is simple, intuitive and automatic.

For the agencies distributing tourism information, digital technology provides greater amounts of information. This may be a positive aspect as more user-specific

information will be available than before. At the same time, it will prove a challenge to maintain high quality map products in the digital environment and it may become difficult to regulate the "image" of the destination desired by tourism planners. There will be increased opportunity for information manipulation or mis-representation to further a particular cause.

Access to increased information from diverse sources may also prove the tourism planners's nightmare since added information could expose a deliberate effort to create a biased view of an area. For example, planners in politically sensitive areas may use tourist maps to direct people away from uncomfortable realities. The extent to which this occurs will depend on who controls the information flow and how selective or biased previous portrayals have been (Monmonier, 1991; Taylor, 1991b).

There are general impacts of information technology for society as well. In a discussion of the information society, Martin (1988) suggests a number of social impacts such as: regulatory issues, including the creation of data standards, to make both the technology and the information more compatible; commercial issues, which relate to the concept of information as a commodity, rather than a free good; and finally, human issues, which concern the equality of access to information technology, such as cost, privacy, crime and alienation.

Increased access to tourism information in particular, may exacerbate the types of impacts associated with that activity. Technology may invite the types of economic, environmental and socio-cultural impacts of tourism which are described in a number of disciplines (for example Butler (1974), Cohen (1984) and Pearce (1979)). In the process of reaching greater numbers of people, with richer, more varied information, there may be negative consequences which can not be solved in the technical environment. How to maintain a positive host-visitor relationship or how to protect the natural environment against increased visitor flows may not be directly relevant to a discussion of tourism information technology. Yet, to the extent that such enabling technologies encourage tourist activity, these types of impacts must be considered.

Despite these concerns, the future of digital mapping, GIS, SDSS, multi-media, hyper-media, and virtual reality within the tourism industry is limited only by one's imagination. With the increase of multi-media equipped personal computers in the home and digital telecommunications equipment in vehicles, it will someday be possible to operate an interactive digital tourism information system from the home or while travelling. Portable multi-media computers offer still further possibilities. As Schulman (1994:50) suggests users will be able to "take along a *digital mentor* as a travelling companion." Virtual reality promises an extra

dimension in tourism information dissemination and tourist planning. Whether or not tourists will want these technologies, how and in what format and packaging is still unresolved. Research reported in the following chapters only begins to scratch the surface of this exciting research agenda.

## **2.7 CHAPTER SUMMARY**

The purpose of this chapter has been to discuss previously published research regarding with tourist maps and to introduce technological advances in cartography that are likely to impact the format, quality, and distribution of tourist maps in the future.

A number of considerations have been raised regarding tourist mapping including the design of the map to handle accurate and attractive information, symbology, scale, and user preferences. Little research has been conducted on tourist mapping to date particularly regarding the design of tourist maps and the needs of map users. The objective of this research is to address some of these issues. Chapter Three provides a foundation by summarizing the state-of-the-art of provincial tourist mapping in Canada, while Chapters Four through Six report the results of a tourist map user survey.

This chapter has also introduced and commented upon technological innovations in cartography, noticeably digital mapping, GIS, SDSS, multi-media, and virtual reality. This section was included because it was thought important to evaluate how these innovations might impact tourist mapping and to identify those technologies which should be included for evaluation in the user survey.

**CHAPTER THREE**  
**A CRITICAL COMPARISON OF CANADA'S OFFICIAL**  
**PROVINCIAL TOURIST MAPS**

**3.1 INTRODUCTION**

The objectives of this chapter are to describe and analyze official provincial scale tourist mapping in Canada and to search for consensus and divergence in the type and format of travel information communicated. The purpose is to create a foundation of knowledge regarding current provincial tourist maps; to provide an inventory of the state-of-the-art that future tourist map designers may refer to. To this end, a logical examination of design and content for official provincial tourist maps is conducted for the years 1987 and 1993.

The chapter commences with a description of the methodology used, followed by a systematic and detailed description of the maps. This includes a critical analysis. Results are compared briefly with those of LeBlanc (1988). In specific, this chapter aims to address two questions:

- ◆ What design and content features are currently accepted as standard on Canadian provincial tourist maps?

- ◆ Are there notable changes in how this information has been handled over time between the years 1987 and 1993.

### 3.2 METHODOLOGY

Logical and systematic examination of content and design of provincial scale tourist maps has been conducted using the technique of content analysis. Content analysis can be described as any "technique for making inferences by systematically and objectively identifying specified characteristics of messages" (Holsti, 1969: 14). While this method is primarily applied to the written word, it has been used to evaluate other forms of communication such as comic strips, dreams, speeches, and films (Abrahamson, 1983).

Kidder (1981) defines a series of steps in conducting content analysis. They include:

- ◆ *Selection of phenomena to be coded* - In this case, current design and content features on Canadian provincial tourist maps are studied.
- ◆ *Selection of media to observe* - Official provincial tourist maps are selected as the specific focus for this analysis.
- ◆ *Derivation of coding categories* - Categories are based on information types, considered in

terms of frequency. Information types were selected using an enhanced version of Farrell's (1987) framework (See below).

- ◆ *Sampling strategy* - The sample for this study includes official provincial tourist maps for the years 1987 and 1993.
- ◆ *Training of coders* - This step was not an issue since there was only one researcher.
- ◆ *Data analysis* - Data analysis consists of data in numerical form with written description.

A framework for evaluating maps has been presented by Farrell (1987). Farrell presents her framework as a general guide to selecting or purchasing maps. Nonetheless, the framework offers useful direction for the map comparison undertaken here by suggesting the following evaluative criteria:

- ◆ Scale
- ◆ Suitability of Media and Format
- ◆ Currency of Information
- ◆ Reference Structure
- ◆ Appropriateness of Cartographic Symbolism
- ◆ Effectiveness of the Graphic Language
- ◆ Identification and Publication Data

For the purpose of this research, the following information categories have been added to Farrell's list to ensure a more comprehensive approach to the tourist map comparison:

- ◆ Topographic
- ◆ Tourism
- ◆ Transportation
- ◆ Services
- ◆ Parks
- ◆ Supplementary Text

Finally, in order to ensure a comprehensive comparison, an examination of layout as well as comments on the inclusion of photographs, inset maps and advertisements have been added. Content analysis of Farrell's criteria in conjunction with those added here, should result in an all-inclusive examination of how the individual maps in the sample handle and represent travel information. To the author's knowledge, the use of content analysis in the study of maps represents an innovative application; it is anticipated that subsequent applications to cartographic products will be pursued.

An effort has been made to avoid the preferences or judgements of the researcher. The information is simply catalogued and described, to create an inventory for future reference. The data were collected and collated manually by the researcher.

Maps selected for this study represent official tourist maps for all the provinces and territories of Canada for two

separate years, 1987 and 1993. 1993 maps were selected because this was the year that the research was conducted. A decision was made to compare the 1993 maps to a previous year in order to examine possible changes over time and to strengthen conclusions about standard practice beyond those based on the 1993 maps alone. The selection of 1987 for contrast was a simple function of access to a complete set of maps for that year.

When reading the following sections, the reader should keep in mind that it is not the intent of this evaluation to critique individual maps. Rather, the goals are to identify what features are currently accepted as standard, how they are depicted, and whether they change through time.

### **3.3 EVALUATION OF MAP DESIGN AND CONTENT**

#### **3.3.1 Introduction (The Twenty-four Maps)**

This section examines general information about the twenty-four maps including size, orientation, format, language, folding, and publication data. It also addresses specific map elements including legend, index, distance matrix, and use of insets. Table 3.1 identifies the maps along with their publication dates. Note that the table gives the key to abbreviations which identify these maps in the following descriptions and discussions. Abbreviations used

**Table 3.1 Maps Used for Comparison**

<i>Map Title</i>	<i>Year Pub.</i>	<i>Abbrev. Used</i>
Canada's Northwest Territories Official Explorers' Map	1991	NWT-93
Yukon: The Magic and the Mystery	1991	YUK-93
Newfoundland and Labrador Official Highway Map	1992	NFL-93
Prince Edward Island Highway Map	1993	PEI-93
Nova Scotia: The Doer's and Dreamer's Complete Map	1993	NS-93
New Brunswick Travel Map	1993	NB-93
Quebec Road Map	1992	QUE-87
Ontario Official Road Map	1992	ONT-93
Manitoba: Official Explorer's Highway Map	1993	MAN-93
Saskatchewan Official Highway Map	1993	SAS-93
Official Alberta Road Map	1993	ALB-93
British Columbia Road Map and Parks Guide	1993	BC-93
Northwest Territories Official Explorers' Map	1984	NWT-87
Yukon Highway Map 1986	1986	YUK-87
Newfoundland and Labrador Official Highway Map	-	NFL-87
Prince Edward Island Visitors Map	1987	PEI-87
Official Nova Scotia Highways Map	1987	NS-87
New Brunswick Travel Map	1987	NB-87
Quebec Road Map	1986	QUE-87
Ontario Official Road Map	1986	ONT-87
Manitoba Official Highway Map	1986	MAN-87
Saskatchewan Official Highway Map 1987	1987	SAS-87
Alberta Road Map	1985	ALB-87
British Columbia Road Map and Parks Guide	1987	BC-87

without the year of publication indicate that both maps for that province are referenced.

### **3.3.2 General Format (Table 3.2)**

#### **3.3.2.1 Size and Coverage**

The twenty-four map sheets range in area from 2930 cm<sup>2</sup> (NB-93) to 7802 cm<sup>2</sup> (ONT-87). The average sheet area is 5510 cm<sup>2</sup>. In all cases, a decision has been made to print on both sides of the map sheet, generally with a main map on one side (hereafter referred to as the "front") and additional information on the reverse. There are seven maps which do not present the entire province on one side. In the cases of QUE and ONT, this is clearly a function of the size of the geographic area being mapped. With respect to NFL-93, the front page depicts a map of Newfoundland with a large inset of the Avalon Peninsula. Labrador is shown in a separate map on the reverse (on NFL-87 the map of Labrador and the Avalon Peninsula are reversed). QUE and MAN depict all but the most northern parts of the province, although QUE and MAN-93 do provide small inset maps which show the entire province.

Three maps provide two separate versions of the province/territory. NS-93 displays two complete maps of the province (at the same scale) on opposite sides of the sheet: one a *scenic travelways* map and the other an *outdoors* map.

**Table 3.2            General Map Information**

<i>Map</i>	<i>Size (cm<sup>2</sup>)</i>	<i>Scale</i>	<i>Format</i>	<i>Single/ Double</i>	<i>Prov on 1 Side</i>	<i>Lang.</i>	<i>Ref. Struct.</i>	<i>Folding</i>	<i>F-Area (cm<sup>2</sup>)</i>
NWT-93	6074.9	5,000,000 2,500,000	Land.	D	Y	E	LL	Concertina	308.7
NWT-87	6600.6	4,627,000 2,269,000	Land.	D	Y	E	LL	Concertina	314.9
YUK-93	3064.3	2,500,000	Book	D	Y	E	LL,Grid	Concertina	227.0
YUK-87	3109.8	2,500,000	Book	D	Y	E	LL/Grid	Concertina	240.5
NFL-93	6738.2	868,000 2,200,000	Land.	D	N	E	LL/Grid	Concertina	269.1
NFL-87	6774.7	868,000	Land.	D	Y	E	LL/Grid	Concertina	268.0
PEI-93	3567.4	277,000	Land.	D	Y	E/F	Grid	Concertina	243.0
PEI-87	4135.9	250,000	Land.	D	Y	E/F	Grid	Concertina	262.2
NS-93	6399.4	640,000	Land.	D	Y	E	Grid	Concertina	254.6
NS-87	6425.5	640,000	Land.	D	Y	E	Grid	Concertina	254.2
NB-93	2930.1	640,000	Land.	D	Y	E/F	Grid	Other	494.4
NB-87	5431.8	638,000	Land.	D	Y	E/F	Grid	Concertina	244.2

Table 3.2 Cont'd. General Map Information

Map	Size (cm <sup>2</sup> )	Scale	Format	Single/ Double	Prov on 1 Side	Lang.	Ref. Struct.	Folding	F-Area (cm <sup>2</sup> )
QUE-93	7088.2	1,000,000	Land.	D	N	E/F	LL/Grid	Concertina	289.1
QUE-87	7048.8	1,000,000	Land.	D	N	E/F	LL/Grid	Concertina	287.9
ONT-93	7795.3	700,000 1,600,000	Land.	D	N	E/F	LL/Grid	Concertina	295.2
ONT-87	7802.7	700,000 1,600,000	Land.	D	N	E/F	LL/Grid	Concertina	295.2
MAN-93	5785.7	960,000	Book	D	N	E/F	LL/Grid	Concertina	243.8
MAN-87	5775.8	960,000	Book	D	N	E/F	LL/Grid	Concertina	246.4
SAS-93	4993.9	1,500,000	Book	D	Y	E	LL/Grid	Concertina	266.3
SAS-87	5311.0	1,500,000	Book	D	Y	E	LL/Grid	Concertina	280.1
ALB-93	5389.7	1,500,000	Book	D	Y	E	LL/Grid	Concertina	296.8
ALB-87	4828.3	1,500,000	Book	D	Y	E	LL/Grid	Concertina	273.6
BC-93	4560.3	2,500,000	Land.	D	Y	E	LL/Grid	Other	281.0
BC-87	4607.2	2,500,000	Land.	D	Y	E	LL/Grid	Other	284.0

The NWT maps maintain a full map of the territory on the front and a larger scale *highways map* of the mainland territory on the reverse.

### 3.3.2.2 General Layout

With respect to general layout there are ten maps which do not have a definite title on the main map (NFL, NB, QUE, ONT and MAN). Most maps present all the information reading in one direction. There are five maps which arrange supplementary text opposite to the cover, to be read easily when folded (NS, YUK-93, NB-93 and SAS-87). A disadvantage to this strategy, however, is that the text may be awkward to read in confined spaces since it is upside down when the map is unfolded.

The placement of individual map elements on the page is variable.<sup>4</sup> This is reasonable since cartographic design dictates that individual map elements fill space left around the main map while maintaining overall balance. Thus, placement of these elements becomes a function of the shape of the province or territory mapped. Only the SAS maps present the main map without any overlaid information (such as an inset or legend). On the PEI and NFL maps the overlays do not obscure any land area. Obvious areas of unused space are evident only on the YUK-87 map, which has the area opposite

---

<sup>4</sup> "Elements" refers to the legend box, place name index, and distance matrix for a given map.

the cover completely blank and displays one very large photo beneath the map. Except for ALB all the maps separate the city insets with either boxes or background colour so that they are emphasized.

### 3.3.2.3 Method of Folding

Twenty-one of the maps use a concertina folding method while three use other methods (BC and NB-93). The average folded area is 280 cm<sup>2</sup>, the largest (NB-93) being 495 cm<sup>2</sup> and the smallest being 227 cm<sup>2</sup> (YUK-93). The NB-93 and BC maps are unlikely to fit in the glove compartment of most vehicles. There are five maps which have double covers; that is, when folded they have cover designs on both sides (PEI, BC and NB-87). In the cases of PEI and NB-87 this allows for separate English and French covers, while in the case of the BC maps a single photo folds (like a book cover) over both sides. All of the maps display photos (or drawings as in the case of MAN-93) on the cover; seventeen maps have a single photo while the other seven have from two to six smaller photos.

Access to specific information without unfolding the entire map is impossible with nine of the maps (NFL, MAN, SAS, BC and NB-93). Six maps are organized so that the legend is readily accessed when folded (PEI, QUE and ONT), while seven maps require partial unfolding to reach the legend (YUK, NS, ALB and NB-87). The NWT maps provide ready access to the

distance and parks matrices (NWT-93) as well as to the index (NWT-87).

#### 3.3.2.4 Format and Paper Quality

The format for the maps is largely indicative of the shape of the area being mapped. A landscape format (horizontal orientation) is used on sixteen maps (NWT, NFL, PEI, NS, NB, QUE, ONT and BC) while a book format (vertical orientation) is used on the remaining eight maps (YUK, MAN, SAS and ALB). The paper used is fairly heavy for all maps except QUE and BC, where paper is noticeably thinner and perhaps less resistant to wear and tear.

#### 3.3.2.5 Language

English only is used on fourteen maps (NWT, YUK, NFL, NS, SAS, ALB and BC). The remaining maps provide information in both English and French (PEI, NB, QUE, ONT, MAN).

#### 3.3.2.6 Map Projection, Scale and Reference Grid

Only four of the maps specify the map projection used; in each case it is the Lambert Conformal (ONT and QUE).

The scale and reference grid used for a given map are usually a consequence of the size of the area being mapped. Given the disparity in size for the Canadian provinces, scale is not amenable to a uniform standard. Scale ranges from a minimum of 1:250,000 for PEI-87 to 1:5,000,000 for NWT-93 (See

Table 3.2). Fifteen of the maps show scale both as a representative fraction and as a bar scale (YUK, NFL, PEI, NS, QUE, ONT, ALB and NWT-93). Bar scales alone are used on four of the maps (MAN and SAS), while one map uses a bar scale accompanied by a verbal statement (NB-93). The remaining four maps utilize all three methods: fraction, bar scale, and verbal statement (BC, NWT-87 and NB-87).

Depiction of a reference grid also varies due to the disparity in the size of the provinces. Sixteen maps use both the graticule (latitude and longitude system) and a regular grid system. The graticule alone is used on the NWT maps (scale of 1:5,000,000). A grid system alone is used by the smaller provinces (PEI, NS and NB). Eight of the maps do not show the location of North (YUK, QUE, ONT and SAS).

#### 3.3.2.7 Publication House and Year of Publication

Only one map does not show the year of publication on the map (NFL-87), although thirteen maps do not have this information prominently displayed on the cover (NWT, NFL, NS, ALB, YUK-93, PEI-87, QUE-87, SAS-93 and BC-87). All but four of the maps specifically name either the publishing or map production agency (MAN, NWT-87 and NB-93). None of the maps indicate the edition relative to the first (only "1993 edition" or the like). Twenty maps do provide an address for the tourism ministry or agency responsible for distributing the maps (the exceptions being ONT, YUK-87 and NS-87).

### 3.3.3 Map Elements and Insets

The following sections discuss the various map elements and insets on the maps. The discussion commences with an examination of map elements and insets shown on the front page followed by map elements and insets on the back page. Map insets have been grouped by the following headings: setting insets (international, national, provincial - regardless of the specific focus); regional insets (any section of a province which is not a city, regardless of area); interchange insets; city insets; park insets; photos; and advertisements.

#### 3.3.3.1 Map Elements - Front Page (Table 3.3)

The main map on the front of each sheet varies in area from 2235 cm<sup>2</sup> (YUK-87) to 7388 cm<sup>2</sup> (ONT-93). The maps take up anywhere from sixty-four to ninety-five percent of the page. Legend boxes are present on the front page of twenty maps (the exceptions being ONT and QUE). The area of each legend box ranges from 103 cm<sup>2</sup> (NWT-87) to 413 cm<sup>2</sup> (YUK-87), and covers up to 13.5% of the page. Larger legend boxes often contain additional information such as the distance chart and the index (for example YUK and NFL). The number of items referenced in each legend ranges from fourteen (NWT-87) to forty-four (SAS-93).<sup>5</sup>

---

<sup>5</sup> These numbers include city inset features only when noted in the main legend (ie: QUE). Where separate legends are provided with city insets, the symbols are not included as part of the main legend figures.

**Table 3.3 Front Page Map Elements**

Map	Map Area cm <sup>2</sup>	% Page	Legend cm <sup>2</sup>	% Page	Items	Index cm <sup>2</sup>	% Page	Items	Dis. Chart cm <sup>2</sup>	Tri.	% Page	# Locat.
NWT-93	5149.4	84.8	148.7	2.4	18	273.9	4.5	64	-		-	-
NWT-87	5555.9	84.2	103.0	1.6	14	280.4	4.2	62	52.5	N	0.8	17
YUK-93	2316.5	75.6	406.4	13.3	31	84.8	2.8	41	129.0	Y	4.2	21
YUK-87	2235.0	71.9	412.8	13.3	26	112.0	3.6	61	123.5	Y	4.0	21
NFL-93	4322.3	64.1	252.8	3.8	32	598.5	8.9	783	206.3	Y	3.1	44
NFL-87	4322.2	63.8	253.7	3.7	29	598.5	8.8	808	210.2	Y	3.1	44
PEI-93	2501.3	70.1	150.5	4.2	35	539.7	15.1	549	123.1	N	3.5	27
PEI-87	3361.6	81.3	146.3	3.5	34	457.8	11.1	549	195.5	N	4.7	27
NS-93	5388.8	84.2	130.9	2.0	29	651.8	10.2	1120	281.2	N	4.4	39
NS-87	5384.7	83.8	162.8	2.5	37	651.8	10.1	1091	199.4	N	3.1	42
NB-93	2648.3	90.4	103.5	3.5	30	-	-	-	145.0	N	4.9	30
NB-87	4410.1	81.2	161.2	3.0	28	487.6	9.0	560	241.5	N	4.4	30

Table 3.3 Cont'd.

## Front Page Map Elements

Map	Map Area cm <sup>2</sup>	% Page	Legend cm <sup>2</sup>	% Page	Items	Index cm <sup>2</sup>	% Page	Items	Dis.Chart cm <sup>2</sup>	Tri.	% Page	# Locat.
QUE-93	6719.9	94.8	-	-	-	-	-	-	146.8	Y	2.1	43
QUE-87	6715.9	95.3	-	-	-	-	-	-	160.6	Y	2.3	43
ONT-93	7388.2	94.8	-	-	-	780.4	10.0	1709	-	-	-	-
ONT-87	7345.1	94.1	-	-	-	780.8	10.0	1660	-	-	-	-
MAN-93	5392.8	93.2	166.4	2.9	32	-	-	-	-	-	-	-
MAN-87	5383.2	93.2	166.4	2.9	29	-	-	-	-	-	-	-
SAS-93	3501.2	70.1	215.0	4.3	44	515.2	10.3	834	81.1	Y	1.6	29
SAS-87	3497.8	65.9	249.7	4.7	41	-	-	-	38.7	Y	0.7	29
ALB-93	4944.9	91.7	204.1	3.8	40	447.9	8.3	687	-	-	-	-
ALB-87	4048.7	83.9	136.8	2.8	34	406.6	8.4	737	-	-	-	-
BC-93	3635.1	79.7	179.5	3.9	40	489.9	10.7	658	160.7	Y	3.5	54
BC-87	3544.5	76.9	179.5	3.9	41	403.5	8.8	625	160.6	Y	3.5	54

There is a place name index on the front page of eighteen maps (excluding QUE, MAN, NB-93 and SAS-87). The area of each ranges from 85 cm<sup>2</sup> (YUK-93) to 780 cm<sup>2</sup> (ONT-87), with a maximum of fifteen percent of the page covered. The number of locations referenced in each varies from forty-one (YUK-93) to 1709 (ONT-93). The NWT maps include additional information in the index such as location (latitude/longitude - both maps), as well as scheduled airline service, float plane anchorage, police, hospital, airfield, and nursing station (NWT-93).

Distance charts can be found on the front page of seventeen maps. Of these, ten are presented as triangular matrices with areas ranging from 38 cm<sup>2</sup> (SAS-87) to 210 cm<sup>2</sup> (NFL-87). The other seven maps have boxed matrices ranging in area from 53 cm<sup>2</sup> (NWT-87) to 281 cm<sup>2</sup> (NS-93). Distance charts do not cover more than five percent of the page. The number of locations referenced for all distance charts ranges from seventeen (NWT-87) to fifty-four (BC). Whether on the front or back page, thirteen of these matrices provide distances to or from locations in other provinces or the United States.

Overall, the main map is presented on the front page along with the legend, index and distance matrix information. As a rule, the legend box does not contain additional information nor any city map symbology. Indices generally provide only place name information and location on the map. Distance matrices take either triangular or box formats with half of all maps including out-of-province locations.

3.3.3.2 Insets, Photographs and Advertisements - Front Page  
(Table 3.4)

Thirteen maps contain *setting insets* on the front page with QUE-87 devoting the most area (5.7%) and SAS-93 the least (0.3%). *City insets* are generally located on the reverse page; only five maps show city insets on the front page (ranging from twelve to twenty-two percent of area for YUK-93 and ONT-93 respectively). *Regional insets* are also usually located on the reverse side; only nine maps show some type of regional inset on the front page. NFL-93 devotes the most area (18.5%) while ONT-87 devotes the least (0.2%). None of the maps show *interchange or parks insets* on the front page.

The use of photographs on the front page is limited to seven maps. Where shown, the number of photos on the front page ranges from one (YUK-87) to eleven (NS-87) with the area devoted to them ranging from 2.8% (PEI-87) to 11.5% (YUK-87). Photos (on both sides of the maps) show a mixture of scenery, people in activity, transportation features, attractions, and the Minister of Highways and Transportation (SAS), as well as some drawings. None of the maps show advertisements on the front page.

A degree of consensus with respect to the use of insets exists. The maps tend to employ setting or regional insets on the front page along with the main map, relegating other regional, city, and specialty insets to the back page.

**Table 3.4 Use of Insets, Photographs and Ads (Front Page)**

Map	Setting Insets			City Insets			Region Insets			Interch. Insets			Parks Insets			Photos			Ads		
	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.
NWT-93	1	2.6		0	-		0	-		0	-		0	-		0	-		0	-	
NWT-87	1	5.6		0	-		1	1.4		0	-		0	-		8	9.8		0	-	
YUK-93	0	-		3	12.2		0	-		0	-		0	-		0	-		0	-	
YUK-87	0	-		0	-		0	-		0	-		0	-		1	11.5		0	-	
NFL-93	2	4.2		0	-		2	18.5		0	-		0	-		7	4.0		0	-	
NFL-87	2	4.0		0	-		1	17.0		0	-		0	-		6	4.6		0	-	
PEI-93	0	-		0	-		0	-		0	-		0	-		0	-		0	-	
PEI-87	2	4.0		0	-		0	-		0	-		0	-		5	2.8		0	-	
NS-93	2	4.0		0	-		0	-		0	-		0	-		0	-		0	-	
NS-87	2	3.7		0	-		0	-		0	-		0	-		11	8.6		0	-	
NB-93	2	4.2		0	-		0	-		0	-		0	-		0	-		0	-	
NB-87	2	3.8		0	-		0	-		0	-		0	-		5	7.4		0	-	

Table 3.4 Cont'd.

## Use of Insets, Photographs and Ads (Front Page)

Map	Setting Insets			City Insets			Region Insets			Interch. Insets			Parks Insets			Photos			Ads		
	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.
QUE-93	1	5.6		6	17.3		0	-		0	-		0	-		0	-		0	-	
QUE-87	1	5.7		6	17.4		0	-		0	-		0	-		0	-		0	-	
ONT-93	0	-		17	22.2		2	0.4		0	-		0	-		0	-		0	-	
ONT-87	0	-		17	22.1		1	0.2		0	-		0	-		0	-		0	-	
MAN-93	0	-		0	-		1	0.9		0	-		0	-		0	-		0	-	
MAN-87	0	-		0	-		1	0.8		0	-		0	-		0	-		0	-	
SAS-93	1	0.3		0	-		0	-		0	-		0	-		0	-		0	-	
SAS-87	1	0.4		0	-		0	-		0	-		0	-		0	-		0	-	
ALB-93	0	-		0	-		0	-		0	-		0	-		0	-		0	-	
ALB-87	0	-		0	-		0	-		0	-		0	-		0	-		0	-	
BC-93	0	-		0	-		2	9.9		0	-		0	-		0	-		0	-	
BC-87	0	-		0	-		2	9.8		0	-		0	-		0	-		0	-	

Similarly, photographs and advertisements are generally considered to be back page information.

### 3.3.3.3 Map Elements - Back Page (Table 3.5)

Only eight of the maps use the back page for continued overview map coverage. The majority of the maps use the back page to focus on larger scale detailed maps and other travel information. Entries only appear under the *Map Area* column in Table 3.5 where provinces either have complete maps of the province on both sides or where both sides are required to cover the entire province. The NFL-93 map uses only 31% of the back page to show Labrador while the NS-93 map uses 85% of the back page to show a duplicate map of the province. There are legends on seven of these back page maps. In the case of ONT and QUE, the legends on the back page apply to both sides of each map. The three maps with entirely separate second maps on the back page each have legends separate from those on the front page. Coverage for these three legends varies from 1.7% (NWT-87) to 4.1% of the page (QUE-93). The number of items in the back page legends ranges from nineteen (NWT) to seventy (ONT-93).

Place name indices can be found on the back page of ten maps (NFL, QUE, ONT, MAN, NB-93 and SAS-87). In each case (except for ONT and NFL) these are main map indices. The ONT maps provide a separate index for the northern and southern

**Table 3.5 Back Page Map Elements**

Map	Map Area cm <sup>2</sup>	% Page	Legend cm <sup>2</sup>	% Page	Items	Index cm <sup>2</sup>	% Page	Items	Dis.Chart cm <sup>2</sup>	Tri.	% Page	Number Locat.
NWT-93	3344.7	55.1	146.3	2.4	19	-	-	-	270.8	N	4.5	25
NWT-87	4771.2	72.3	115.4	1.7	19	-	-	-	93.8	N	1.4	15
YUK-93	-	-	-	-	-	-	-	-	-	-	-	-
YUK-87	-	-	-	-	-	-	-	-	-	-	-	-
NFL-93	2089.2	31.0	-	-	-	186.4	2.8	112	-	-	-	-
NFL-87	-	-	-	-	-	196.2	2.9	196	-	-	-	-
PEI-93	-	-	-	-	-	-	-	-	-	-	-	-
PEI-87	-	-	-	-	-	-	-	-	-	-	-	-
NS-93	5395.2	84.3	201.5	3.1	55	-	-	-	-	-	-	-
NS-87	-	-	-	-	-	-	-	-	-	-	-	-
NB-93	-	-	-	-	-	433.6	14.8	570	-	-	-	-
NB-87	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.5 Cont'd.

## Back Page Map Elements

Map	Map Area cm <sup>2</sup>	% Page	Legend cm <sup>2</sup>	% Page	Items	Index cm <sup>2</sup>	% Page	Items	Dis. Chart cm <sup>2</sup> Tri.	% Page	Number Locat.
QUE-93	4774.5	67.4	290.2	4.1	69	828.0	11.7	1647	-	-	-
QUE-87	4719.3	67.0	287.9	4.1	64	896.8	12.7	1649	-	-	-
ONT-93	5492.7	70.5	276.0	3.5	60	273.9	3.5	377	252.8 Y	3.2	60
ONT-87	5478.3	70.2	298.9	3.8	55	272.8	3.5	377	252.0 Y	3.2	60
MAN-93	-	-	-	-	-	608.4	10.5	651	159.9 Y	2.8	44
MAN-87	-	-	-	-	-	612.2	10.6	643	145.2 Y	2.5	44
SAS-93	-	-	-	-	-	-	-	-	-	-	-
SAS-87	-	-	-	-	-	525.3	9.9	849	-	-	-
ALB-93	-	-	-	-	-	-	-	-	542.8 N	10.1	58
ALB-87	-	-	-	-	-	-	-	-	542.8 N	11.2	58
BC-93	-	-	-	-	-	-	-	-	-	-	-
BC-87	-	-	-	-	-	-	-	-	-	-	-

sections of the province while the NFL maps provide a separate index for Labrador (NFL-93) and the Avalon Peninsula (NFL-87) settlements on the reverse. The smallest index covers 2.8% (NFL-93) while the largest covers 12.7% of the page (QUE-87). The number of locations referenced ranges from 112 (NFL-93) to 1649 (QUE-87). Native reserve indices are provided on four maps (MAN and SAS). The MAN maps include native reserve listings as part of the main index (an additional eighty-four listings on MAN-93 and ninety-two on MAN-87), while the SAS maps maintain native reserve indices separately. SAS-93 devotes 4.2% and SAS-87 devotes 3.4% of the back page for this purpose.

Distance charts can be found on the back page of eight of the maps (NWT, ONT, MAN and ALB). Half of these are triangular matrices ranging in area from 145.2 cm<sup>2</sup> (MAN-87) to 252.8 cm<sup>2</sup> (ONT-93). The other half are boxed matrices ranging from 93.8 cm<sup>2</sup> (NWT-87) to 542.8 cm<sup>2</sup> (ALB). Coverage for all range from 1.4% (NWT-87) to 11.2% (ALB-87). NWT-87 refers to only fifteen locations while the ONT maps refer to sixty.

#### 3.3.3.4 Insets, Photographs and Ads - Back Page (Table 3.6)

*Setting insets* are shown on the back page of three maps (YUK-87, PEI-93 and NS-93). The maximum area devoted to them is 9.6% (PEI-93). *City insets* are most commonly found on the back page; indeed only five maps do not show them on the back (YUK, QUE and NS-93). The YUK-87 and NS-93 maps do not show

**Table 3.6 Use of Insets, Photographs and Ads (Back Page)**

Map	Setting Insets			City Insets			Region Insets			Interch. Insets			Parks Insets			Strip Maps			Photos			Ads		
	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.
NWT-93	0	-		4	14.1		2	6.9		0	-		0	-		0	-		1	5.1		0	-	
NWT-87	0	-		4	9.2		1	5.0		0	-		0	-		0	-		0	-		-	-	
YUK-93	0	-		0	-		0	-		0	-		0	-		0	-		6	3.1		1	4.0	
YUK-87	1	2.2		0	-		0	-		0	-		0	-		0	-		9	15.8		0	-	
NFL-93	0	-		8	22.5		1	27.5		0	-		0	-		0	-		8	12.0		0	-	
NFL-87	0	-		8	28.4		1	27.5		0	-		0	-		0	-		10	11.6		0	-	
PEI-93	2	9.6		3	24.3		0	-		0	-		0	-		0	-		7	20.1		0	-	
PEI-87	0	-		2	21.3		0	-		0	-		0	-		0	-		13	25.8		0	-	
NS-93	1	1.7		0	-		0	-		0	-		3	5.6		0	-		1	4.0		0	-	
NS-87	0	-		8	44.3		0	-		0	-		0	-		9	35.3		1	4.0		0	-	
NB-93	0	-		6	24.3		0	-		0	-		0	-		0	-		2	15.5		0	-	
NB-87	0	-		6	34.4		0	-		0	-		0	-		0	-		10	21.3		0	-	

Table 3.6 Cont'd.

## Use of Insets, Photographs and Ads (Back Page)

Map	Setting Insets			City Insets			Region Insets			Interch. Insets			Parks Insets			Strip Maps			Photos			Ads		
	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.	#	%	Pg.
QUE-93	0	-		0	-		3	38.0		0	-		0	-		0	-		1	0.4		1	1.2	
QUE-87	0	-		0	-		3	38.5		0	-		0	-		0	-		3	1.3		1	1.0	
ONT-93	0	-		5	9.6		6	10.3		0	-		0	-		0	-		1	2.5		0	-	
ONT-87	0	-		5	9.6		5	10.0		0	-		0	-		0	-		1	2.1		0	-	
MAN-93	0	-		9	25.1		0	-		0	-		0	-		0	-		7	14.6		0	-	
MAN-87	0	-		9	24.4		0	-		0	-		0	-		0	-		9	25.9		0	-	
SAS-93	0	-		12	28.4		0	-		0	-		0	-		0	-		9	17.2		1	4.4	
SAS-87	0	-		12	15.4		0	-		0	-		0	-		0	-		13	41.4		0	-	
ALB-93	0	-		16	60.7		0	-		0	-		0	-		0	-		3	6.5		0	-	
ALB-87	0	-		15	60.9		0	-		0	-		0	-		0	-		1	5.7		0	-	
BC-93	0	-		17	21.9		2	20.0		3	1.6		0	-		0	-		1	12.6		0	-	
BC-87	0	-		16	19.2		2	19.8		0	-		0	-		0	-		1	12.6		0	-	

city insets at all. In the case of YUK-87 this may be due to the relatively small number and size of settlements. For NS-93 it appears to represent an intentional shift in orientation away from an urban towards an outdoors theme. There are regional insets on the back page of ten maps, the least coverage being NWT-87 (five percent) and the largest being QUE-87 (38.5%).

The use of *interchange and parks insets* and of *strip maps* is very limited; only one map uses them in each case. The strip maps are simplified versions of highways, where the entire route appears as a straight line at a distorted scale. In this way access routes, services, and settlements are easily located along the route. *Strip maps* are used on the NS-87 map and are allocated 35.3% of the page. *Interchange insets* appear on the BC-93 map, taking up only 1.6% of the page. *Parks insets* are used on NS-93 (again, possibly part of a deliberate shift in focus towards the outdoors theme) and cover 5.6% of the reverse side.

All but one map show photos on the reverse side (NWT-87). PEI-87 and SAS-87 have a maximum of thirteen photos. The greatest photo coverage by area is for SAS-87 with 41.7% of the page. The SAS-87 and MAN-93 photos are arranged so that they overlap one another, making it difficult to accurately calculate areas for photo coverage. Hence, the SAS-87 and MAN-93 area figures are slightly overestimated.

A single advertisement is shown on each of four maps (QUE, YUK-93 and SAS-93) covering a maximum of 4.4% of the page. Advertisements represent automobile insurance, cellular telecommunications, and a radio station.

In summary, city map insets and photographs are placed primarily on the back page. Few maps provide descriptive text to accompany photographs on the front or back page (NFL, PEI-87, NS-87, NB-87 and SAS-93). Very little use is made of specialty insets or advertisements on the maps.

#### **3.3.4 Information Types**

This section is concerned with how the maps convey various types of information. The section discusses travel information under the headings noted earlier: topographic, transportation, parks, tourism, services, and supplementary text. Discussion concerning the first five headings considers mapped features only (whether referred to in the legend or not). Supplementary text information is discussed separately.

In the sections which follow information types are discussed along with how they are presented and how frequently they occur. Individual items are divided into categories and considered in terms of their classification.

##### **3.3.4.1 Topographic Features**

The twenty-four maps vary in their approach to relief depiction. Two provinces do not show relief at all (ONT and

PEI). In the case of ONT, the map designers did not give topography a high priority and omitted it to avoid excessive clutter on an already information burdened map. In the case of PEI changes in elevation probably are not dramatic enough to make topography a priority.

Those maps that do show topography do not emphasise it; only the YUK maps show detailed contours of elevation. On the QUE maps, the only reference to elevation is a symbol for mountains defined as *mount* in the legend. Similarly, the SAS maps only label *hills*.

*Spot heights* (in metres) without contours are shown on six maps (NS, NB and MAN) while mountain *ranges* are labelled on the NWT maps. Both ranges and spot heights are labelled on eight of the maps (YUK, NFL, ALB and BC). In the case of the YUK maps, the spot heights are referenced in the legend. On the ALB maps, black triangles help to locate the spot heights although there is no reference to them in the legend.

The use of shading to visually differentiate elevation is employed on seven of the maps. The NWT maps use brown shading for mountains, the YUK use yellow and MAN-87 uses grey. The BC maps have white space on an otherwise yellow map to indicate ranges. Both YUK maps show shading in adjacent provinces/states but little (YUK-87) or none (YUK-93) in the actual territory.

Drainage is depicted on all twenty-four maps in roughly the same level of detail; that is, *lakes, rivers, and other*.

general drainage features are shown and labelled where present. Additional drainage information is given on eleven maps. NWT-93 shades its northernmost ice-capped areas white while NWT-87 indicates the *approximate limit of permanent polar ice* with a blue stippling effect. *Glaciers/Ice Fields* are shaded blue/white on both of the YUK maps and this shading is referenced in the legend. The NS-93 map varies the level of drainage detail between its front page (highways) and back page (outdoors) map, with the latter showing more detail. For example, *waterfalls* are symbolized on the NS outdoors map and defined in the legend. *Dams* are symbolized and identified in the legend on the MAN and BC maps. The ALB maps indicate *icefields* with blue/white hachure marks, but do not reference them in the legend. The water around the coastlines is shaded white adjacent to the shore on six maps (NFL, PEI and NB).

Depiction of administrative units varies among the maps. All maps show provincial and international boundaries, however, only four maps actually reference these boundaries in the legend (QUE, NWT-93 and BC-87). County lines are depicted on eight maps (PEI, NS, NB and ONT) but are not referenced in the legend on any of them except for the ONT maps. Other boundaries depicted include *approximate northern limit of trees* and *Inuvialuit settlement region* (NWT-93), *city limits* (QUE), *corporate boundary* (ONT), and *air weapons range* (SAS). Time zones are depicted on eight maps (YUK, NB, ONT and BC)

although only the BC maps specifically identify them in the legend.

Land use is not generally depicted although park lands are identified and shown. Park lands include *national parks* (NWT, YUK, NS, NB, ALB and BC), *provincial parks* (ALB and BC) and *parks in general* (NFL, PEI, QUE, ONT, MAN, SAS). *Game and wildlife sanctuaries or reserves* are shown on seven maps (NWT, YUK, NS and NFL-93) while *bird sanctuaries* are shown on two maps (NWT). *Built-up areas*, those that contain the largest population class in the settlement divisions, are differentiated by shading on nineteen of the maps (the exceptions being NWT, BC and NS-93).

Other land uses include *native reserves* (MAN, SAS and ALB-93), *forested areas* (ALB-93), *recreation areas* (ALB-93), *wilderness areas* (MAN and ALB) and *provincial forests/forest reserves* (QUE and ALB). Only the NWT, QUE and ALB-93 maps refer to any of the depicted land use shading in the legend.

There is some consensus with respect to selection of colour for shading parks; green being the colour of choice. Orange, brown, red, grey, and yellow shading are all used for various other land uses. Black hachure marks are used on NS-93 for national parks and wilderness areas and stand out from the coloured regional shading.

Definition of population centres and settlement types is highly variable between provinces. There are thirty-seven different numerical and twelve different named categories used.

on the twenty-four maps. Classifications based on population size are used on nineteen maps. A minimum of three classes are used on NWT-93 up to a maximum of nine classes for the ALB maps. The average number of numerical classes into which settlements are divided is five.

Five maps classify settlements not by population but by settlement type, such as *city, town or village* (NB, BC and NWT-87). A minimum of one to a maximum of eight classes of settlements are used, with the average number of classes being five.

In addition to hierarchical classes, other categories of settlements are used on seventeen maps (excluding PEI, NS, BC and NWT-87) including *indian band locality, Metis settlement and community within a regional municipality*. The *capital city* is specifically symbolized in the legend on ten maps (NWT, YUK, NFL, NB and BC) and is noted verbally in the legend on the ALB maps. The PEI, ONT and BC maps grade text labels for settlement symbols in addition to classifying the settlements by population or type, thereby creating more distinctions.

Summarizing, the depiction of topographic features indicates that relief is generally not considered important and is not mapped in detail, while basic drainage features are depicted consistently by all twenty-four maps. Settlement categories vary in terms of classification, perhaps understandable given the differences in population densities

and settlement types for different provinces and territories. Although in all cases the classes were easily understood, they are not easily comparable. Both administrative boundaries and land use shading are varied for all maps, both in terms of presence and method of depiction.

#### 3.3.4.2 Transportation Features

The official tourist maps described and reviewed here have been produced to assist travellers while on vacation. Hence, highway/road information is given a high priority on all maps. The number of features varies from three (NWT-93) to eighteen (SAS-93), with the average number being nine. Half of the maps depict ten or more features.

In total, forty-one different classes of highways can be identified on the twenty-four maps. These include general classification into *major, main, first class, primary, secondary,* and *provincial arterial*. Other divisions specify level of traffic such as *multi-lane, two-lane, collector, divided,* and *undivided*. Some classes consider the type of surface: *hard, loose, paved,* and *improved gravel*. Categories of *proposed* and *under construction* also exist. The thirty-three additional classes of roads are divided into classes similar to those above, but using different nomenclature. For example, different maps specify minor roads as *numbered back, woods roads and private,* and *other local*.

A number of major route highways are also noted, for example the *Trans-Canada Highway* (identified by the familiar green, maple leaf icon). Others include the *Red Coat Trail*, the *CANAM Highway*, the *Yellowhead Route*, the *Saskota Flyway*, the *Crowsnest Highway*, and the *Gold Rush Trail*. In some cases, associated icons (route signs) are identified separately (ONT, MAN, SAS and ALB) while in others the icons are labelled as part of the linear highway symbols (NFL, PEI, NS, NB and QUE). Numbered highway route markers are also defined in combination with linear road symbols (NFL, PEI, NS, NB and QUE) or separately (YUK, ONT, MAN, SAS and ALB).

All maps show distance indicators along the highway network in addition to distance matrices. Distances between towns and junctions are specified on fifteen maps (YUK, NB, QUE, MAN, SAS, ALB, BC and NWT-87) while distances between dot markers are given on twenty maps (exceptions being BC, NWT-93 and YUK-93). Both types of distances are given on eleven maps (NB, QUE, MAN, SAS, ALB and YUK-93). The ALB maps use both methods of distance indication as well as printing distances between specific destinations (in red), along major routes. Travelling times between major nodes are indicated on NS-93 in an inset.

Twenty-three maps show at least one air travel feature (NWT-93 shows airline access routes in an inset map on the front page instead). The QUE maps show the most detail dividing air service into four categories (*scheduled*,

*recognized, other and seaplane*). In all, seventeen different categories of air transportation are depicted. Airports (airfields) are distinguished by qualifiers such as *major, seasonal, recognized, secondary, northern provincial, and scheduled*. There are also *seaplane, harbour landing, water aerodrome, and heliport* categories.

Ferry information is defined by eight different categories on twenty of the maps (excepting ALB and PEI). The PEI maps do not indicate ferry services in the legend although a description of services is noted along the actual routes depicted on the map. In the case of MAN and SAS, ferries operate on lakes (such as Lake Winnipeg) or rivers (such as the South Saskatchewan River). Ferry services are divided into the greatest number of classes on the QUE maps (three). Defined classes of ferry services noted on the different maps include qualifiers such as *major, local - car and passenger, and seasonal*.

Specific information given about individual ferry services varies by province. The PEI maps indicate six factors: *destination, type of ferry, time of year, duration of sail, distance and company name*. Other provinces give less detail, especially inland provinces where ferries are a less critical issue in tourism transportation. The NB maps indicate that a toll must be paid, but do not give further detail. The ONT-93 map includes a *toll ferry* symbol not noted in the legend.

Other transportation features denoted on the maps include *railroads* (YUK, QUE, ONT, BC, NWT-87 and PEI-87), *rest areas* (QUE, ALB, BC, NWT-87, YUK-87 and NB-93), *interchanges* (ONT, MAN, NS-87 and QUE-87), *exit numbers* (NB, ONT and NS-87), *interchanges/exits* (QUE-93), *mountain passes* (BC), *service centres* (QUE and ONT), *carpools* (ONT), *covered bridges* (QUE), *toll bridges* (NS), *traffic signals* (city maps on NS-87), and *bus terminals* (city maps for QUE).

Tourist routes are defined on eight maps (NFL, PEI, ONT and NS). The number of routes ranges from two (NFL-87) to fourteen (ONT-93). Where there are many routes (ONT and NS) the icons are defined separately from the legend and plotted on the map. The NS-93 map colour codes recommended tourism routes, shading official travelways yellow and other scenic drives pink. This shading is explained in text accompanying the map. YUK-93 and YUK-87 define eight and six themed tourist routes respectively such as *The Silver Trail*, but these routes are not plotted on the maps. Tourist route icons are also defined either as part of the linear highway symbols (PEI and NFL-87) or separately.

#### 3.3.4.3 Parks and Outdoor Recreation Features

Parks information is presented on all of the maps. It is subject to a broad range of classifications (fifty-one classes in all, such as *provincial, national, territorial, historic, heritage, regional, and picnic*). Some maps also differentiate

parks based on attributes such as the location of campgrounds. These are shown on all but two maps: NB-87 and ONT-93. Other categories of parks include such distinctions as *picnic area*, *local park or garden*, and *day use*.

Eight maps show and differentiate between *game sanctuaries*, *reserves*, and other facilities such as *forest education centre*, *demonstration woodlot*, and *conservation area* in the legend (QUE, ONT, NWT-93, YUK-93, PEI-93 and NS-93). The NS-93 map depicts five such categories while the other maps depict only one or two. Other maps may depict game sanctuaries, reserves, and so forth but do not mention them explicitly in the legend. In these cases, the land uses are shaded as described earlier. There are seven maps which identify *scenic viewpoints*, *lookouts*, *interpretive areas*, and so forth (NFL, QUE, NWT-87, YUK-93, NS-93) although no map has more than two such features.

Outdoor recreation opportunity features are provided in the legends of seventeen maps (NWT, PEI, NS, NB, QUE, MAN, ALB, BC and YUK-93). Of these, nine maps show only one such feature (most often *ski areas*) (NWT, MAN, ALB, BC and YUK-93). The other eight maps display anywhere from two to eight outdoor recreation features from among the thirty-three categories defined. Common types include *beaches* (both supervised and not), *golf courses* and *marinas*. A notable exception here is the NS-93 map which has an entirely separate map devoted to outdoors information. This map provides

twenty-three categories of outdoor recreation features. Among those depicted are *whale watching area, river rafting, equestrian activity, cycling outfitter or rental, and snowmobile clubs.*

A parks matrix, is provided on seven maps (NWT-93, NFL, SAS and BC) as shown in Table 3.7. All but one of the matrices are located on the back page; NWT-93 shows two matrices with the smaller one, detailing parks in the Baffin Region, on the front page. NWT-87 displays park matrix information as a written list (rather than a matrix per se). This list is included in Table 3.7 which highlights the size and extent of the matrices. The BC maps have the greatest focus on parks information, devoting the most space to the description of a relatively large number of parks.

#### 3.3.4.4 Tourism Features

Twenty-two of the maps show visitor information centres (except YUK-87 and MAN-87). In total, thirteen classes of visitor information centres are differentiated, by the level of government providing the service (*provincial, municipal, community, and local*) and by when they are open (for example *seasonal*). The number of classes for a given map ranges from one to four (QUE-93).

Other visitor attractions are noted specifically on fourteen maps (YUK, NFL, PEI, NS, QUE, ONT, NWT-87 and ALB-93). There are thirteen categories depicted including *museum,*

**Table 3.7 Parks Matrix Information**

<i>Map</i>	<i>Area cm<sup>2</sup></i>	<i>% Page</i>	<i>Front/ Back</i>	<i>Type of Parks</i>	<i># of Parks</i>	<i># of Amenities</i>
NWT-93	200.6 62.8	3.3 1.0	B F	-territorial -territorial	41 7	11 9
NWT-87	791.8	12.0	B	-territorial	34	5
NFL-93	302.4	4.5	B	-provincial	79	11
NFL-87	272.5	4.0	B	-provincial	75	3
SAS-93	374.0	7.5	B	-prov./nation. -rec.sites	50	13
SAS-87	702.7	13.2	B	-prov./nation. -rec.sites -hwy.campgrnds.	57	13
BC-93	1095.6	24.0	B	-prov./nation. -nation.reserve	352	10
BC-87	1095.6	23.8	B	-prov./nation.	338	8

points of interest, and heritage trail. The NFL maps each depict seven features, while other maps depict from one to four of these attractions.<sup>6</sup>

Accommodation is referenced on only six maps with no more than two features depicted per map (NS, SAS, YUK-93 and ALB-93). Seven categories of accommodation are noted: *highway lodge* and *wilderness lodge* (YUK-93), *hostel* (NS-93), *motel* (city map, NS-87), *fly-in-fishing/hunting base camp* (SAS and ALB-93), *vacation farm/bed & breakfast* (SAS-93), and *guest*

---

<sup>6</sup> Seven heritage attraction icons are defined on each of the NFL maps, not in the legend but on an inset on the front side.

ranch (ALB-93). The YUK-93 map itemizes these accommodation features in a numbered key beneath the map. Six maps also depict two tourist services: *currency exchange* and/or *duty free* (NB, NS-93, QUE-93, MAN-93 and SAS-93).

*Tourism regions or zones* are defined on seven maps (ALB, BC, PEI-93, NS-93 and QUE-93). They are listed and outlined on the ALB and BC maps (fourteen and nine regions respectively). The QUE-93 map plots the boundaries for eighteen tourism zones but does not define or elaborate on them anywhere. PEI-93 colour codes six regions and defines them in a colour key above the map area (separate from the four tourist routes labelled). NS-93 also colour codes tourist regions.

#### 3.3.4.5 Service and Other Features:

The presence of general service features is indicated on twenty-one maps using twenty-four different categories (the exceptions being YUK and NS-93). The maximum number of services shown on a given map is seven. This number is higher when city insets depict services in addition to the main map (as is the case with NWT, QUE and NS-87). It is also higher for the NWT maps, probably since access to services can be vital in remote areas. There are no services labelled on the YUK maps although the YUK-93 map does provide a "services matrix" on the reverse which outlines six services and emergency numbers, for fourteen settlements. Examples of

service features that appear more frequently include *hospital* and *port of entry/customs check point*. Rarely mentioned features include *nursing station*, *post office*, and *wireless station*.

Other features are found on seven maps (PEI, NS, QUE and ALB-87). These include *lighthouse*, *theatre*, *science and industry*, *university*, *fossil area*, *public building*, and *1988 Olympic Games Venue*.

#### 3.3.4.6 Supplementary Text Information (Table 3.8)

Supplementary text information on the twenty-four maps has been analyzed. First, the number of words that make up the explanatory text was counted (see Table 3.8). Second, the subjects covered by the text were identified. The relative importance of a given subject was considered in terms of the percentage of total text allocated to it.

Examination of text material revealed a number of logical categories shown below. Text categories are as follows:

**General:** This category includes all introductory information: laws and regulations, climate, Canadian dollars, metric, customs, general descriptions and welcomes.

**Table 3.8                      Supplementary Text Information**

<i>Map</i>	<i>Total Words</i>	<i>General %</i>	<i>Road %</i>	<i>Ferry %</i>	<i>Tourist %</i>	<i>Parks %</i>	<i>Other %</i>	<i>% Front</i>	<i>%<sup>7</sup> Back</i>
NWT-93	1505	20.7	25.2	5.2	21.7	25.1	2.1	7.6	9.4
NWT-87	2667	-	38.2	-	5.1	52.4	4.3	1.3	18.9
YUK-93	2954	6.5	15.6	-	29.3	41.9	6.7	-	75.0
YUK-87	2812	27.2	17.1	-	24.9	23.6	7.2	8.9	57.9
NFL-93	2703	65.5	9.1	3.1	5.0	14.5	2.8	2.8	15.5
NFL-87	2151	61.0	7.7	3.2	5.1	-	23.0	2.3	14.0
PEI-93	1507	34.5	14.7	33.8	9.8	-	7.2	1.3	29.5
PEI-87	3181	3.7	23.8	32.7	20.1	19.7	-	4.7	53.7
NS-93	8521	-	1.4	3.4	73.8	14.9	6.5	11.5	21.0
NS-87	1438	-	43.2	22.6	14.7	-	19.5	7.9	7.3
NB-93	2938	29.2	25.8	8.4	15.9	-	20.7	-	26.4
NB-87	4378	61.0	16.0	5.6	11.2	-	6.2	-	28.1
QUE-93	714	-	27.9	10.8	46.2	15.1	-	1.2	4.2
QUE-87	788	16.0	28.3	7.4	42.5	-	5.8	1.2	5.7
ONT-93	1598	8.8	35.2	-	19.8	-	36.2	1.6	9.5
ONT-87	1262	7.9	26.1	-	27.3	-	38.7	1.4	5.2
MAN-93	2329	26.2	27.3	-	27.0	3.5	16.0	-	21.1
MAN-87	2134	25.8	29.9	-	26.3	4.1	13.9	-	20.9
SAS-93	1629	33.5	19.6	8.4	19.3	-	19.2	-	21.1
SAS-87	2251	31.0	18.4	6.5	34.9	-	9.2	15.9	22.5
ALB-93	602	41.1	32.7	-	20.6	-	5.6	0.8	10.0
ALB-87	766	47.4	7.6	-	31.7	-	13.3	0.8	11.3
BC-93	1585	34.1	11.0	-	19.2	35.7	-	1.5	13.9
BC-87	2312	32.4	12.3	1.3	11.5	30.9	11.6	2.5	16.7

---

<sup>7</sup> The subject columns represent the proportion of total text in each category, while the "% Front" and the "% Back" columns refer to the total area devoted to text on each side of the map.

- Road:** All driving related information regarding road signs, motor assistance, fuel measurement, mountain passes, road reports, and miscellaneous is included in this category.
- Ferry:** All ferry text is discussed under this heading.
- Tourist:** All general tourist information as well as discussion of information centres, tourist emergencies, codes of ethics, approved accommodation, and currency exchange are incorporated. Description of special, unique places, travelways/scenic drives, and upcoming events are also considered here.
- Parks:** All text concerning national and provincial parks, local parks and gardens, forests, environment, wildlife, campgrounds, and outdoor recreation is covered. Fishing and hunting regulations regarding seasons and gun control also fall within this category.
- Other:** All other text including fire control, general emergencies, police, time zones, air distances, services matrices, radio stations, publication, and mapping details fall under this heading.

Table 3.8 shows that the bulk of supplementary text is located on the reverse side of the maps (indeed six maps show no text on the front: NB, MAN, YUK-93 and SAS-93). Only NS-93 and SAS-87 have more than ten percent of the front side devoted to text descriptions. The QUE and ONT maps maintain relatively small amounts of text overall, due to the large geographical area that the maps cover.

### General

General information is presented on twenty of the maps (exceptions being NS, NWT-87 and QUE-93). There is a wide range in the proportion of total words devoted to general information. For example, the ONT maps devote less than ten percent of total text to general information while the NFL and NB-87 maps allocate more than sixty percent. In the case of the NFL maps, there is a great deal of general descriptive text which might also be considered tourist detail as it introduces areas of the province. On average the maps showing general information devote 30.7% of total text to this category.

### Road

Road information is provided on all of the maps. This is to be expected given the purpose of the maps. On average, 21.4% of total text is devoted to road information. While NS-93 maintains the smallest proportion of road text (1.4%), NS-

87 maintains the highest (43.2%), indicative of the shift in focus from an urban to an outdoors theme.

### Ferry

Additional ferry information is not present in the text of a number of maps. Ferry information on BC-93 is not absent; it is provided under the heading "*Ferry and Road Information*", which has been considered under the road category in this analysis. Of those maps which provide ferry text, an average of 10.9% of the total text is devoted to it. The PEI maps dedicate the greatest proportion to ferry text, more than thirty percent on each map.

### Tourist

Tourist information is provided on all of the maps; also understandable given the main purposes for which the maps are provided. Examination of Table 3.8 reveals an unusually large number of words under the tourist category for the NS-93 map (73.8% of all text on that map). This map details dozens of small points of interest on both sides of the page including small text descriptions of these points, all around the coastline.<sup>8</sup> The average proportion of total text devoted to tourist detail is 23.5%. The NFL maps maintain the least text

---

<sup>8</sup> It was not practical to determine the area for all of these points of interest. Therefore, the figure for total area covered by tourism related text on this map is significantly underestimated.

in this category, although the general text on these maps does include description of areas.

### Park

A noticeable absence of text information concerns parks detail; it is not provided at all on half of the maps (NS, ONT, SAS, ALB, NFL-87, PEI-93, NS-87 and QUE-87). Nevertheless, parks matrices are provided on three of the maps that do not provide text detail about parks (SAS and NFL-87). The average proportion of text devoted to parks detail is 23.5%, with NWT-87 depicting the most (52.4%) and MAN-93 the least (3.5%).

### Other

Text falling within this category is present on twenty-one of the maps (the exceptions being PEI-87, QUE-93 and BC-93). The average proportion of total text devoted to other information is 13.1%. The ONT maps have the most with over thirty-five percent each and the NWT-93 the least (2.1%). In the case of the ONT maps, this value is due to the large number of radio station listings. The services matrix on the YUK-93 map, referred to earlier, is also part of this value; it is unique to this map and includes similarly unique services such as *doctor available*.

### 3.3.5 Additional Information (Table 3.9)

In addition to strictly text paragraphs, there are a number of other symbols that appear only in the supplementary text (not on the actual map), among them road signs and tourist related signs. Table 3.9 notes such symbols as defined by each map; larger values indicate those maps which define traffic symbols in detail.<sup>9</sup>

**Table 3.9 Number of Additional Information Symbols Shown**

<i>Map</i>	<i># Symbols</i>	<i>Map</i>	<i># Symbols</i>
NWT-93	0	QUE-93	5
NWT-87	0	QUE-87	0
YUK-93	79	ONT-93	0
YUK-87	76	ONT-87	72
NFL-93	10	MAN-93	55
NFL-87	10	MAN-87	55
PEI-93	7	SAS-93	4
PEI-87	5	SAS-87	16
NS-93	4	ALB-93	35
NS-87	74	ALB-87	33
NB-93	44	BC-93	20
NB-87	41	BC-87	14

### 3.3.6 Symbols (Table 3.10)

Information about the symbols depicted on the maps has been collected. The total number of symbols on each map as

---

<sup>9</sup> Logos which are associated with the province/territory, such as the Northwest Territories polar bear, are excepted since they do not represent a specific feature per se.

well as symbol counts by defined categories are reported in Table 3.10. The following categories have been used:

1. **Transportation:** This category includes car, air, ferry and other types of transportation symbols. Services such as gas stations and interchanges are also included here.
2. **Population:** Settlement symbols, defined either by population size, settlement type, or another label, are included in this category.
3. **Tourism:** All infocentres, attractions, accommodation, and miscellaneous tourism symbols are considered under this heading.
4. **Parks:** This category includes all park as well as wildlife sanctuaries, reserves and other related symbols.
5. **Outdoor Recreation:** Skiing, beaches, and golf courses illustrate the types of symbols which are included under this heading.
6. **Services:** Post offices, nursing stations and hospitals are the types of symbols assigned to this category.
7. **Others:** This category embodies those symbols not readily placed in other categories, such as university or 1988 Olympic Games Venue.

Counting the number of symbols proved a difficult task and a number of points must be qualified. Firstly, for the purposes of this discussion, all mapped symbols which are specifically defined either in the legend or elsewhere on the map are included in the reported count (only ten maps define all symbols in the legend, namely NB, QUE, SAS, BC, YUK-87 and MAN-87). Symbols are not included, however, if they appear undefined or if they appear in the text but not on the map.

**Table 3.10 Use of Symbolism**

<i>Map</i>	<i>Transport.</i>	<i>Pop. Centres</i>	<i>Tourism</i>	<i>Parks</i>	<i>Out. Rec.</i>	<i>Services</i>	<i>Other</i>	<i>Total</i>
NWT-93	5	5	2	6	1	6	3	28
NWT-87	14	1	1	4	2	4	3	27
YUK-93	12	6	6	5	1	-	3	33
YUK-87	13	7	2	2	-	-	2	26
NFL-93	14	7	13	4	-	1	-	39
NFL-87	13	7	11	4	-	1	-	36
PEI-93	9	4	9	4	8	2	2	38
PEI-87	9	4	7	3	8	1	2	34
NS-93	15	6	18	12	23	-	4	78
NS-87	17	6	13	5	5	6	2	54
NB-93	14	6	3	3	2	2	-	30
NB-87	13	6	3	2	2	2	-	28

Table 3.10 Cont'd

## Use of Symbolism

Map	Transport.	Pop. Centres	Tourism	Parks	Out. Rec.	Services	Other	Total
QUE-93	29	8	9	7	4	7	5	69
QUE-87	27	8	5	7	5	7	5	64
ONT-93	27	5	17	8	-	6	7	70
ONT-87	23	5	13	7	-	6	7	61
MAN-93	20	5	3	2	1	2	-	33
MAN-87	19	5	-	2	1	2	-	29
SAS-93	26	4	4	7	-	2	1	44
SAS-87	24	4	2	8	-	2	1	41
ALB-93	17	11	4	5	1	2	-	40
ALB-87	16	9	1	4	1	3	1	35
BC-93	21	8	3	3	1	2	2	40
BC-87	19	8	2	3	1	2	6	41

For example, *international border* is only considered for those maps where it is denoted specifically although it appears on almost all the maps. Similarly the YUK map *theme routes*, while symbolized, do not appear on the map and are not counted.

Secondly, city map symbols defined in separate legends were counted (these were not included in the main legend figures). There are seven maps which separately identify at least one city level symbol (NWT, QUE, ALB and PEI-93).

Thirdly, where the same symbol is defined two or three times in different colours, each is counted separately. In contrast, if a symbol appears at the provincial and city levels but is the same in form and colour, it is only counted once.

Finally, highway route markers are only counted where they are defined separately. Where they appear as part of a linear symbol they are not. The exceptions to this are tourist route icons which are generally more stylized and are considered in terms of symbol design only (either pictographic or abstract).

The number of symbols used to represent specific types of information is summarized in Table 3.10, with YUK-87 employing the fewest (twenty-seven) and NS-93 the most (seventy-eight). All provinces (except BC) employ more symbols in 1993 than in 1987. Does this finding imply better coverage of information in 1993? This is difficult to judge without further research,

but the number of symbols does not necessarily indicate breadth of coverage. Moreover, individual map users must determine whether the data provided is of value to them.

Transportation features dominate coverage by specific symbol categories. Tourism features are visibly higher for the NFL, NS and ONT maps. As noted earlier this is due to the presence of numerous theme routes and/or specific attractions. Otherwise, the only visible difference is on the NS-93 map which depicts a large number of parks and outdoor recreation symbols, suggested by the outdoors focus.

The use of obscure or purely local (provincial) symbols occurs on fifteen maps. In many cases this is due to the presence of tourist routes for which special icons have been designed (NFL, PEI, NS and ONT). For example, the PEI maps denote the *Blue Heron Drive* with a boxed, blue heron symbol. The NS maps denote the *Ceilidh Trail* with a boxed, blue/black symbol of a bagpipe player on the shore.

Other maps depict unique provincial police logos (QUE and ONT), park logos (SAS), and visitor information centres (BC). ALB-87 denotes 1988 Winter Olympic Games venues. All of these obscure symbols are clearly defined in the legend.

There are certain conventional symbols used. For example, the practice of using a circled star to indicate the capital city is followed by ten of the maps (NWT, YUK, NFL, NB and BC). Downhill skiing, hospitals, information centres, ports of entry, national parks, and campgrounds represent some

of the other features which demonstrate reasonable agreement with respect to symbol choice. Some of the undefined symbols follow convention as well, such as green shading for park land uses or a "dash-dot" line for provincial boundaries.

In terms of the levels of measurement, all but five maps (NB, BC and NWT-87) symbolize nominal, ordinal, and cardinal data. The exceptions preclude the depiction of cardinal data because they classify settlements by type rather than by population.

Various symbol types are noted on all maps (See Table 3.11). Logically, point symbols are most common, ranging anywhere from fifteen to seventy in total for a single map. Linear symbols range from seven to twenty-four in total per map. Mostly, linear symbols represent transportation routes (road and otherwise) although some maps use them to depict other boundaries as explained. Only half of the maps formally reference any areal symbols such as forested or built-up area (YUK, QUE, ONT, MAN, SAS, NWT-93 and ALB-93).

The use of pictographic or associative symbols for point data (such as a tent symbol for campgrounds) predominate the maps. This suggests a concerted effort to make the information as clear as possible for map users - who are likely more familiar with many of these feature-related symbols. Only three maps (PEI and YUK-93) show symbols which are not defined anywhere and which are not readily understandable, such as a blue "M" on the city insets of the

**Table 3.11 Aspects of Symbol Use and Design**

Map	ALL SYMBOLS			POINT SYMBOLS	
	Point	Line	Area	Pictographic/ Associative	Geometric/ Abstract
NWT-93	17	7	3	3	13
NWT-87	15	12	-	9	5
YUK-93	24	8	1	10	13
YUK-87	18	7	1	5	11
NFL-93	28	11	-	20	7
NFL-87	24	12	-	18	7
PEI-93	28	10	-	25	6
PEI-87	25	9	-	22	5
NS-93	70	8	-	49	20
NS-87	43	11	-	28	14
NB-93	22	8	-	12	8
NB-87	20	8	-	11	7
QUE-93	41	24	4	22	17
QUE-87	39	21	4	20	17
ONT-93	53	16	1	35	17
ONT-87	46	14	1	28	17
MAN-93	21	10	2	10	9
MAN-87	17	10	2	8	7
SAS-93	34	8	2	19	13
SAS-87	31	8	2	15	14
ALB-93	30	8	2	13	15
ALB-87	28	7	-	11	15
BC-93	29	11	-	14	14
BC-87	27	14	-	13	13

YUK-93 map. This does, of course, violate rules of cartographic communication. As Robinson (1984) notes, only self-explanatory symbols should be used if they are not explained in the legend. The use of colour to depict symbology varies. Black and red are used on most of the maps, although not exclusively. Other colours used include yellow, green, blue, brown, orange, grey, purple, maroon and pink (many in combination). With respect to highway/road symbols

red is the dominant choice on eighteen maps. The exceptions are the NFL, PEI and NS maps. While failure to use expected colours for specific symbols may lead to confusion, Anderson (1977) suggests that an excessive use of red can also cause confusion as people struggle to discern what information is most important.

The technique of grading line widths and types to differentiate linear symbols is universal among the maps. There are generally three or more line widths and/or types employed in the classification of highways and roads on the twenty-four maps studied.

Printing is varied, with at least three sizes of type used on all maps. Both upper and lower case lettering are also used on all maps. Most labels are in black although some use of red is made on a number of maps, primarily to highlight parks, elevations and major routes. Green is used to show hills on the SAS maps, grey is used to label county names in NS and PEI and, by convention, all drainage features are blue. Bold lettering is used on all maps to emphasise important labels. It appears likely that many of the smaller type sizes used are difficult to read in a cramped car, especially in poor lighting.

All foreground map areas are shaded in light orange, yellow, white, or grey. Exceptions are PEI-93 and NS-93 which colour code regions. All adjacent provinces/states (background areas) are shaded to contrast with the focal

province, usually in a single colour. Sixteen of the maps provide full or partial detail of these adjacent areas. The remaining eight maps show very limited detail (NS, NB, QUE and ONT). City insets are generally orange, yellow, or white.

In summary the clarity of symbols and labels is variable. It is not the objective of this study to comment conclusively on the impression made by symbol, line width, colour, and print choices. This is especially true given that evaluation of these elements can be very subjective and one map user's preference may not be another's. These elements are elaborated upon in the following chapters.

Overall, symbology is handled similarly by all the provinces. Nevertheless, considerable disparity exists in the classification schemes used (for example, a total of seventy-four classes were used for highways and roads alone). This is likely to confuse the map reader travelling across Canada who might assume, for example, that the same sized settlement symbol represents the same population in different provinces.

#### **3.4 DIFFERENCES BETWEEN 1987 AND 1993 MAPS**

One of the goals of the map comparison research reported here is to search for difference over time between official tourist maps for the same province and territory. Few radical changes were observed in the maps produced by a given province between 1987 and 1993 (the exception being NS-93). Changes in

the space devoted to various map elements or to the symbols used are for the most part negligible. Changes in layout are itemized below where appreciable.

#### Northwest Territories (NWT)

The 1993 map moves the cover page to the reverse side and incorporates more text information on the front. The 1993 map also provides two parks matrices and does so in a more user-friendly, matrix form.

#### Yukon (YUK)

The main maps are identically laid out although the 1993 map includes three city insets on the front page. It also uses smaller photos and smaller symbols on the reverse, allowing space for more text. Categories of text are given bolder, more visible headings.

#### Newfoundland (NFL)

The 1993 map reverses the Labrador and Avalon Peninsula insets, bringing the latter to the main map page. Layout appears otherwise identical, although the 1993 map removes information about radio stations in favour of a description of Gros Morne National Park.

Prince Edward Island (PEI)

The 1993 sheet size is somewhat smaller, although the map itself is the same size. The 1993 map also provides less text information but one more city inset.

Nova Scotia (NS)

This map makes the greatest change by completely reworking the focus of information. Strip maps and city insets are abandoned for two complete maps of the province with a decidedly tourist-oriented objective. There is a great deal of descriptive information covering both maps. This text occurs at the expense of photographs leaving room for only one picture located on the cover. Differences in symbology are marked, with numerous specific recreation features not identified on any of the other twenty-three maps. The 1993 map colour codes regions of interest and tourist routes so that they are more visible. Finally, parks insets are included (the only map to do so). It would be an interesting research project to have tourists value judge the relative merits of the old versus the new tourist map.

New Brunswick (NB)

The 1993 map is much smaller and uses a different folding technique. This map is rather like a leaflet and does not store well without being crushed.

Manitoba (MAN)

The 1993 map eliminates the relief shading used in 1987. Otherwise the maps appear identical. An additional key map is included on the reverse of the 1993 edition to indicate the northern section of the province not shown in detail on the main map.

Saskatchewan (SAS)

The 1993 map removes all text information to the reverse side and brings the index to the map side. While the 1987 map employs a collage type effect, mixing insets, photos, and route information, the reverse side of the 1993 map gives the appearance of much clearer organization.

Overall, comparison of official tourist maps for the Canadian provinces and territories between 1987 and 1993 revealed that these maps appear to be reasonably stable. The exception is Nova Scotia where the province seems to have targeted a very definite segment of the public, outdoors enthusiasts. It would be interesting to see how the public responds to this map, since it lacks some of the additional features survey respondents felt were important, such as city insets (for more examples, see pages 144-149).

### 3.5 CONSENSUS AND DIVERGENCE

The primary objective of this chapter has been to describe design and content features currently accepted as standard on Canadian provincial/territorial tourist maps. The previous sections have described past and current practices focusing on the years 1987 and 1993. The question arises whether tourist maps for Canadian provinces and territories generally use a similar design and display similar content, or whether there are radical deviations. The following paragraphs summarize these previous sections, to provide the answer.

Sheet size for each tourist map is reasonably standard, with an average area of 5510 cm<sup>2</sup>. All maps are printed on both sides and the concertina folding method is the most common choice. Most maps provide fairly ready access to legend or other important information when folded. Most maps could easily be stored in a vehicle glove box.

The norm is to show the entire province or territory on the front side of the sheet, with text and other information displayed on the reverse side. The two largest provinces (ONT and QUE) break from this pattern by spreading coverage over both pages.

The landscape format is more prevalent (admittedly guided by the shape of the province). Maps usually are produced in one language (this appears to be subject to regional influences). The choice of scale is largely a function of the

area to be covered and the sheet size being used. Given the considerable differences in size between the Canadian provinces and territories, considerable variations in scale exist between the different maps. In keeping with cartographic convention, larger scale maps use a grid reference system, while smaller scale maps use latitude-longitude referencing. North arrows are provided on two-thirds of the maps only.

In terms of map elements, most maps place the legend on the front side. The same holds true for the distance chart and index information. Overall, setting and regional insets are placed on the map side, while further regional and city insets are placed on the reverse. Very little use is made of speciality insets or strip maps. Photographs appear on virtually every cover and are used extensively on the reverse side of most maps. Very few maps allocate space for advertisements.

Topographic information varies from universal, as in the case of drainage detail, to inconsistent with respect to relief. The level of elevation detail as well as the methods of relief depiction vary considerably, although almost all maps do show spot heights for extreme features.

Depiction of land uses are similar in type and coverage and are generally relegated to background information status with no formal mention in the legend. Political and

administrative boundaries also are treated as background information.

Settlement information is handled as interval level data by most provinces although the number and type of class divisions is quite variable. Most provinces do not differentiate text labels for settlements according to class divisions, a cartographic strategy that might ease interpretation. Most maps shade the largest class of settlement as built-up area.

Transportation information is the broadest category of information depicted. Highway and road classes are far from universal. They are numerous and many classification schemes are not readily comparable; for example, what is the difference between a *major* and a *primary* highway? Distance indicators are consistently mapped, while other road travel detail is less commonly shown. Information about other forms of transportation is depicted on all maps including ferry and air travel features although there exists considerable variation in the degree of detail.

Most maps identify tourism information centres. Nevertheless, coverage and detail of more specific tourism information varies. Attraction information is provided in many cases while information about accommodation varies considerably. Some maps identify and plot special routes or regions - a useful addition.

General parks information is provided on all maps although there are numerous methods of categorization. Park matrix information is only noted on one third of the maps. Maps which provide detailed parks matrices tend not to identify tourist routes or regions (except for NFL).

Most maps provide basic service information. Exceptions exist for remote northern areas and maps with greater city detail. Hospitals are the most common such feature shown.

Text information is relegated to the reverse side on most maps. The most common categories of supplementary text are tourism and transportation. Additional road signage is defined in detail on a majority of the maps.

Symbology is handled similarly on most maps. Most of the data is nominal or ordinal and the resulting symbols are mostly point or line symbols. Pictographic or associative symbols are used more often than geometric symbols. Text labelling on all maps makes use of varying type size, boldness, and colour to emphasize features. The background colours used are generally light to increase clarity.

LeBlanc (1988) conducted a study to solicit user's reaction to Canada's official tourism/highway maps. Her findings are of interest when discussing consensus or divergence between Canada's official tourist maps. LeBlanc's study yields a summary ranking for the twelve official tourist maps on a scale from 0 to 3 (inadequate to excellent). The

worst ranked map is that of British Columbia (1.67) while Newfoundland receives the best ranking (1.91). Without exception, the twelve maps receive "good" rankings (falling between 1.5 and 2 on the scale) suggesting that LeBlanc's respondents rate all maps similarly. LeBlanc's study does not isolate what criteria individuals used to judge the maps, or what specifically map users liked or disliked about the maps. Investigation of these issues make up the following chapters of this thesis.

In summary, there exists a considerable difference in the size and shape of the various Canadian provinces and territories. Difference in size and shape will obviously have a considerable impact on freedom and opportunity for cartographic communication of information. This makes it difficult to identify points of consensus and divergence among the twenty-four maps evaluated.

All in all, it is the author's conclusion that the maps do not have a consistent look and character about them - they differ substantially. However, as should have become evident from the above discussions, some similarities can be noted.

### **3.6 SUMMARY**

The objectives of this chapter have been to describe and analyze official provincial scale tourist mapping in Canada, and to search for consensus and divergence in type and format

of travel information communicated. To this end, an examination of design and content features for official provincial travel maps for the years 1987 and 1993 was conducted.

The chapter concludes by noting that although Canada's official tourist maps differ substantially in look and character, some similarities could be noted with respect to map content and design. The research did reveal definite inconsistencies in the representation of features, particularly with respect to data classification of transportation, settlement, park, and tourism features.

## CHAPTER FOUR

### SURVEY METHODOLOGY

#### 4.1 INTRODUCTION

This chapter reports on the survey methodology utilized to conduct a pilot study of tourist map user expectations concerning conventional travel maps and possible alternative formats of travel information distribution. The chapter introduces the sample definition, survey design, and the questionnaire format. It also discusses the survey logistics and concludes by presenting the sample size obtained.

#### 4.2 SAMPLE DEFINITION

Murphy (1985: 4) defines "tourists" as those people "who are visitors making at least one overnight stop in a country or region and staying for at least twenty-four hours." Therefore, everyone who has travelled away from home overnight could offer valid opinions on current tourist maps. Thus, the survey population available to determine user satisfaction with provincial tourist maps is very large.

In order to reduce the survey population to a more manageable size, individuals visiting British Columbia at the time of the survey were selected as the population from which to sample. This was justified given the assumption that their travel informational needs were more current in their minds.

This limited the extent to which respondents had to rely on recall of opinions about the value of specific map information features or informational requirements when travelling.

A pilot survey was considered to be the most appropriate vehicle because a more comprehensive study would be beyond the scale of this research in terms of available funding, time and other operational logistics. The objective is a blue print for a more extensive, market research survey which solicits opinions concerning the design of a digital tourism information system; thus, the findings reported here might substantiate a full scale study along similar lines.

For the purpose of this pilot study a purposive sample of out-of-province visitors to British Columbia was obtained. This strategy enabled the researcher to define a sub-group of all tourists and to make contact with this group with less reliance on chance (Backstrom and Hursh-Cesar, 1981; Sheskin, 1985). This type of non-probability sample, strictly argued, precluded the use of statistics to infer about the character of the population as a whole. However, the focus of this research is a better insight and understanding of tourist map user satisfaction.

The selection of out-of-province visitors to British Columbia was, in part, a function of the choice of travel maps selected for evaluation in the survey. The "British Columbia Road Map and Parks Guide" (BC Map) was a logical choice given that the research was conducted in British Columbia. Since

familiarity with British Columbia would surely influence user opinions and since it was logistically not feasible to conduct the research outside the province, the decision was made to exclude British Columbia residents from participating.

The "Prince Edward Island Highway Map" (PEI Map) was selected as a contrast to the BC Map. A primary goal was to evaluate, as a second option, a map which would contrast visually to that of British Columbia. The researcher's first choice, the "Official Nova Scotia Highways Map", was unavailable at the time of the survey - prompting the use of the PEI Map as an alternate. This choice was also influenced by the desire to use a map from a geographically different region of the country.

British Columbia and Prince Edward Island are notably different in terms of geographic location, size and diversity, economy, and population. The considerable difference in the scale of these two maps was also expected to yield some interesting additional insights.

#### **4.3 SURVEY DESIGN**

The survey instrument was a self-administered, intercept survey in which respondents completed and returned a questionnaire "on site" while waiting for a ferry. This method was particularly well suited to the study for three reasons. First, it was a cost effective means of reaching the

desired respondents. Second, it allowed respondents to report on their travel informational requirements while travelling. Third, the method allowed the researcher to observe additional information about respondents in person; that is, fewer personal questions had to be asked directly, freeing more space to focus on the specific topics of interest (Sheskin, 1985).

The time required to complete questionnaires and conduct individual interviews was a primary drawback given that respondents had only a limited time available before boarding the ferry. Furthermore, if the survey appeared to be excessive in length, respondents might refuse to answer. This meant aiming for a survey completion time of about fifteen minutes, thereby limiting the number of questions that could be asked.

Another drawback relates to the type of information obtained. Reduced interaction between the respondents and the researcher precluded any probing into specific answers and richer, more in-depth data may have been lost. As many of the comments provided by respondents were qualitative in nature, other survey techniques (such as one-to-one interviews) would likely have given better insight into these responses.

The survey instrument is divided into four parts: 1. a self-administered questionnaire in two sections (a tourist map comparison and a questionnaire on alternative formats for tourism information delivery); 2. a section on general travel

information including some personal questions; and 4. a section for researcher recorded observations about individual respondents.

A copy of the questionnaire is attached as Appendix 1. A combination of open-response and fixed response questions is employed. Open questions are considered necessary where the possible range of responses is broad and when it is not wished to bias responses by placing them into pre-determined categories. Questions regarding future interest in alternative formats of information delivery are carefully phrased to ensure that respondents have the option of both positive and negative choices as negative responses may more accurately indicate non-use than positive responses indicate use (Moser and Kalton, 1971; Sheskin, 1985). The rationale for each question follows:

**Part 1: Map Comparison**

**Question 1.** *How familiar are you with the two provinces?*

This fixed response question aims to provide a general measure of familiarity with the two provinces, against which other responses may be gauged.

**Question 2.** *For the map of British Columbia/Prince Edward Island, please circle on a scale from 1 to 5 how well the following information items are communicated to you. Scaled responses are employed to permit general comparison of the*

maps, with space provided for additional comment. This question asks respondents to think about various map components and how they might be handled.

**Questions 3 & 4.** *In your opinion, is there anything important that is missing from the maps? Do you feel that there is unnecessary information on the map?* These questions invite respondents to state their opinions about specific missing or unnecessary information. The questions are left completely open so as not to lead or bias responses.

**Question 5.** *Overall, how well do you like each of the two maps?* Overall satisfaction is scaled in light of the examination of each map, providing an indication of how well the maps are received by users. User satisfaction can, thereafter, be cross-tabulated with different profile data to explore possible variations.

**Question 6.** *Do you find that there are specific aspects of each map that you like or dislike?* Open comment is invited regarding general opinion about each map as a means of qualifying response to Question 5.

## **Part 2: Alternative Format Tourist Information**

**Question 7.** *Have you ever used a T.V. Touch Screen information system such as those used by shopping centres,*

visitor areas, bridal registries etc...? This fixed question looks at familiarity with basic information technology. It also introduces the types of alternative information distribution technology that the study was interested in considering.

**Question 8.** *Do you think that you would use a computer based touch screen "TOURISM INFORMATION SYSTEM" when travelling?* Future interest in this technology is explored. Open comment concerning the types of information products desired is provoked.

**Question 9.** *If the only way that a touch screen "TOURISM INFORMATION SYSTEM" could be made available to you was by charging a user fee, would you be willing to pay to access the system?* Willingness to pay for innovative types of information products is considered a valuable way of identifying true interest from respondents. The opportunity to express how much money individuals are willing to pay is treated as an indicator of the strength of that interest.

**Questions 10 & 11.** *Would you be interested in access to an electronic multi-media "TOURISM INFORMATION SYSTEM" to plan a vacation - one that you could use in your home via a computer or the television? Would you be willing to pay for access to such an information source, either at an hourly fee or as part*

of a cable service? Interest in and willingness to pay for a more complex level of tourist information technology is sought and methods of access are considered.

**Question 12.** *What types of information and analysis capabilities would you want to have access to via such a multi-media tourism information system? Specific components (such as videos or photographs) and capabilities (such as route selection or map creation) of multi-media are itemized in a checklist format. This gives some insight into those features which are of greatest interest to users. While the list may invite other responses, it was recognized that many people may not be aware of the possible options.*

### **Part 3: Participant Information - Asked by the Researcher**

**Question 1.** *On a scale from 1 to 5 where would you place your preference for the following types of holidays? Ratings of various holiday types are collected as a means of establishing user preferences, grouping respondents and identifying possible options for focus in an innovative tourism information system.*

**Question 2.** *Do you prefer package tours or self-guided trips? Preference for trip planning strategies is obtained as a broad means of determining how involved respondents might become with tourism information systems.*

**Question 3.** *Have you heard of the BC Tel's new 1-800 tourist information number? and (If yes) Have you used it?* Knowledge of the BC Tel 1-800 information number is queried to determine how familiar travellers are with this new information service, and to what extent they have made use of it.

**Question 4.** *Where is your principal residence?* Respondents place of residence is determined as profile information and to consider possible regional/national bias in responses.

**Question 5.** *What is the purpose of this trip?* Purpose of trip is obtained to explore possible grouping of responses.

**Question 6.** *What is your employment status, generally?* General employment status is determined and **vehicle type** information was collected to explore possible groupings based on lifestyle and consumer preferences. Employment is taken as a surrogate for lifestyle and choice of vehicle as an indicator of consumer preference, in order to obtain an estimate of economic status.

#### **Part 4: Participant Information - observed by Researcher**

Gender of respondents and *Estimated Age* are obtained through researcher observation thereby limiting the personal questions which have to be asked directly. The Number of

Occupants in each vehicle is collected to obtain a possible check of individual versus grouped responses.

An original pilot survey was completed and critiqued by a number of colleagues, resulting in a re-ordering of the map comparison section and re-thinking of a number of questions. Approval was then obtained from the University of Victoria's Human Subjects Review Committee as well as the *British Columbia Ferry Corporation*. Maps were obtained from the *British Columbia Ministry of Tourism & Ministry Responsible for Culture* and *Prince Edward Island Tourism* respectively.

#### **4.4 USER SURVEY LOGISTICS**

The survey was conducted at the British Columbia Ferry Corporation's Swartz Bay Ferry Terminal, north of Victoria. This terminal operates passenger and vehicle ferries between the Lower Mainland and Vancouver Island in British Columbia, as well as to the Southern Gulf Islands in the Strait of Georgia. Service is year-round, with sailings to Tsawwassen (Vancouver) operating usually every one or two hours during the day. This is the major route serviced by the Swartz Bay Terminal, and it was passengers waiting for this ferry who were approached.

Data were collected by means of the questionnaire survey, conducted on eleven days between October 12, 1993 and October

30, 1993, the shoulder season for tourism in Greater Victoria. Departing visitors were approached by the researcher, in vehicle line-ups, as they waited for the ferry to Vancouver. Asking respondents to review travel maps inside the confines of their vehicles was a deliberate strategy since this ensured that maps would be examined in the same confined space where they would likely be used in a real situation.

Initial confirmation that respondents were out-of-province visitors was obtained from vehicle license plates. Upon introduction, occupants were asked if they were indeed visiting B.C. from elsewhere and, if so, if they would be willing to fill out a survey while waiting. Each survey was distributed with a copy of both the 1993 B.C. and 1993 P.E.I. official road maps. Surveys were distributed up to approximately thirty minutes before boarding, to allow sufficient time for collection. Respondents were left to fill out the main portion of the survey on their own. Upon receipt of the completed questionnaires, the follow-up questions were administered by the researcher. As a gesture of appreciation, the respondents were invited to keep the two maps.

Possible sources of bias in the survey strategy must be addressed. First, the time of year (October) suggests that the sample may be skewed, overstating the numbers of retirees, older couples, and younger, childless couples while understating families and student travellers. Second, the interest of this study is in tourist and travel map users.

Accessing only the driving tourist ignores air, bus, sea, and rail travellers as well as walk-on ferry passengers, bias that may exclude collective opinions different from those recorded here. Third, a certain number of potential respondents were passed by because they were in rental cars with British Columbia license plates or because the rental car had no clearly identified plates. Fourth, using the BC Map "in site" in a comparison with a far removed map like PEI, suggests that visitors will be more familiar with the former. Finally, respondents are not called on to use the maps, only to look at them. Moreover, some respondents may have already used the BC Map in their travels, giving them an advantage with one of the maps.

#### **4.5 SAMPLE SIZE (Tables 4.1 and 4.2)**

A total of 325 surveys were distributed and returned. Of those, seven were not completed and one was missing a page (an error in printing) to give a total sample size of 317. Surveys were collected at various times of the day and on every day of the week, except Friday (Table 4.1). This was largely due to logistics but partially due to the recognition that much of the Friday traffic would be local, weekend travellers. Time of day was a function of the ferry schedule as well as available daylight (Table. 4.2).

**Table 4.1**      **Number of Surveys by Date**

	<i>Surveys Collected</i>	%
Tuesday October 12, 1993	31	9.8
Thursday, October 14, 1993	38	12.0
Saturday, October 16, 1993	27	8.5
Monday, October 18, 1993	28	8.8
Wednesday, October 20, 1993	30	9.5
Thursday, October 21, 1993	29	9.1
Sunday, October 24, 1993	26	8.2
Tuesday, October 26, 1993	20	6.3
Wednesday, October 27, 1993	31	9.8
Thursday, October 28, 1993	32	10.1
Saturday, October 30, 1993	25	7.9
<hr/>		
	N=317	100.0%

**Table 4.2**      **Number of Surveys by Sailing Time**

	<i>Surveys Collected</i>	%
10:00 am	7	2.2
11:00 am	94	29.7
12:00 pm	25	7.9
1:00 pm	38	12.0
2:00 pm	5	1.6
3:00 pm	117	36.9
4:00 pm	11	3.5
5:00 pm	20	6.3
<hr/>		
	N=317	100.0%

#### 4.6 SUMMARY

This chapter has described the survey methodology employed in this study. The survey population was current visitors to British Columbia, from which a purposive sample was obtained. The survey was designed to be a pilot survey with the goal of indicating potential future research.

The survey instrument is self-administered and explores the respondents' opinions about two current provincial tourist maps and their attitudes toward and knowledge of alternate formats for the delivery of tourism information. The survey was conducted during the month of October, 1993 and resulted in a sample size of 317 completed questionnaires. Chapter 5 will provide a univariate description of the responses to this survey. Chapter 6 will explore the bivariate relationships between specific variables.

## CHAPTER FIVE

### UNIVARIATE RESULTS OF THE PILOT MAP USER SURVEY

#### 5.1 INTRODUCTION

This chapter reports univariate statistical summaries of the information collected from the 317 tourist map user surveys and addresses two explicit issues:

- ◆ to gain a sense of user reaction to two tourist maps with respect to content and design;
- ◆ and information about the potential of future digital tourism map information systems.

Univariate analysis of responses using frequency counts are discussed upon for the four sections of the survey. General frequency calculations for the sample including preferences for vacation types and trip purpose are reported first followed by a discussion of user attitudes toward the two travel maps and reactions to alternate information distribution formats.

#### 5.2 METHOD OF ANALYSIS

The responses were coded by hand and subsequently entered into DBase III+ for compilation. Responses to open-ended questions were reviewed and coded into categories defined by the researcher using a content analysis procedure. Once

encoded, responses were reviewed and a list of recurring themes or issues was compiled. Responses were re-read to confirm their placement in specific categories, resulting in revisions to the code list. Unusual observations or especially strongly stated responses were noted individually.

The final DBase III+ database file was imported into SPSS for MS Windows (Version 6.0) for analysis. Frequency distributions were run for all questions to verify correct coding by identifying those values which appeared unlikely or impossible. Coded responses for thirty-three surveys were printed in full and checked by hand against the actual survey forms; no coding errors were detected. Finally, codes for open-response questions were defined and re-defined as noted above to remove meaningless categories and to improve the consistency of those used (Oppenheim, 1966).

Subsequently, frequencies were re-run to exclude non-responses, facilitating more meaningful response percentages. Where germane, the following discussion reports both percentages, including and excluding non-responses. Percentages including non-response are noted especially where non-response is high since results represent fewer people.

In the following section, values for each question are reported primarily in percentage form. Questions involving multiple answers appear as percentages of all answers given (and, therefore, do not total 100%).

### 5.3 RESPONDENT PROFILE

Respondents are presented here by gender, estimated age group, employment status, and place of principle residence. Vehicle type and number of occupants, preference for vacation types, and purpose of trip are also noted.

#### 5.3.1 Gender: (Table 5.1) Observation Q.#3

Of the 317 respondents sixty-six percent are male, while thirty-two percent are female. In the remaining six cases gender is not specified by the researcher for the following reason. The ferry terminal is a closed facility where people are free to leave their cars and go to a coffee shop while waiting. Unfortunately, some respondents who opted to answer the survey over coffee did not return to their vehicles until right before boarding. This resulted in fewer responses to the final part of the questionnaire (this also happened when the respondents took longer than anticipated to complete the survey).

Table 5.1 Gender of Respondents

	<i>Frequency</i>	<i>%</i>
Female	101	32
Male	210	66
Missing	6	2
<hr/>		
	N=317	100%

### 5.3.2 Estimated Age: (Table 5.2) Observation Q.#4

The breakdown of the sample into age categories indicates that almost two-thirds of all respondents are aged 40 or older. This suggests that earlier stated suspicion regarding bias towards older respondents as a result of time of year (October) may be valid. The very small number of respondents in the 18-24 category (four percent) further supports this view. Bias in the sample towards older respondents should be kept in mind when examining all results, but specifically those concerning interest in alternative formats for distributing tourism information where disinterest in new technologies may be more apparent.

**Table 5.2 Age of Respondents**

	<i>Frequency</i>	<i>%</i>
18 to 24	12	4
25 to 39	104	32
40 to 59	130	41
60 and up	69	22
Missing	2	1
<hr/>		
	N=317	100%

### 5.3.3 Employment Status: (Table 5.3) Interview Q.#6

Forty-nine percent of all respondents are employed while another eighteen percent are self-employed. Twenty-four percent of the survey population are retired, lending some

confidence to the estimations of age. All other employment categories combined total only eight percent of the sample.

**Table 5.3            Employment Status of Respondents**

	<i>Frequency</i>	%
Employed	157	49
Self-employed	57	18
Student	1	-
Retired	75	24
Homemaker	5	2
Looking for Work	12	4
Unspecified	4	1
Missing	6	2

---

N=317                            100%

**5.3.4            Place of Residence: (Table 5.4) Interview Q.#4**

Of the total sample, thirty-eight percent are Canadian residents living in five of Canada's provinces/territories: Alberta, Ontario, Manitoba, Saskatchewan, and the Northwest Territories. A further fifty-seven percent are American residents representing thirty-two states plus the District of Columbia. Visitors from other eight other nations in Europe, Asia, and Australia comprise four percent of the total sample.

**Table 5.4            Residence of Respondents**

	<i>Frequency</i>	<i>%</i>
Alberta	79	25
Ontario	20	6
Manitoba	7	2
N.W.T.	3	1
Saskatchewan	14	4
Central U.S.A.	22	7
Eastern U.S.A.	38	12
Western U.S.A.	121	38
Other Nations	11	4
Missing	2	1
<hr/>		
	N=317	100%

**5.3.5.    Vehicle Driven/Number of Occupants:    (Tables 5.5 & 5.6)    Observation Q.#1 and #4**

Of all respondents, almost seventy-three percent drive domestic made cars, while twenty-four percent drive foreign made cars.<sup>10</sup> Only two motorhomes were surveyed. This was largely due to logistics given that the Swartz Bay Terminal lines up motorhomes with trucks, separate from passenger vehicles, within the vehicle compound. The extent to which information about car make helps to group respondents is unclear and should be considered in a very general sense only. This is especially true since many respondents were driving rental vehicles; in many cars with Washington or Alberta license plates, the occupants were actually from elsewhere.

---

<sup>10</sup> Analysis was done on the vehicle data in terms of size (full, mid, and economy) but no patterns were discovered.

**Table 5.5      Vehicle Type**

	<i>Frequency</i>	<i>%</i>
Domestic	235	73
Foreign	75	24
Motorhome	2	1
Unspecified	5	2
<hr/>		
	N=317	100%

In sixty-five percent of cases, respondents were travelling in couples. A further thirteen percent of respondents were individual travellers while another twenty percent of vehicles had either three or four occupants. Only two percent of cases involved vehicles with more than four occupants. These findings further support the validity of suspicion about bias toward fewer family groups. Moreover, sample bias limiting larger groups may have occurred since most cars can only carry four or five passengers comfortably.

**Table 5.6      Number of Occupants in Vehicle**

	<i>Frequency</i>	<i>%</i>
1	42	13
2	204	65
3	35	11
4	28	9
5	4	1
6	3	1
Missing	1	-
<hr/>		
	N=317	100%

#### 5.4 GENERAL TOURIST ACTIVITY

In terms of general tourist activity, respondents were classified on the basis of their preference for specific types of travel, their preference for trip planning strategies, and the stated purpose of their visit. The objective was to identify possible sub-groups of respondents.

##### 5.4.1 Preference for Holiday Types: (Table 5.7) Interview Q.#1

The respondents were asked to rank various holiday types in terms of their preferences. These include touring holidays staying at a hotel/motel/bed & breakfast, camping trips, cruises, wilderness/hiking trips, sun holidays, visits to other cultures, and educational holidays. The rankings given for the holiday types suggest some general characteristics (combining somewhat and most preferred/dislike categories). Touring holidays are preferred greatly over camping trips. Similarly, sun holidays and visits to see other cultures are identified to be more popular overall than wilderness/hiking trips. These could be reflections of the potential age bias in our sample given that older people may be less likely to take such holidays. Nevertheless, this is an interesting finding for people visiting British Columbia, since the province has a well known reputation for outdoor opportunities. Cruises and educational holidays are ranked fairly evenly, with slightly positive preference overall.

**Table 5.7 Preference For Holiday Types**

1=Dislike 2=Dislike Some 3=Neutral 4=Prefer Some 5=Prefer Most

	Dislike Most %	Dislike Some %	Neutral %	Prefer Some %	Prefer Most %	Median Rank	Modal Rank
Touring	2	7	19	31	41	4	5
Camping	33	11	19	18	19	3	1
Cruises	18	14	27	16	25	3	3
Wild/Hike	24	17	20	22	17	3	4
Sun	7	15	16	17	45	4	5
Other Cult.	5	3	22	29	41	4	5
Education.	11	16	31	23	19	3	3

**5.4.2 Preference for Package vs. Self-guided Holidays:  
(Table 5.8) Interview Q.#2**

Eighty percent of those responding, prefer self-guided holidays to package tours. In light of the fact that respondents are driving, when surveyed, this finding is not unexpected. Package holidays are preferred by twelve percent of respondents while the remaining eight percent indicate a preference for both types of holidays depending on the circumstances.

**Table 5.8 Preference for Package vs. Self-Guided Holidays**

	Frequency	%
Package	36	12
Self-Guided	251	80
Both	24	8

---

n=311 100%

### 5.4.3 Purpose of Trip: (Table 5.9) Interview Q.#5

Sixty-one percent of respondents state that the purpose of their trip is pleasure. A further sixteen percent claim personal reasons, while seven percent claim that their trip is business-related (combining business and conference or convention). The remaining sixteen percent of responses do not specify trip purpose, give combinations of the above, or list "other" purposes.

**Table 5.9 Purpose of Trip**

	Frequency	%
Pleasure	191	61
Business	15	5
Personal	49	16
Conf./Conv.	6	2
Other	1	-
Unspecified	48	16
n=310		100%

## 5.5 PROVINCIAL MAP COMPARISON

This section describes the responses given to questions concerning the two official provincial tourist maps for BC and PEI. The respondents' general familiarity with each province is noted, followed by their impressions of the quality of communication of each map. Comments regarding respondents' detailed opinions on missing and unnecessary information are summarized, followed by an overall rating of the two maps.

### 5.5.1 Familiarity with BC/PEI: (Table 5.10) Survey Q.#1

Overall familiarity with BC was found to be higher than with PEI. Seventy percent of respondents are either somewhat or very familiar with BC compared to only fifteen percent for PEI. Whether or not familiarity with a province has an influence on attitudes towards that province's travel map is examined in Chapter Six.

**Table 5.10 Familiarity with BC and PEI**

	BC		PEI	
	Frequency	%	Frequency	%
Not at All	93	30	264	83
Somewhat	160	50	43	14
Very	64	20	4	1
Missing	0	-	6	2
	N=317	100%	N=317	100%

### 5.5.2 Communication of Information Items: (Tables 5.11 and 5.12) Survey Q.#2

For each map, respondents were asked to consider a list of 11 information items and how well each is communicated to them (1=very poorly; 2=poorly; 3=fair; 4=well; 5=very well). The list reflects the recognition of the maps' main functions as travel and tourism information sources.

**Table 5.11 Communication of Information Items: BC**

1=very poorly 2=poorly 3=fair 4=well 5=very well

Info. Items	Very Poor %	Poor %	Fair %	Well %	Very Well %	Median Rank	Modal Rank	N (317)
Highway	1	1	13	38	47	4	5	315
Other Transp.	3	12	27	36	22	4	4	296
National Parks	2	2	11	36	49	4	5	309
Provincial Parks	4	4	15	37	40	4	5	300
T.Infoctre.Locat.	10	19	24	29	18	3	4	305
Tour. Attractions	7	15	28	30	20	3	4	304
Tour. Routes	10	17	30	27	16	3	3	301
Outdoor Rec. Fac.	3	7	28	36	26	4	4	301
City Information	3	10	31	34	22	4	4	311
General Info.	1	6	27	43	23	4	4	309
Map Reading Inst.	2	6	21	40	31	4	4	306

**Table 5.12 Communication of Information Items: PEI**

1=very poorly 2=poorly 3=fair 4=well 5=very well

Info. Items	Very Poor %	Poor %	Fair %	Well %	Very Well %	Median Rank	Modal Rank	N (317)
Highway	0	4	9	35	52	5	5	273
Other Transp.	2	8	20	39	31	4	4	266
National Parks	3	12	20	32	33	4	5	266
Provincial Parks	1	10	24	34	31	4	4	267
T.Infoctre.Locat.	2	9	16	43	30	4	4	267
Tour. Attractions	2	9	20	38	31	4	4	269
Tour. Routes	2	8	21	37	32	4	4	260
Outdoor Rec. Fac.	1	6	19	41	33	4	4	269
City Information	4	9	30	34	23	4	4	267
General Info.	-	6	27	38	29	4	4	269
Map Reading Inst.	0	5	18	42	35	4	4	267

Observations include firstly, that the PEI Map is more consistently ranked at "well", while the BC Map receives a broader mixture of "fair" and "very well" ranks. Secondly, there is a consistently lower number of responses to the PEI Map. This result is due, in part, to a problem of misinterpretation of the question. Many respondents appear to have been under the impression that they were required to have visited the province before being able to state opinions concerning this question. This problem manifests itself again and again throughout the first section of the survey in the form of non-response to the PEI segments for each question. Thirdly, tourism categories on the BC Map consistently receive lower ranks than other categories on either map.

All categories on both maps are positively ranked by over half of respondents (except for the tourism categories on the BC Map mentioned above). Highway features are similarly rated for both maps, with at least eighty-five percent of cases positively ranked. Alternate transportation features receive relatively lower ranks than highway features. The BC Map, which promotes itself as a "road map and parks guide," receives higher ratings for park information. Nevertheless, the BC Map receives a lower rating for depiction of outdoor recreation facilities. The remaining categories: city information, general information, and map reading instructions, are fairly evenly ranked for both maps.

Regarding tourist routes, the category lists are the same for both maps. This was intended to encourage a fair treatment of both maps without drawing attention to differences between them. The BC Map does not, however, indicate tourist routes per se, it only outlines tourism regions. That forty-three percent of respondents feel this information is well communicated suggests that some respondents may have taken regions and routes to be synonymous, while other respondents may have misinterpreted this question.

Respondents were invited to offer additional comments. These comments are presented in six categories:

1. **Transportation:** This category includes all road and alternate forms of transportation, distances, and travel times.
2. **Tourism, Parks, and Outdoor Recreation:** All related comments are discussed under this heading.
3. **Symbology:** Where specific reference to the colour, design, or clarity of the actual symbol is made, comments are placed under this heading.
4. **Quality of Communication:** This category embodies comments about the overall readability and presentation of the map, as well as comments on scale and the resulting insets and detail possible.
5. **Design Aspects:** Comments regarding both the physical and the graphic design are considered here.
6. **Other:** All miscellaneous comments are placed in this category.

### 5.5.2.1 The BC Map

With respect to the BC Map, fifty-six respondents provide additional comment covering at least one of the above six categories.<sup>11</sup> Of these, thirteen respondents give comments which fall into more than one category. Remarks regarding transportation features are mentioned in nineteen surveys. Respondents note features such as *route signs, campsite road access, rest area information, exit numbers, ports of entry and travel times*.<sup>12</sup> Some of the negative comments suggest that "road signage is very poor," that "rest area facilities could be improved," and that the map needs "to have exit numbers." Positive comments note ferry and road information and the *distance chart*. The distance chart is "extremely helpful" to one person, while another notes that it is "hard to read."

Some of the responses may overstate BC information in a negative way. A number of negative comments were made to the researcher by respondents who had misunderstood the ferry schedule or who were waiting for delayed ferries due to fog. These individuals' frustrations with general travel

---

<sup>11</sup> Many of these comments represent few respondents relative to the total sample size. Nevertheless, these comments provide a rich insight into the opinions of the map users - an objective of this research.

<sup>12</sup> Italics are used to emphasize specific information identified by respondents while quotation marks denote verbatim comments from the surveys.

information while in British Columbia may be reflected in complaints regarding information on the BC Map.

Tourism, parks, and outdoor recreation features on the BC Map are noted specifically in ten surveys. *Bicycle routes, park charges, camping, and park labelling* are mentioned. The *park index* is considered "invaluable" to one respondent and "difficult to correlate from [the] map" to another. The fact that location of *tourism infocentres* is only marked on city insets is criticized by four respondents.

Symbology is noted three times. Two respondents like the *colours* used in road and other symbols while one respondent feels that all "highways look alike."

Overall readability is the most frequently occurring remark (twenty-four surveys) concerning quality of communication. Comments range from "easiest to read by far" to "listings are good but sites hard to find on map" and "hard to read." This category also includes comments on *insets* (of all types) such as "inset nicely configured" and "larger maps of Vancouver/Lower Mainland and Victoria would be helpful." In terms of the amount of detail, some respondents feel that the map is "too crammed with info" and "too busy." Opinion ranges from "excellent map" and "it looks good" to "map too small - why not cut [it] in half and put the top half of [the] province on one side and [the] bottom half on another."

Design Aspects commented on (nine surveys) include *colour choice, folding, and print size*. One respondent feels that

the "colours used are good and make for easier comprehension," while another simply notes "good colour." Comments regarding folding are mostly negative such as "[I] often have a problem folding the map up the correct way." One respondent asks for "folding instructions" and suggests that "if creases were double-folded it would make use much easier." This comment is made about both maps, perhaps more an overall complaint about folded maps in general than of the two maps provided. The two comments on printing are positive, noting that the "large print [is] nice."

Other information (six surveys) noted by respondents pertains to *metric conversion*: "particularly like the 'think metric' for us travellers from the U.S." and "metric chart great." One respondent also notes that "the written information was helpful," while one suggests that the "recommendations section" is poor and another states that they "can't find travel information."

#### 5.5.2.2 The PEI Map

Many respondents did not answer questions pertaining to the PEI Map. Reasons cited for this non-response include:

*"Not familiar with this island;"*

*"We have never travelled PEI;" and*

*"No interest."*

One respondent states that they have never seen a map of PEI (despite receiving one from the researcher!). Of those who do

respond, forty-three offer additional comment. Ten respondents offered comments which fell into more than one category.

Transportation comments are made in seven surveys. Remarks about ferry information range from "times extremely helpful" to "can't tell where ferries come from." One respondent notes the "very good road information for non-major routes," while another states that highway information is communicated "very well once you understand the key." "Point-to-point distances" are rated as fair in one survey while another notes that the "mileage chart" is fairly well communicated to them.

Comments on tourism, parks and outdoor recreation are noted in seven surveys. Comments related to *fishing* are generally positive such as "much additional information for fishermen but how does one get a licence?" Separate respondents note that it is difficult to find *provincial and national parks* respectively. One respondent notes that they "can't find Anne of Green Gables easily." *Golf and beach features* are noted as being well communicated. One satisfied map user notes that "this map is much more observant of a tourist's needs and is extremely effective in providing services typically sought by vacationers."

Symbolism is cited in ten surveys. Observations noting symbol *colour* include "the colour of the smaller roads (yellow) is distracting from the larger direct routes" and

"highways should be black or red." The ease of interpreting symbols is noted by the comments "references to camps and parks were ambiguous - otherwise an excellent legend" and "symbols used were easier to pick up; attractions easier to spot." Positive comments regarding preference include "appreciate regional markings - colours and flags," "I like some of the symbols better than BC" and "pretty symbols."

Readability is again, the most common communication element (nineteen surveys). Comments, of a positive nature include "seemed much easier to read" and "could find my way around easily." Some view the maps as "way too scattered and crowded" or "too busy with colour to be clear and directive." Other respondents specifically note the detail on city maps ("could indicate hotel areas on city maps"), general presentation ("info presented well - not overwhelming," "a much better display of info on the map"), and user friendliness ("this map was much more user friendly - good map"). References acknowledging the different *scales* of the two maps note that it is "not fair, PEI is much smaller than BC" and "because of the overall scale, map relatively easy to read." One respondent was confused by scale terms (since the PEI Map is a larger scale map) but states that the "map is fine if you can read and determine small scale type info."

Design aspects are noted in thirteen surveys. Colour references note that "colours are well done." Nevertheless, most comments note that the "coloured regions are distracting"

or that the "map has too many colours [and is] very confusing." *Folding* is viewed as well done by one respondent and poor by another. The map is considered to be a "nice size," with "good sized printing" while another respondent likes the "clear graphics." The use of *French and English* is criticized in two surveys. One respondent states that "the use of two languages [is] somewhat cumbersome and confusing in trying to find something." There are no comments involving the "other" category made about the PEI Map.

**5.5.3 Missing Information: (Tables 5.13 and 5.14)  
Survey Q.#3**

Forty percent of respondents feel that there is information missing, either from one or both maps. Where respondents feel that information is missing they are asked for specific details about their concerns.

**Table 5.13 Respondents Citing Missing Information**

	<i>Frequency</i>	<i>%</i>
Yes	118	40
No	179	60
Don't Know	1	-
<hr/>		
	n=297	100%

Comments were collated and grouped, resulting in the following categories:

1. **Tourism Features:** This category includes attractions, regions, routes, and related services.
2. **City Insets and Information:** Any comment pertaining to city level detail is discussed under this heading.
3. **Transportation Information:** Comments regarding all types of transportation information are considered here.
4. **Symbology:** All references to actual symbols in terms of design, derivation, or effectiveness are considered under this heading.
5. **Communication:** This category covers all references to overall clarity, scale, insets, and the subsequent detail possible.
6. **Map Design:** Both physical and graphic design are included in this category.
7. **Other:** All miscellaneous comments are placed in this category.

Thirty-one percent of respondents elaborate on items missing from the BC Map while eighteen percent comment on missing items for PEI. Where respondents cite missing information which falls into multiple categories, the order of statement for each category is taken as an indication of importance. For both maps, tourism, city and transportation comments represent over half of these first stated or most important missing items. Only eleven and thirteen percent of respondents mention missing information in multiple categories for the BC and PEI maps respectively. None of the comments

offered by any one respondent cover more than three categories. A number of respondents make the same observations about missing information on both maps, for example: *railroads, cash machine locations, some history of the island, a scale for measuring distances, and city attractions.*

**Table 5.14 Most Important Categories Missing**

	BC		PEI	
	Frequency	%	Frequency	%
Tourism	18	18	6	11
City Info.	10	10	12	21
Transportation	33	33	13	22
Symbology	3	3	6	11
Communication	9	9	4	7
Design	6	6	4	7
Other	19	20	12	21
	n=98	100%	n=57	100%

### 5.5.3.1 The BC Map

*Scenic routes or drives* are the most commonly cited tourism features missing from the map (eleven comments). Respondents suggest "scenic routes - as depicted on AAA maps" or "circle tour maps" and one comment notes that "scenic drives are not green lined," perhaps a preference about how to depict this information. Other comments note the desire for some explanation about the *tourist regions* defined in the legend ("brief explanation of regions"). With respect to

*tourist attractions* more detailed information is desired including specific attractions such as *theatres, historic sites* and "something about important tourism spots - what [they're] noted for etc." The lack of information about location of *infocentres* on the main map is noted and a request is made for more "services sought by vacationers."

Requests for more detailed city information dominate the responses regarding city information including "more city display" and "greater detail in vicinity of population centres." Specifically, respondents want better detail in the Lower Mainland Vancouver area and Victoria ("maps of Vancouver and Victoria are too small"). Other comments note the lack of detail given concerning *city attractions, city mileage markers* or *city centre signs*.

Ferry information is a frequently noted transportation item missing on the BC Map. Reference is made to show *schedule, price, and route* information "as [the] PEI map does." Requests are also made to include information on Washington State Ferries to Anacortes, and ferries to Port Angeles and Seattle. Road information noted as missing includes clear presentation of *routes and access routes, rest areas, secondary roads, and better intersection detail*. *Distances and driving times* are requested both between cities and between "smaller towns and attractions." Other respondents feel that there should be more *highway signs, more cities shown on the distance chart* and some indication of

*major construction and road repairs.* Distances in miles in addition to kilometres are requested. This is understandable considering the number of American respondents. One respondent mentions that *railroads* ought to be included when, in fact, they already are.

Symbols for *campgrounds* are noted as being difficult to pinpoint. Other references to symbology cite the need for a "big flag" to indicate infocentres as other provinces do (this is actually the symbol used on the BC Map - however, only at the city level). Better definition of signs is seen as necessary by one respondent, while another notes that *route numbers* are not specifically defined in the legend.

In terms of overall communication, clarity of the maps is criticized. This is largely the result of the scale used. Respondents suggest the use of more enlargements. One comment suggests the use of two separate maps, one for travel and one for tourism, as a means of reducing clutter: "tourists want simple basic info and directions to points of interest - keep it simple stupid." Another comment notes that "things are not labelled well enough."

With respect to design, some respondents note that the BC Map needs larger print ("print too small in some cases"), French language information, a useful scale for measuring distances, and a different method for *folding* (the latter two comments are made in regards to both maps). Suggestions are

also made for a *land mass colour key*, a *legend depicting colour coding of parks*, and inclusion of more *pictures*.

Other information noted as missing includes various types of outdoor recreation: *freshwater fishing, beaches, cycling, marine facilities, golf courses*, as well as *private campsites*. Missing information on *shopping, customs, currency, hospitals, cash machine locations, libraries, and museums* is also mentioned. A number of respondents allude to the lack of *topography* shown, one suggesting that some "explanation or illustration of the terrain" would be beneficial. "A little history of the island" is also suggested.

#### 5.5.3.2 The PEI Map

The PEI Map breaks the island into tourism regions differentiated by colour. Explanation of how these areas are defined is requested by two respondents ("why the coloured areas?"). Better information on *attractions* (specifically *historic sites*) is requested ("maybe list briefly main points and description"). Other tourism features requested include *hotel areas*, and *scenic routes* (although the map given to respondents does outline four tourist routes).

A request for more detail is the major criticism of city information on this map. *Street names* on the insets ("no street names on city maps") and "city attractions" are particularly common requests.

Transportation information noted as missing includes *ferry destinations* (the 1993 PEI Map does not show the New Brunswick/Nova Scotia shoreline). Other items include *rest areas, railroads, U.S. routes, alternate forms of transportation, travelling times, route numbers on highways,* and increased *secondary road detail*. One respondent notes that "once you get off the main highway you're lost."

With respect to symbology, highway symbols are criticized as being too hard to differentiate: "inability to differentiate at a *glance* major highways etc" and "main highways like [the] Trans-Canada should be in different colour - much easier to see." Missing symbols noted include an actual *park* or *ferry* symbol (there is a ferry symbol on the map but it is not defined in the legend). One respondent notes that the *Acadian flag* is not defined as such. Finally, there are county lines and names on the map which need to be identified as such ("what are Prince, Queens and Kings?").

There are only four comments regarding communication noting the need for more and clear information. One respondent notes that the map is "not very readable," while another sees it as "fairly comprehensive."

In terms of design elements one respondent feels that the "colours could be brighter for reading in a car." Another comment notes that *latitude/longitude marks* are missing.

Among the other missing information cited three respondents note the lack of *parks information* or *facilities*.

Another comment notes a lack of "public lands other than parks." Requests are also made for *customs information* ("more info on entering Canada"), *laws and regulations*, *forest locations*, *a metric scale* and, again, *cash machine locations* and a little *history of the island*. *Topography and elevation* ("main peaks") are commented on four times.

#### 5.5.4 Unnecessary Information: (Tables 5.15 and 5.16) Survey Q.#4

Only forty-three respondents believe that there is unnecessary information on one or both of the maps. Thirty-two and twenty respondents note unnecessary information on the BC Map and the PEI Map respectively. There are only six respondents who offer comments which fall into multiple categories, all of which concern the BC Map. In each case, only two categories of information were involved. Other respondents note that "no information is unnecessary if you need it" and that it "depends what you want to do."

**Table 5.15 Respondents Citing Unnecessary Information**

	<i>Frequency</i>	<i>%</i>
Yes	43	14
No	256	86
<hr/>		
	n=299	100%

Respondents were given the opportunity to explain their opinions, resulting in the following categories:

1. **Tourism:** All comments pertaining to tourism detail of any nature are included here.
2. **Scale/Layout:** This category includes all references to the level of detail and clarity.
3. **Design Elements:** All design comments including, in this case, symbology are considered under this heading.
4. **Other:** Any miscellaneous remarks concerning unnecessary detail are handled in this category.

**Table 5.16 Most Important Categories Unnecessary**

	BC		PEI	
	Frequency	%	Frequency	%
Tourism	11	34	3	15
Scale/Layout	12	38	7	35
Design Elements	1	3	6	30
Other	8	25	4	20
	n=32	100%	n=20	100%

#### 5.5.4.1 The BC Map

With few exceptions all comments regarding unnecessary tourism information on this map refer to the *tourism regions* defined and outlined on the map: "grey lines marking tourism regions clutter the map," "boundaries in heavily populated areas...obliterate other information," and "tourism region boundaries add clutter and confusion." One respondent asks

"why divide into tourist regions?" Two respondents state that "tourism features" and "tourist info" are not necessary.

Comments about scale and layout note that the map is too crammed with information: "too cluttered," "too many cities listed," and "too much miscellaneous info - space should be used for maps." Comments on ways to improve the quality of communication involve creation of two separate maps or changes in layout: "have detailed map and then separate tourism map," "a small key map with main cities/towns should be investigated," and "cut down the size of the photo on the cover and use the space to expand the map."

Only three comments concerning design are offered. One suggests that the inks used for printing are too dark. Another states that the markers used to denote cities/towns are too large. The last comment notes that the lines used for routes and boundaries are too thick.

Other features considered unnecessary include *railroads, interchange maps, campgrounds, and parks with vehicle/tent campsites*. One respondent suggests that the province "publish info on campgrounds separately." There is also a suggestion to limit park information, noting that the map "appears designed to highlight parks not roads." Other items which respondents think should be depicted in less detail are *bodies of water and text descriptions*.

#### 5.5.4.2 The PEI Map

There are three comments which cite tourism features as unnecessary. One respondent calls for less "tourist info" in general. Another comment notes *hotels* (though the same person names hotels as missing too - perhaps indicating the question was not well understood). "County colours" are noted by another respondent although the coloured regions are actually tourism regions (indicating further misunderstanding or misinterpretation of the maps).

Regarding scale, consensus once again is that there is too much information. One respondent suggests that "some info could be on [a] separate brochure." Another specifies that there are "too many small towns and places...on the map."

Design elements considered unnecessary include *non-highway lines* (likely county lines) and *French language information*. Finer colour screens are suggested by one respondent while another notes that too many colours are used in main road symbols.

Suggestions involving other information include limiting *text information*, one survey particularly noting the "our map" section of text which is on the reverse side. Other respondents note that "highway type indicators" and *secondary roads* could be shown in less detail.

### 5.5.5 Overall Satisfaction: (Table 5.17) Survey Q.#5

In terms of overall satisfaction with each map seventeen percent of respondents are neutral to both. Combination of the "like somewhat" and "like a lot" categories indicates that fairly similar proportions of respondents are satisfied with the maps provided (seventy-three percent for BC versus seventy-nine percent for PEI)..

**Table 5.17 Overall Satisfaction with BC and PEI**

	BC		PEI	
	Frequency	%	Frequency	%
Dislike	8	3	1	-
Dislike Somewhat	21	7	10	4
Neutral	51	17	50	17
Like Somewhat	103	33	87	30
Like A Lot	126	40	142	49
	n=309	100%	n=290	100%

### 5.5.6 Open Comments on Both Maps: (Tables 5.18 to 5.21) Survey Q.#6

Respondents were encouraged to provide general comments regarding their specific "likes" or "dislikes" with respect to each map. A broad range of answers were received from which the following categories are generalized:

1. **Quality of Communication:** All references to the overall impression and readability are included in this category.

2. **Scale and Level of Detail:** All references to scale and detail of information shown including insets are considered under this heading.
3. **Graphic Elements:** This category includes all references to the use of colour, print, and graphics in general.
4. **Symbology:** All references to symbol design, derivation, and effectiveness are covered by this category.
5. **Tourism, Parks and Recreation:** All comments pertaining to these subjects are handled in this category.
6. **Transportation:** All highway and alternative transportation as well as related features such as service stations are discussed here.
7. **Physical Design Elements:** All references including size, layout, folding, use of photos, language, as well as specific information elements such as legend or index fall within this category.
8. **City Insets and Information:** City level information of any nature is included under this heading.
9. **Other:** All miscellaneous comments are considered in this category.

Responses which offer comment on specific "likes" are almost equally divided between the BC and PEI maps (155 and 154 comments respectively) and represent half of the total sample, suggesting that the maps are reasonably well received. Quality of communication and scale comments dominate, representing over forty-percent of all comments for each map. Twenty-five and twenty-eight percent of respondents' comments fall into multiple categories for the BC and the PEI maps

respectively. A maximum of four categories cover comments made by any one respondent.

**Table 5.18 Most Important Categories of "Likes"**

	BC		PEI	
	Frequency	%	Frequency	%
Quality of Communication	28	18	64	42
Scale and Level of Detail	37	23	22	14
Graphic Elements	21	14	19	12
Symbology	1	1	8	5
Tourism, Parks and Rec.	23	15	10	7
Transportation	14	9	13	8
Physical Design Elements	6	4	9	6
City Insets and Information	17	11	6	4
Other	8	5	3	2
	n=155	100%	n=154	100%

**Table 5.19 Number of Categories in Multiple Responses**

Categories	BC		PEI	
	Frequency	%	Frequency	%
2	30	19	29	19
3	8	5	12	8
4	1	1	1	1

There are twice as many comments which detail "dislikes" for the BC Map than for the PEI Map. This should be considered in light of the familiarity of respondents with British Columbia (See also Chapter 6). Respondents currently

travelling in British Columbia are likely to have clearer opinions about it. Multiple categories of dislikes regarding the BC map are noted in twenty-five percent of responses; twelve percent of respondents offer dislikes in multiple categories for the PEI map.

**Table 5.20 Most Important Categories of "Dislikes"**

	<i>BC</i>		<i>PEI</i>	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
Quality of Communication	10	8	4	6
Scale and Level of Detail	44	34	8	13
Graphic Elements	15	11	12	19
Symbology	13	10	8	13
Tourism, Parks and Rec.	7	5	6	10
Transportation	14	11	5	8
Physical Design Elements	15	11	6	10
City Insets and Information	11	8	8	13
Other	2	2	5	8
	n=131	100%	n=62	100%

**Table 5.21 Number of Categories in Multiple Responses**

<i>Categories</i>	<i>BC</i>		<i>PEI</i>	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
2	29	22	6	10
3	4	3	1	2
4	0	0	1	1

Opposing views exist on how the maps should handle information. Often what is noted by one map user as good is

noted as poor by another. The maps are characterized by some as "easy to read" and "very straight forward," while others suggest that they are "not user friendly" and are "tedious to read." Some respondents praise scale for covering a large area, being very informative and providing good detail; yet others claim the maps are "too crammed with information," and that "with so many blow-ups it's hard to keep oriented." Another respondent suggests that the PEI map "seems simple to read [which] makes me wary of [the] accuracy."

Detailing the responses within each category for both maps would be prohibitively space consuming. Nevertheless, what may be taken from them is the clear indication that no one map, and particularly no one scale, satisfies the needs of all travellers. While this may not be a new discovery, it does suggest that alternative formats of delivering travel information may be worth pursuing.

## **5.6 ALTERNATIVE FORMATS FOR TOURISM INFORMATION**

This section summarizes the responses to questions concerning alternate formats for the delivery of tourism information. Respondent knowledge of the B.C. Telephone 1-800 number is established, followed by knowledge of and interest in touch screen technology and more interactive information systems.

**5.6.1 Knowledge of the B.C. Tel 1-800 Number:  
(Table 5.22) Interview Q.#3**

"Discover British Columbia" is a new 1-800 telephone number set up as a joint venture between *B.C. TEL Advanced Communications* and the *B.C. Ministry of Tourism* (Times-Colonist, 1993). The toll free service offers travel information and accommodation reservations for locations throughout the province. The number of respondents who have heard of the new B.C. Tel 1-800 information number is a remarkably low ten percent. Of those who know of the service, only nine have used it. Furthermore, there is some confusion between the Discover B.C. 1-800 number and another area 1-800 number, for *Tourism Victoria*. Knowledge of this service is clearly not yet widespread and tourists do not appear to be making use of it, although this must be qualified. Full-scale reservation service began only shortly prior to the survey, on September 15, 1993. Doubtless, a follow-up survey would indicate greater recognition and perhaps use.

**Table 5.22 Knowledge and Use of B.C. Tel's 1-800 Information Number**

	<i>Frequency</i>	<i>%</i>		<i>Frequency</i>	<i>%</i>
Heard Of	28	10	Used It	9	32
Not Heard Of	277	90	Not Used It	19	68
<hr/>			<hr/>		
	n=305	100%		n=28	100%

**5.6.2 Use of T.V. Touch Screen Information Systems:  
(Tables 5.23 to 5.27) Survey Q.#7, #8 and #9**

Touch screen information systems have become a relatively common, basic information system. They are primarily found as remote terminals, set up in places of high traffic such as shopping centres, to offer specific information such as a description of local sights. The user accesses various categories of information by touching prompts on a heat-sensitive screen, which subsequently calls up static photographs, graphics, and text information. While the information available is limited in such systems, they provide an introduction into subsequent questions regarding more advanced information technology.

Sixty-two percent of respondents to this question have used a touch screen information system. Only four people did not understand or were not sure what a touch screen system is. Thus, familiarity with this type of information system is fairly broad.

**Table 5.23 Use of Touch Screen Information Systems**

	<i>Have Used</i>		<i>Would Use</i>	
	<i>Frequency</i>	<i>%</i>	<i>Frequency</i>	<i>%</i>
Yes	194	62	193	63
No	112	36	63	20
Don't Know	2	1	53	17
Don't Understand	2	1	-	-
	n=310	100%	n=309	100%

Sixty-three percent of respondents say that they would use a touch screen information system when travelling, while twenty-percent claim that they would not. Seventeen percent do not know whether or not they would use a touch screen system. 191 respondents listed the most important information items they would wish to access through such a system. Comments fall into the following categories:

1. **Tourist Interest:** Tourist attractions, routes, and regions as well as special events and entertainment are covered by this category.
2. **Accommodations:** All references to any type of accommodation or aspect of it, such as price, are included in this category.
3. **Transportation:** This category also includes any general travel requirements where specifics are not provided, such as schedules and prices.
4. **Restaurants:** All requests for restaurants or information about cuisine and so forth are handled under this heading.
5. **Parks and Outdoor Recreation:** All types of park or outdoor recreation requests are included here.
6. **Other:** Miscellaneous requests are discussed here.

Eighty-four percent of all requests for information concerned tourism, accommodation and transportation information. Tourist interest includes attractions, sightseeing spots, points of interest, scenic routes, location/city information, special events, walking and adventure trips, tours, theatre, cinemas, concerts, sports

**Table 5.24 Most Important Information Requests**

	Frequency	%
Tourist Interest	35	18
Accommodations	43	23
Transportation	82	43
Restaurants	5	3
Parks and Recreation	7	4
Other	19	10
	n=191	100%

**Table 5.25 Number of Categories in Multiple Responses**

Categories	Frequency	%
2	63	33
3	41	21
4	28	15
5	9	5

events, entertainment in general, nightclubs, and off-the-beaten-track sights. A total of 135 such requests are made.

104 accommodation requests included: places to stay, hotels, motels, bed & breakfasts, lodgings, and accommodation. Comments often include specific reference to price, availability, and rating information.

The greatest interest was for information about transportation (225 requests). Of particular interest is route information on best and alternate routes to travel.

*Distances (in miles as well as metric), directions, and driving times* are also commonly requested.

Other information concerns include *road conditions, detours, construction, traffic delays, dangerous areas and hazards, and twenty-four hour roadside repair*. Road features desired include *rest areas, gas stations, exit numbers, interchanges, and tolls*. Types of alternate transportation requested include *bus, airport, and ferry information* with specific reference made to *schedules, prices, and hours of operation*. The transportation category also contains general travel requirements not specifically related to any feature, including: *hours of operation, seasonal information, prices, location of facilities, and opening and closing hours*.

There are forty-nine requests for restaurant information, including the desire for information about *cuisine, price, or membership on a "top ten" list*. Another forty-one requests are made for parks and outdoor recreation information. Specifically, these mention *golf, beaches, ski areas, trails, biking, fishing, marinas, lakes, picnic areas, camping, recreation, parks (national and provincial), as well as environmental parks*.

Sixty-eight respondents call for the inclusion of other information such as *weather, shopping areas, and requests for map products* and less frequently mentioned items like *currency exchange, crime areas, police, laws and regulations, customs and traditions, preservation areas, multi-language services,*

*accessibility, supermarkets, post offices, banks, hospitals, telephones, climate, general political climate, and special architecture. Pictures or film of an area, a possible "encyclopedia of information," and printouts were other products suggested.*

Only twenty-two percent of those responding were willing to pay for these touch screen services, while forty-six percent were not. The remaining thirty-two percent stated they might be willing to pay for access. Thus, when price becomes an issue a thirty percent increase occurs in the proportion of "no" responses along with a forty percent drop in "yes" responses. This does not bode well for the provision of future consumer supported touch screen systems.

Twenty respondents qualified their willingness to pay, with some applying conditions such as:

*"depending on the amount of data displayed;"*

*"not until other essential services are at a good level - these are priorities in hard times;"*

*"perhaps - if not like advertising - must be objective;"*

*and "some knowledge is not a free good - I have no problem with pay."*

Eight others note that they have "no idea" what rate to suggest or give unclear responses such as "a fair charge" or a "small fee". Three respondents suggest where or how to access these systems including: "at hotel and resorts or

infocentres" and "should be chiefly funded by participating businesses."

**Table 5.26 Willingness to Pay for Touch Screen**

	Frequency %	
Yes	67	22
No	140	46
Maybe	99	32
<hr/>		
	n=306	100%

Suggestions for a possible price (flat fee per access) range from \$0.25 to \$100.00, the latter of which seems likely to be a misunderstanding of the question or misplaced humour.<sup>13</sup> Over seventy-percent of responses state that between \$0.50 and \$2.00 seems reasonable, while another nineteen percent range from \$2.50 up to \$10.00, although none of the suggested rates fall between \$5.00 and \$9.99.

**Table 5.27 Possible Rates for Touch Screen Per Access**

\$	Frequency	%
.25	8	9
.50 to 2.00	64	71
2.50 to 5.00	15	16
> 10.00	3	3
<hr/>		
	n=90	100%

<sup>13</sup> A review of the comments offered does not indicate any obviously facetious responses.

**5.6.3 Multi-media Information Systems: (Tables 5.28 to 5.33) Survey Q. #10, #11 and #12**

Multi-media information systems offer the potential to create an entirely new approach to vacation planning. Users can "experience" a range of information about possible destinations delivered simultaneously by multiple media formats. These may include videos, maps, photographs, voice narration, music, natural sounds, tables (such as a list of hotel rates), drawings, and ultimately, virtual reality. The limits of this technology at present are the bounds of one's imagination. It does represent an innovative way of looking at travel planning and it is useful to know the extent to which the public might be interested in using such a system.

Willingness to use a multi-media tourism information system to plan a vacation appears high - with fifty-eight percent of respondents stating that they are interested. Approximately twenty-eight percent were not interested, while thirteen percent were not sure. Only one percent of respondents reported not understanding the technology. Interest (combining "would use" and "maybe" answers) in multi-media systems (seventy-one percent) is slightly less than for touch screen systems (seventy-nine percent), although this difference is not significant enough to draw any conclusions. Perhaps touch screen systems are perceived as easier to use, and/or less expensive to access.

**Table 5.28 Interest in Using a Multi-media Tourism Information System**

	<i>Frequency</i>	<i>%</i>
Yes	178	58
No	87	28
Don't Know	41	13
Don't Understand	3	1
<hr/>		
	n=309	100%

In terms of access, forty-two percent of respondents would want to use a multi-media system on a personal computer while thirty-two percent prefer interactive television. A further sixteen percent indicate an interest in both options. There are limited "other" suggestions for possible access media, accounting for ten percent (either in lieu of or in combination with the above options). Suggestions include:

- ◆ E-Mail           ◆ Fax/Phone           ◆ Internet
- ◆ CD ROM           ◆ AAA/CAA           ◆ Wireless, Hand-held Units
- ◆ Video/TV       ◆ Travel Agent       ◆ Toll Free # at Infocentres

**Table 5.29 Possible Multi-media Access Methods**

	<i>Frequency</i>	<i>%</i>
Personal Computer	82	42
Interactive Television	62	32
PC and ITV	32	16
Other	4	2
Combinations with Other	13	8
<hr/>		
	n=193	100%

Regarding payment for access to multi-media, willingness to pay either an hourly fee or a monthly charge is expressed by thirty-four percent of respondents. Thirty-nine percent are not willing to pay, while the remaining respondents reserve judgement.

**Table 5.30**      **Willingness to pay for Multi-Media**

	Frequency	%
Yes	103	34
No	118	39
Maybe	80	27

---

n=301      100%

Responses to what rates are appropriate vary according to payment schedule (hourly rate or as part of a cable service). Half of those offering their opinion consider \$1.50 to \$5.00 per hour/month appropriate. A number of additional comments included:

*"not everyone has cable;"*

*"make it a library service;"* and

*"depends entirely on the quality."*

A few people note that demand for such a service is not likely to be often enough to warrant a monthly fee. Five respondents do not know how much would be appropriate.

Table 5.31 Possible Rates for Multi-media <sup>14</sup>

	Hourly Rate		Monthly Fee	
	Frequency	%	Frequency	%
0	1	1	9	16
≤ 1.00	14	18	10	18
1.50 to 5.00	39	51	28	50
6.00 to 10.00	18	23	3	6
≥ 15.00	6	7	5	10
	n=78	100%	n=55	100%

There are numerous potential components in a multi-media information system. Respondents were presented with a list of media types and asked to indicate those which might appeal to them. A few respondents specifically indicate no interest:

*"[I am an] A.M.A. member - they look after all travel info" and*

*"I'm afraid this information would be slanted."*

Respondents are most interested in accessing multi-media information in map and tabular forms (sixty-nine percent). Video is the next highest preference with roughly half respondents being interested. An interest in photographs is indicated by forty-two percent, voice narration by thirty-two percent and music/sound by only eleven percent of all respondents respectively. There are very few other responses.

<sup>14</sup> The "0" values represent people who prefer one option and do not want to pay under the other option.

**Table 5.32 Interest in Various Information Types in a Multi-media Information System**

	Frequency	%
	317	100
Video	157	50
Maps	219	69
Photographs	133	42
Tables	219	69
Voice Narration	100	32
Music Sound	34	11
Other	6	2

---

Multi-media may also provide a range of analytic capabilities. Respondents appear to be most interested in *route selection capabilities* (sixty-nine percent), followed by *measurement of time and distance values* (sixty-three percent). Next, in order of frequency, are: *making reservations* (fifty-six percent), *planning itineraries* (fifty-three percent), *selecting destinations* (fifty-three percent) and *creating special-purpose maps* (forty-seven percent). Only eight respondents offer other possibilities for analysis such as *hotel selection, preview of possible areas, events reservations, booking facilities in general, overlays of information, and specific route selections (evacuation and alternate transportation)*.

**Table 5.33 Interest in Various Analytic Capabilities in a Multi-media Information System**

	Frequency	%
	317	100
Select Routes	219	69
Plan Itineraries	168	53
Time/Distance	198	63
Make Reservations	177	56
Create Maps	148	47
Select Destinations	168	53
Other	3	1

---

## 5.7 GENERAL COMMENTS

Twenty-six of the respondents provide general comments. These refer primarily to the maps provided.

*"Both maps were good. The PEI map is easier to read but perhaps that is due to the fact that PEI is less populated and therefore the map is less cluttered"*

*"Wish we would have had the BC map when we entered Canada"*

*"I really don't need it (re:tourism information system) your maps are beautiful"*

*"All relative information provided becomes useless without both measurements (re:metric and imperial) when providing maps to the public"*

Other remarks criticize the comparison of the two maps:

*"Given the disparity in size between BC and PEI, comparing the information a map of each can contain is like apples and oranges."*

With respect to future information systems, respondents offer opinions on the types of access preferred:

*"Coordinate with CompuServe or the like for E-Mail service. Make it complete with prices "up-front" on the screen;"*

*"All information could be put on laser disc and distributed to libraries and facilities to view and printout (for a fee) any part of the information needed;"*

*and "CD ROM in the car."*

Conversely, others explain why they do not want to use computers for this information.

*"Before going to an area I've never been I read as many books as possible for the historical as well as the contemporary aspects - I wouldn't use a computer for this."*

*"presently travel maps, guides and brochures are free. I would probably do without them before I would pay for them...It is not easy to browse on a computer, plus I notice more in book form than I do on a computer screen ...However, a system that could bring up the latest calendar of events would be great"*

*"I use the AAA Travellers Aid and find it very helpful. I like dealing with people."*

Finally, one respondent offers some advice:

*"Multi-media may be the wave of the future, but "human" dialogue will remain the most important means of communication."*

## 5.8 SUMMARY

Much of this chapter has been devoted to a univariate analysis of the survey. From this description some general findings have emerged. In terms of the respondent profile, there appears to be a notable bias towards the older age categories, no doubt a function of the time of year that the survey was conducted. The map comparison section indicates that there is no clear preference for one map over the other, although overall, responses are generally positive in terms of satisfaction. Map design and information content are widely praised and criticized. Perhaps this illustrates the notion discussed in Chapter 2 that there is no such thing as the "ideal" map or the "average" tourist.

There is some fairly strong interest in alternate formats for delivering tourism information. Interest in the more advanced, multi-media technology appears to be somewhat lower, although proportionately more respondents express a willingness to pay for it. Video, maps and tabular data are the most preferred types of information, while route selection, time and distance measurement and reservation services are the most preferred capabilities of a future system.

## CHAPTER SIX

### BIVARIATE RESULTS OF THE MAP USER SURVEY

#### 6.1 INTRODUCTION

This chapter documents the bivariate analyses of data collected for the provincial tourist map user survey. A number of bivariate research hypotheses have been identified in the preceding chapters. They include:

- ◆ That a relationship exists between a respondent's familiarity with a province and their satisfaction with the corresponding map and that expression of opinions about the presence of missing or unnecessary information negatively affects satisfaction with the maps;
- ◆ That dissatisfaction with the maps translates into an increased interest in other ways of communicating the information or inversely, that satisfaction with the maps translates into a lack of interest in other formats;
- ◆ That a respondent's interest in and willingness to pay for alternate formats for delivering tourism information is related to other statements made by the respondent regarding these information technologies;

- ◆ That variation in the responses results from variations in gender, age, residence or employment status; and
- ◆ That certain media types and/or analytic capabilities within a multi-media tourism information system are preferred in combinations.

Each of these hypotheses are addressed below. In each case, bivariate response patterns have been explored using SPSS for MS Windows (Version 6.0) to run two-way cross tabulations. Contingency tables are presented and discussed except in cases where only few or isolated differences were found. For the following discussion, differences of +/- ten percent were taken as a basis for exploring differences. One of the problems associated with bivariate cross-tabulation is that, in many instances, the number of cases in any one group becomes very small due to the overall sample size. Only response categories which contain at least ten percent of the sample are elaborated upon in any detail and results reported in the following sections should be regarded as preliminary.

## **6.2 BIVARIATE RESPONSE PATTERNS**

### **6.2.1 Satisfaction with the BC and PEI Maps**

The first hypothesis addressed considers the possibility that a relationship exists between a respondent's familiarity

with a province and their satisfaction with the corresponding map. This section also explores the likelihood that expression of opinions about the presence of missing or unnecessary information negatively affects satisfaction with the maps.

Respondents were asked to rate their familiarity with a province as "not at all," "somewhat" or "very" familiar. A respondent's overall familiarity with either province is found to have little impact on satisfaction ratings (which ranged from "dislike" to "like a lot"). Of those respondents who are "very" familiar with BC, over half like the BC Map "a lot" (Table 6.1).

**Table 6.1**            **Familiarity with BC as it Relates to BC Map Satisfaction**

	<i>Very Familiar with BC Who Liked BC Map a Lot</i>
<i>Expected % from Sample<sup>15</sup></i>	40.8
<i>Observed %</i>	54.7

With respect to the correlation between "missing" or "unnecessary" information and map user satisfaction, the response patterns do not vary a great deal from those for the entire sample. The single exception concerns respondents who like the BC Map "a lot." In this sub-group, those who feel

---

<sup>15</sup> "Expected" values represent the sample proportions for a given response. For example, male respondents comprise sixty-six percent of the sample and would thus, be expected to represent sixty-six percent of the responses to a given question.

that no information is missing exceed those who do, by a ratio of almost three to one (Table 6.2).

**Table 6.2**                    **Respondents Who Liked the BC Map a Lot**

	<i>Missing Information</i>	<i>No Missing Information</i>
<i>Expected % from Sample</i>	39.8	59.9
<i>Observed %</i>	26.8	73.2

An interesting cross-tabulation is one which compares respondents attitudes towards the BC Map relative to their attitudes to the PEI Map (Table 6.3). Of those respondents who like the BC Map "a lot," seventy-five percent also like the PEI Map "a lot;" inversely, sixty-one percent of those who like the PEI Map "a lot" also like the BC Map "a lot." Similar relationships are apparent for the "like some" and "neutral" categories, indicating that equal proportions of the respondents like the maps equally well. There are no instances where any one respondent dislikes both maps (either somewhat or completely).

The fact that many respondents define satisfaction similarly for both maps suggests that current tourist maps for BC and PEI are equally successful in communicating information. Does this limit tourists' interest in innovative new techniques for delivering tourism information? The following section explores this question.

**Table 6.3 Relationship of BC Map to PEI Map Satisfaction**

<i>Count</i>						
<i>Row Pct.</i>						
<i>Col. Pct.</i>	<i>Dislike</i>	<i>Dislike</i>	<i>Neutral</i>	<i>Like</i>	<i>Like</i>	<i>Total</i>
	<i>PEI</i>	<i>Some</i>		<i>Some</i>	<i>PEI</i>	
<i>Dislike BC</i>	0	0	1	2	5	8
	-	-	12.5	25.0	62.5	2.8
	-	-	2.0	2.3	3.6	
<i>Dislike BC</i>	0	1	2	11	7	21
<i>Somewhat</i>	-	4.8	9.5	52.4	33.3	7.3
	-	10.0	4.0	12.6	5.0	
<i>Neutral</i>	0	5	19	12	13	49
	-	10.2	38.8	24.5	26.5	17.1
	-	50.0	38.0	13.8	9.4	
<i>Like BC</i>	0	2	14	51	29	96
<i>Somewhat</i>	-	2.1	14.6	53.1	30.2	33.4
	-	20.0	28.0	58.6	20.9	
<i>Like BC</i>	1	2	14	11	85	113
<i>A Lot</i>	0.9	1.8	12.4	9.7	75.2	39.4
	100.0	20.0	28.0	12.6	61.2	
<i>Total</i>	1	10	50	87	139	287
	0.3	3.5	17.4	30.3	48.4	100.0

### 6.2.2 Interest in Alternate Format Technologies

This section explores the hypothesis that dissatisfaction with the maps translates into an increased interest in other ways of communicating the information or inversely, that satisfaction with the maps translates into a lack of interest.

Inspection of the relevant contingency tables does not suggest any relationships between map user satisfaction and interest in either touch screen or multi-media information systems. The contingency tables for British Columbia are shown for interest (Tables 6.4 and 6.5).

**Table 6.4 Interest in Touch Screen Technology as a Function of Satisfaction With the BC Map**

Count						
Row Pct.						
Col. Pct.	Dislike A Lot	Dislike Some	Neutral	Like Some	Like A Lot	Total
Would Use In Future	6 3.2 75.0	17 8.9 85.0	33 17.4 64.7	65 34.2 64.4	69 36.3 56.1	190 62.7
Would Not Use in	0 - -	2 3.2 10.0	10 15.9 19.6	21 33.3 20.8	30 47.6 24.4	63 20.8
Do Not Know	2 4.0 25.0	1 2.0 5.0	8 16.0 15.7	15 30.0 14.9	24 48.0 19.5	50 16.5
Total	8 2.6	20 6.6	51 16.8	101 33.3	123 40.6	300 100.0

**Table 6.5 Interest in Multi-media as a Function of Satisfaction With the BC Map**

Count						
Row Pct.						
Col. Pct.	Dislike A Lot	Dislike Some	Neutral	Like Some	Like A Lot	Total
Would Use In Future	5 2.9 62.5	18 10.3 90.0	31 17.7 60.8	57 32.6 55.3	64 36.6 52.9	175 57.8
Would Not Use in	1 1.2 12.5	1 1.2 5.0	11 12.9 21.6	33 38.8 32.0	39 45.9 32.2	85 28.1
Do Not Know	2 5.0 25.0	1 2.5 5.0	9 22.5 17.6	13 32.5 12.6	15 37.5 12.4	40 13.2
Do Not Understand	0 - -	0 - -	0 - -	0 - -	3 100.0 2.5	3 1.0
Total	8 2.6	20 6.6	51 16.8	103 34.0	121 39.9	303 100.0

### 6.2.3 Variables Affecting Interest in Innovative Technologies

This section considers the hypothesis that a respondent's interest in and willingness to pay for alternate formats for delivering tourism information is related to other statements regarding these information technologies. The responses to questions regarding both touch screen and multi-media information systems raise new questions. For example, is interest and/or willingness to pay for one format a useful indication of interest in and/or willingness to pay for the other? Does previous use of touch screen technology increase enthusiasm other applications of this technology? Such relationships are considered for each of touch screen and multi-media, tourism information systems, in the following two sub-sections.

#### 6.2.3.1 Interest in Touch Screen Information Systems (TSIS)

A relationship exists between previous use and interest in future use of touch screen information systems (TSIS) (Table 6.6). Of those respondents expressing an interest in TSIS for tourism information in the future, seventy-eight percent have used such a system in the past. At the same time, sixty-three percent of those who would not use a TSIS for tourism information access in future have not used one in the past.

**Table 6.6 Interest in TSIS as a Function of Past Use**

Count Row Pct. Col. Pct.	Have Used TSIS	Have Not Used TSIS	Do Not Underst.	Not Sure	Total
<i>Would Use In Future</i>	151 78.2 78.2	41 21.2 36.6	0 - -	1 0.5 50.0	193 62.5
<i>Would Not Use in Future</i>	23 35.9 11.9	40 62.5 35.7	1 1.6 50.0	0 - -	64 20.7
<i>Do Not Know</i>	19 36.5 9.8	31 59.6 27.7	1 1.9 50.0	1 1.9 50.0	52 16.8
<i>Total</i>	193 62.5	112 36.2	2 0.6	2 0.6	300 100.0

It is reasonable that past familiarity with a technology will increase interest in it, a finding of relevance when trying to market new information dissemination and presentation technology.

Willingness to pay for TSIS is also found to be related to statements regarding previous and future use of TSIS as a source for tourism information (Tables 6.7 and 6.8). Seventy-nine percent of respondents who express a willingness to pay have used a TSIS in the past. Similarly, of those respondents not willing to pay for TSIS forty-seven percent have not used a TSIS in the past. This too may prove relevant for planners of future tourism information systems especially when discussing target populations and how to market this new tourism information presentation and access technology.

**Table 6.7** Willingness to Pay for TSIS as a Function of Past Use

Count Row Pct. Col. Pct.	Have Used TSIS	Have Not Used TSIS	Do Not Underst.	Not Sure	Total
<i>Would Pay</i>	53 79.1 27.3	14 20.9 12.8	0 - -	0 - -	67 21.9
<i>Would Not Pay</i>	72 51.4 37.1	66 47.1 60.6	1 0.7 50.0	1 0.7 100.0	140 45.8
<i>Might Pay</i>	69 69.7 35.6	29 29.3 26.6	1 1.0 50.0	0 - -	99 32.4
<i>Total</i>	194 63.4	109 35.6	2 0.7	1 0.3	306 100.0

**Table 6.8** Willingness to Pay for TSIS as a Function of Declared Future Use

Count Row Pct. Col. Pct.	Would Use TSIS	Would Not Use TSIS	Do Not Know	Total
<i>Would Pay</i>	65 97.0 33.9	- - -	2 3.0 4.0	67 22.0
<i>Would Not Pay</i>	58 41.4 30.2	58 41.4 92.1	24 17.1 48.0	140 45.9
<i>Might Pay</i>	69 70.4 35.9	5 5.1 7.9	24 24.5 48.0	98 32.1
<i>Total</i>	192 63.0	63 20.7	50 16.4	305 100.0

In terms of declared future interest in TSIS, thirty-four percent of those expressing an interest are also willing to pay for access to tourist information via TSIS, while another thirty-six percent state that they might pay.

#### 6.2.3.2 Interest in Multi-media Information Systems (MMIS)

Bivariate analyses were conducted on interest by respondents in multi-media information systems (MMIS) for accessing tourism information. Variables expected to have possible relationships included *satisfaction with current tourist maps* (See Section 6.2.2), *preference for trip planning strategies*, *purpose of trip*, *previous and future use of TSIS* and *willingness to pay for TSIS*. Those variables which indicated some relationship are discussed below.

The variable of trip planning strategy suggests a very minor relationship (Table 6.9). Respondents were asked to specify a preference for "package" versus "self-guided" holiday planning strategies. Of those who prefer "package holidays" slightly over half would not use a MMIS. While this represents only thirty-three respondents it does support the notion that multi-media is perhaps better suited for those people who take a more active part in planning their holidays.

Experience with touch screen technology appears to be related to interest in multi-media for accessing tourism information (Table 6.10). Only thirty-six percent of those respondents who have *not* used a TSIS are interested in using

a MMIS while seventy percent of those who have used TSIS express an interest in using MMIS. A similar relationship is found to exist for those respondents not interested in MMIS; fifty-seven percent have also not used a TSIS in the past.

**Table 6.9 Interest in Multi-media Among Those Preferring Package Trips**

	<i>Interested in MMIS</i>	<i>Not Interested in MMIS</i>
<i>Expected % from Sample</i>	57.9	27.6
<i>Observed %</i>	36.4	51.5

**Table 6.10 Interest in MMIS as a Function of Past TSIS Use**

<i>Count</i> <i>Row Pct.</i> <i>Col. Pct.</i>	<i>Have Used TSIS</i>	<i>Have Not Used TSIS</i>	<i>Do Not Underst.</i>	<i>Not Sure</i>	<i>Total</i>
<i>Would Use MMIS</i>	135 76.3 70.3	40 22.6 36.0	2 1.1 100.0	- - -	177 57.8
<i>Would Not Use MMIS</i>	37 42.5 19.3	50 57.5 45.0	- - -	- - -	87 28.4
<i>Do Not Know</i>	19 47.5 9.9	20 50.0 18.0	- - -	1 2.5 100.0	40 13.1
<i>Don't Understand</i>	1 50.0 0.5	1 50.0 0.9	- - -	- - -	2 0.7
<i>Total</i>	192 62.7	111 36.3	2 0.7	1 0.3	306 100.0

Familiarity with one type of information technology appears to be related to interest in another type.

This conclusion is verified when exploring interest in using TSIS against interest in using MMIS (Table 6.11). The majority of respondents expressing an interest in TSIS are also interested in MMIS (eighty-one percent), while sixty percent of those expressing no interest in TSIS also express no interest in MMIS. These findings suggest that interest in technology might reflect a general willingness to try innovations in tourism information distribution rather than

**Table 6.11 Interest in MMIS as a Function of Future TSIS Use**

Count Row Pct. Col. Pct.	Would Use TSIS	Would Not Use TSIS	Don't No	Total
<i>Would Use MMIS</i>	143 81.3 75.3	18 10.2 28.6	15 8.5 28.8	176 57.7
<i>Would Not Use MMIS</i>	32 36.8 16.8	38 43.7 60.3	17 19.5 32.7	87 28.5
<i>Do Not Know</i>	14 35.0 7.4	7 17.5 11.1	19 47.5 36.5	40 13.1
<i>Don't Understand</i>	1 50.0 0.5	- - -	1 50.0 1.9	2 0.7
<i>Total</i>	190 62.3	63 20.7	52 17.0	305 100.0

one specific format. 143 respondents express an interest in both formats, a finding that should encourage those interested in developing these new technologies.

Interest in multi-media access to tourism information is also reflected in a willingness to pay for it (Table 6.12). Of those people who express an interest in MMIS, fifty-seven percent are prepared to pay for the service. A further twenty-nine percent do not know if they would pay for multi-media access to tourism information.

**Table 6.12** Willingness to Pay for MMIS as a Function of Interest

Count Row Pct. Col. Pct.	Would Use MMIS	Would Not Use MMIS	Do Not Know	Do Not Underst.	Total
Would Pay	101 98.1 57.1	1 1.0 1.2	1 1.0 2.5	- - -	103 34.2
Would Not Pay	25 21.2 14.1	75 63.6 91.5	18 15.3 45.0	- - -	118 39.2
Do Not Know	51 63.8 28.8	6 7.5 7.3	21 26.3 52.5	2 2.5 100.0	80 26.6
Total	177 58.8	82 27.2	40 13.3	2 0.7	301 100.0

In terms of willingness to pay for innovative technology, there is evidence of some correlation between responses for TSIS and MMIS (Table 6.13). People willing to pay for access

to one technology are also more likely willing to pay for the other. For example, almost seventy-five percent of those respondents who would pay for TSIS would also pay for MMIS. Similar responses occur for those unwilling to pay and those not sure. Again, willingness to pay may be directed towards exposure to or level of comfort with innovative technology in general, rather than for one type of technology specifically. It appears that being able to make the mental leap from the paper map to the computer may be important, rather than the appeal of any specific technology.

**Table 6.13**      **Willingness to pay for MMIS and TSIS**

<i>Count</i>				
<i>Row Pct.</i>				
<i>Col. Pct.</i>	<i>Would Pay for TSIS</i>	<i>Would Not Pay for TSIS</i>	<i>Do Not Know</i>	<i>Total</i>
<i>Would Pay for MMIS</i>	47 45.6 73.4	23 22.3 17.2	33 32.0 33.3	103 34.7
<i>Would Not Pay for MMIS</i>	10 8.5 15.6	84 71.8 62.7	23 19.7 23.2	117 39.4
<i>Do Not Know</i>	7 9.1 10.9	27 35.1 20.1	43 55.8 43.4	77 25.9
<i>Total</i>	64 21.5	134 45.1	99 33.3	297 100.0

#### 6.2.4 Variations Based on Profile Characteristics

This section considers the possibility variation in responses result from variations in gender, age, residence or employment status. Each profile characteristic is considered individually in the following sub-sections. The following discussions highlight a few specific examples of minor variations.

##### 6.2.4.1 Variations as a Function of Gender

Gender is not found to play an important role in variation in the data overall, however some minor variations exist. In terms of familiarity with BC and PEI the only variation from the roughly 66%-33% male-female sample proportions occurs among those not familiar with BC. In this case, the proportions of male and female respondents are almost evenly split, suggesting a proportionately greater lack of familiarity with B.C. among female respondents (Table 6.14). It is impossible to say why this is without further study, although one could speculate on a greater likelihood to travel among the men in the sample.

**Table 6.14 Gender Variations Among Respondents Not Familiar With BC**

	<i>Female</i>	<i>Male</i>
<i>Expected % from Sample</i>	31.9	66.2
<i>Observed %</i>	46.2	50.5

With respect to questions regarding alternate formats for delivering tourism information, gender is found to have little or no effect on the responses. Respondents who do not know, regarding an interest in multi-media, are the exception. Here, the proportion of male and female responses is more evenly split (Table 6.15).

**Table 6.15      Gender Variations Among Respondents Who Were Unsure About Interest in Multi-media**

	<i>Female</i>	<i>Male</i>
<i>Expected % from Sample</i>	32.0	66.3
<i>Observed %</i>	43.9	53.7

#### 6.2.4.2      Variations as a Function of Age

In terms of familiarity with BC, almost half of all respondents not familiar are in the "25 to 39" age category (Table 6.16). This seems a likely function of younger travellers having less overall travel experience and knowledge.

**Table 6.16      Age Variations Among Respondents Unfamiliar with BC**

	<i>25-39 Age Group</i>
<i>Expected % from Sample</i>	33.0
<i>Observed %</i>	46.7

Over half of respondents in the "25 to 39" age category feel that there is missing information on either of the maps (Table 6.17). At the same time over seventy percent of respondents in the "60 and up" category feel that there is no information missing. One might conclude that younger people look for more information. Alternatively, the information requirements of younger, likely more active, respondents may be more varied. Nevertheless, almost half of the respondents noting unnecessary information on the maps are also in the "25 to 39" age group. One conclusion might be that special purpose maps are better suited to the needs of this younger age group.

Sixty percent of respondents aged 60 or older like the BC Map "a lot". Perhaps the requirements of this age group are more in keeping with the traditional functions of provincial maps as tools for orientation or perhaps they have had more experience using them.

**Table 6.17      Age Variations in Responses Citing Missing Information**

	<i>25-39 Missing</i>	<i>60 and up Not Missing</i>
<i>Expected % from Sample</i>	39.9	59.8
<i>Observed %</i>	51.0	73.4

Fifty-nine percent of respondents in the "60 and up" age group have not had experience with touch screen technology (Table 6.18). This is reasonable given that older people are less exposed to new technology.

**Table 6.18**      **Past Use of TSIS Among Respondents Aged 60 and Up**

	<i>Have Used</i>	<i>Have Not Used</i>
<i>Expected % from Sample</i>	62.3	36.4
<i>Observed %</i>	40.9	59.1

Regarding future TSIS use, the results are similar. Of all respondents aged 60 or older, only one-third are interested in using TSIS (Table 6.19). At the same time, among respondents aged "25 to 39," the proportion who would use TSIS to access tourist information is twelve percent greater than the sample proportions suggest.

**Table 6.19**      **Age Variations Among Those Interested in Using TSIS**

	<i>25 to 39</i>	<i>60 and Up</i>
<i>Expected % from Sample</i>	62.2	62.2
<i>Observed %</i>	74.8	39.4

The age related observation mentioned above holds true regarding willingness to pay for access to TSIS. Of people aged 60 or older, sixty percent are unwilling to pay for a TSIS (Table. 6.20). The same relationship is evident for payment for MMIS, where a value of sixty-five percent is noted. In both cases there is a corresponding increase in willingness to pay on the part of the "25 to 39" age group.

**Table 6.20 Respondents Aged "60 and Up" Who are Unwilling to Pay for TSIS or MMIS**

	<i>TSIS</i>	<i>MMIS</i>
<i>Expected % from Sample</i>	45.7	39.5
<i>Observed %</i>	60.3	64.5

Responses regarding multi-media access to tourist information further verify these observations (Table 6.21). Forty-five percent of those respondents not interested in multi-media are aged 60 and older while forty-four percent of those interested in multi-media are "25 to 39".

**Table 6.21 Interest in Multi-media as a Function of Age**

	<i>Interested</i>		<i>Not Interested</i>	
	<i>25 to 39</i>	<i>60 and Up</i>	<i>25 to 39</i>	<i>60 and Up</i>
<i>Expected % from Sample</i>	33.2	21.5	33.2	21.5
<i>Observed %</i>	43.5	10.2	14.9	44.8

These results suggest that age does have some bearing on familiarity with a province and satisfaction with a map. More importantly, the discovery that willingness to try new technologies and to pay for them is limited among older respondents, suggests that age ought to be considered when planning tourist information systems using TSIS or MMIS.

#### 6.2.4.3 Variations as a Function of Location of Residence

Geographic theory suggests that familiarity with an area will decrease with distance of residence from that area. This is generally found to be true for the survey sample. The majority of respondents who are "somewhat" or "very familiar" with BC are from Canada and the Western United States. No respondents from the Eastern United States or other nations stated that they are "very familiar" with BC.

Familiarity with the PEI Map as a function of residence, was anticipated to be lower, given the great distance between PEI and the survey site. Indeed, only eight respondents from outside Canada are at all familiar with PEI. Concerning Canadian respondents, a pattern of decreasing familiarity with distance can be noted, with Western Canadian residents being less familiar with PEI than those from the East.

#### 6.2.4.4 Variations as a Function of Employment Status

A greater proportion of retired persons than the sample proportions would suggest like both maps a lot (Table 6.22).

Again, this may be a reflection of more habitual or conventional uses of the maps by older respondents.

**Table 6.22 Retired Respondents Who Liked Both Maps A Lot**

	<i>BC Map</i>	<i>PEI Map</i>
<i>Expected % from Sample</i>	40.3	49.1
<i>Observed %</i>	64.3	65.0

Retired persons are proportionately less willing to pay for either TSIS or MMIS, corresponding to the "60 and Up" age group described earlier. In each case, roughly two-thirds of retirees are against payment.

Interest in multi-media access to tourism information shows the greatest variation (Table 6.23) with over half of all retired respondents reporting they would not use a MMIS. At the same time, the proportion of employed persons who are interested in using a MMIS is relatively greater.

**Table 6.23 Interest in MMIS by Employment**

	<i>Employed</i>		<i>Retired</i>	
	<i>Interested</i>	<i>Not</i>	<i>Interested</i>	<i>Not</i>
<i>Expected % from Sample</i>	57.9	27.6	57.9	27.6
<i>Observed %</i>	68.4	18.7	31.0	54.9

Employment variations parallel age group variations. It is not possible to determine how employment may have affected suggested fees for tourism information technology. Once suggested fees are broken down into employment or vehicle categories, the number of observations in individual cells is too small for meaningful interpretation.

### **6.2.5 Media Types and Analytic Capabilities**

This section explores the hypothesis *that certain media types or analytic capabilities within a multi-media tourism information system are preferred in combinations.*

#### **6.2.5.1 Preferred Combinations of Media Types**

Respondents were asked to select the media types which they would prefer to see in a future multi-media tourism information system (*video, maps, tables, photos, voice, music/sound, and other*). Knowing which media types are chosen more frequently will allow developers of a multi-media systems to prioritize the inclusion of different media.

In response to this question, 249 respondents offer preferences. Multiple responses occur in a majority of these cases. Pairs of media types most often requested include *video with map and tabular data*; forty-three and forty-four percent of all respondents respectively. Other frequently requested pairings include *maps with photos* and *tables and photos with tables* (Table 6.24).

**Table 6.24 Most Requested Pairs of Media Types**

N=317	Video	Maps	Photos	Tables	Voice	Music	Other
Video	-	137	91	141	72	31	3
Maps		-	118	193	87	29	5
Photos			-	118	63	26	5
Tables				-	87	31	6
Voice					-	31	3
Music						-	2
Other							-

The most frequent multiple responses include three or four media types (Table 6.25). It would appear that people are specifically interested in certain media or perhaps they feel that five or more sources of information at once is too confusing. There are variations even among those respondents who favour four media types. Of the seventy-one respondents who prefer four media types for inclusion in a multi-media system, thirteen different combinations are given. The combination of *videos, maps, photos and tables* is the most common, accounting for almost half of these seventy-one responses.

Hence, video, maps, photographs and tables should be among the primary features offered in a multi-media tourism information system. Perhaps sound, music, narration and other options can be phased in gradually as the development of these information systems proceeds.

**Table 6.25**      **Number of Media Types Requested**

<i>Medium</i>	<i>Frequency</i>	<i>%</i>	<i>Combinations</i>
1	10	4	4
2	47	19	9
3	73	29	10
4	71	28	13
5	29	12	5
6	17	7	1
7	2	1	1

---

n=249      100%

#### 6.2.5.2 Analytic Capabilities Preferred in Combination

Respondents were also presented with a list of potential analytic capabilities which could be made available within a multi-media tourism information system. This list included *route selection, creation of itineraries, time/distance calculations, reservations, map creation, destination selection, and other*. Knowing which combinations of analyses were most preferred would assist developers of a multi-media system to prioritize system options.

Almost the same number of respondents offer preferences for analyses as do for media types (247) and multiple responses are common. In this case, there are no particular pairs which stand out in terms of preference (Table 6.26).

Analytic capabilities are more frequently preferred in larger combinations than are media types (Table 6.27). No clear groupings of analytical capabilities emerge, however. The only conclusion that can be drawn is that respondents

appear to be interested in a range of capabilities, and that this should be acknowledged in the design of a future MMIS; more in-depth research is clearly required.

**Table 6.26 Most Requested Pairs of Analyses**

<i>N=317</i>	<i>Route</i>	<i>Itin.</i>	<i>T/Dist.</i>	<i>Reserve</i>	<i>Maps</i>	<i>Destin.</i>	<i>Other</i>
<i>Route</i>	-	155	181	161	140	159	1
<i>Itineraries</i>		-	138	131	110	124	2
<i>Time/Distance</i>			-	147	127	141	2
<i>Reservations</i>				-	122	133	1
<i>Create Maps</i>					-	112	1
<i>Select Destinations</i>						-	2
<i>Other</i>							-

**Table 6.27 Number of Analyses Requested**

<i>Number</i>	<i>Frequency</i>	<i>%</i>	<i>Combinations</i>
1	9	4	6
2	22	9	11
3	39	16	17
4	50	20	12
5	52	21	5
6	75	30	1
7	0	-	-

---

n=247

100%

### 6.3 CHAPTER SUMMARY

This chapter has explored bivariate relationships in the data gathered. A number of interesting findings have emerged. First, the most significant factors affecting interest in

alternative formats of tourism information technology appear to be related to past use of the technology or interest in similar types of technology. For example, in this survey interest in touch screen and multi-media are found to be positively related. Willingness to pay for either touch screen or multi-media tourism information delivery also appears to be positively related to interest.

Second, profile characteristics appear to exert little overall impact on responses, with the exception of age. Generally, older respondents appear less interested in and less willing to pay for innovative tourism information systems. This is also reflected in the responses of retired versus employed respondents.

Finally, there appears to be some preference for specific groupings of media formats within a multi-media tourism information system, while preferences for analytic capabilities are not as clearly expressed. Videos, maps, photos and tables are the most preferred formats for tourism information delivery among multiple responses.

A number of other variables were explored for possible bivariate relationships. Among these: trip planning strategies, holiday types and knowledge and use of the BC Tel 1-800 telephone number. No correlations worthy of note were identified.

## CHAPTER SEVEN

### DISCUSSION AND SUMMARY

#### 7.1 INTRODUCTION

The objective of this research is to make suggestions for a future map-based multi-media tourism information system which would assist the decision making process of tourists when planning and executing a trip. To achieve this goal a detailed content analysis of current tourist mapping and information trends at the provincial scale was undertaken. Subsequently, a pilot user survey was undertaken to solicit tourists' reactions to a sample of tourist maps, and to gather tourists' reactions to alternative media formats for tourism information dissemination. Finally, technological advances in digital mapping, spatial data analysis and information presentation were introduced and evaluated in an attempt to assess if these technology will meet the public's tourist information needs. Combined, these components provide a useful resource for future tourist map initiatives, both as a reference for other paper map makers to consult and as base of knowledge for pursuing digital tourist map research.

More specifically, the research has investigated the following questions:

- ◆ What features are currently accepted as standard on Canadian provincial tourist maps, what level of importance are attributed them by map makers, publishers, and users? Do standards change through time?
- ◆ What information items and analytical capabilities do tourists expect from a digital tourism map information system, including potential multi-media capabilities?
- ◆ Can contemporary capabilities of GIS, SDSS, and multi-media meet the user expectations identified in question two?

This chapter commences with a summary of the highlights of the research findings. Next, the implications of these findings to the state-of-the-art and future provincial tourist map contents and design are discussed. Then, the concept, design, and delivery of a digital multi-media tourist information product are examined. Finally, the chapter concludes with a set of recommendations for future research.

## **7.2 STUDY HIGHLIGHTS**

Chapter Two identified a paucity in the published literature on tourist maps. What little research exists focuses on problems such as tourist map symbology and scale.

A clear lack of consensus regarding tourist map symbology is identified.

Comparison of the twenty-four official Canadian tourist maps confirms the literature's conclusion with respect to tourist map symbology. Choice of symbols and methods of data classification on provincial tourist maps were found to be highly inconsistent. Doubtless, this lack of consensus confuses and possibly annoys the traveller who must shift from one frame of reference to another with each provincial border crossed.

At present no one scale exists for Canada's official provincial tourist maps. Nevertheless, variation in scale is one evil that must be accepted given the differences in areal coverage for the Canadian provinces in conjunction with the inherent limitations in traditional paper map production.

The map comparison exercise illustrated that scale significantly affects layout and content of current provincial tourist maps in Canada, resulting in some marked variations between maps. Unavoidable with paper maps, this variation could possibly be addressed as tourist information delivery adapts to include digital visualization media.

Assuming that the digital revolution will allow tourists to switch between a number of scales as required, the question emerges as to what set of scales should be supported? The map user survey provided some insight into scale preferences, indicating that no one scale can adequately meet the needs and

wants of most map users. Thus, considerable further research is required.

What little literature exists regarding tourist maps suggested that a number of factors might influence the success or failure of a particular tourist map; for example, familiarity with an area, age, and the tourists' personality. Bivariate analyses of data failed to confirm these suggestions. In this study, it was found that the factors of age, gender, familiarity with a province, purpose of trip, holiday preference, trip planning strategies, employment, and residence exert very little influence. None were found to affect statements of overall satisfaction with the maps.

Nevertheless, the limitations and possible biases of the sample suggest that further research into the effects of these intangible influences is warranted. Perhaps more direct, specific questions would illicit the information, perhaps a larger sample would yield different findings, perhaps other variables not collected would be relevant, or perhaps there are no relationships to discover.

The discussion of alternative mapping technologies available today revealed that the techniques which afford the greatest immediate potential to a digital tourist information system initiative can be identified. GIS, SDSS and virtual reality are rejected as being premature in the mid 1990's due to unresolved development issues, high costs, extensive hardware and software requirements, and lack of widespread,

accessible distribution to date. Digital mapping, multi-media and hyper-media hold the greatest promise in the mid 1990's as these technologies can be made readily available, accessible, and affordable for most travellers.

A comparison of twenty-four provincial tourist maps in Canada provided an illustration of the state-of-the-art in Canadian official provincial tourist maps. There is some consistency in general design and information content among the maps; all maps are printed on both sides, most use a concertina folding, most place the main map on the front often with legend, index and distance matrix detail for easier correlation. An overall sense of logic exists in the use of insets, with more specific insets relegated to the reverse side, and little use of speciality insets. Use of photographs is somewhat variable between maps and advertisements are very rare. Text information also shows consistency, with most maps placing the bulk of text on the reverse side. Despite these commonalities, the twenty-four maps were noted to differ considerably in appearance, look, and character.

All maps place the highest priority on transportation detail, but the breadth of coverage of this subject was found to vary considerably. Variability in detail was similarly found for other types of information, including topographic, tourist, parks and service. Classification schemes, layout and focus were found to be highly diverse among the twenty-four maps. Of course, the scale of each map affects the

presentation of all these features and ultimately results in very different visual products. Nevertheless, there are no concrete tourist map standards in Canada at present.

The pilot map user survey redresses the lack of user feedback studies regarding tourist maps, as noted in Chapter Two. The results of this pilot survey yielded some interesting preliminary results with respect to user satisfaction and expectations of tourist maps as well as user interest in alternative formats for tourism information delivery.

Map users appeared to be generally satisfied with the two maps examined. Nevertheless, comments regarding general, missing, and unnecessary information warrant some scepticism about true user satisfaction; definite opinions were expressed, very often conflicting and broad-ranging. That there was no definite preference for two very different maps suggests that people's expectations and requirements of tourist maps are neither unanimous nor explicit. In LeBlanc's (1988) study, experts also expressed ambivalence about the maps. This finding lends credence to the use of user feedback surveys as a method for establishing what map users want and whether they are happy with what they have. Indeed, further research ought to be conducted to isolate sub-groups of tourists who have similar tourist map likes and dislikes so that these sub-groups can be targeted with customized tourist information products using digital technology and multi-media.

Despite this divergence in opinions, this study did manage to identify some specific features which may be improved or discarded on future tourist maps (See Section 5.5.6).

Pilot survey results indicate a definite base of interest in innovative techniques for delivering tourism information. Largely, this interest is related to familiarity with and past use of the technologies. Willingness to pay for these innovative techniques narrows the scope of this interest somewhat. Regardless, the results are encouraging since they suggest that, as the technologies become increasingly popular and widespread, so too will support for them.

With respect to media formats many respondents feel that too much technology may cause a sort of "information overload". Accordingly, the old cliché "keep it simple" is appropriately applied to advanced digital tourism information systems.

Respondents are interested in a wide range of query and analysis capabilities. Thus, those who show an interest in innovative methods of tourist information delivery are prepared to take advantage of the technology's potential.

The age composition of the sample was biased obtained towards older respondents indicating that future sampling of younger age groups might provide additional insight. In this study, however, the age of respondents was reflected in interest in alternate format tourism information technologies; that is, older respondents were less enthusiastic. In a

younger sample unfamiliarity with and thus resistance to new technologies might be lower. This is encouraging news indeed for the proponents of digital tourism information delivery alternatives.

### **7.3 IMPLICATIONS FOR PROVINCIAL TOURIST MAPPING**

A number of potential implications for future provincial tourist mapping initiatives are indicated by the findings reported in this study. One may ponder the question whether a uniform format ought to be adopted for provincial tourist maps across Canada? After all, internationally agreed upon standards exist for navigational marine charts and aeronautical charts and automobile clubs publish maps with uniform formats.

From the research results reported here, it seems questionable whether tourist map standardization is even possible given reported disparities of scale due to variations in the sizes of Canada's provinces and territories. Furthermore, each province tourism officials have a different vision of what and how they want to present information.

Nevertheless, the survey results suggest specific positive and negative aspects which may help to prioritize areas of focus for future provincial mapping agendas. Scale was one issue which respondents had some particular opinions about. Provinces may choose to address one scale perspective

or perhaps they can investigate some of the alternatives for multiple scales discussed earlier. Further research ought to be conducted to shed more light on the issue of what would comprise a standard set of appropriate scales, and for what purposes.

Should tourist maps adopt a more uniform scheme for classifying and symbolizing data? Variations in data classification and symbology across Canada were found to be remarkable. Whether it is via the creation of standards or more realistically, through inter-provincial collaboration regarding classification schemes, the obvious benefits for the map users gained through standardized classification suggest that this is one area where provincial tourist mapping efforts ought to focus their attention. Needless to say, considerable further research is required to settle data classification and symbolization practises.

From the numerous comments collected through the user survey it seems clear that map users have a great deal to say about provincial tourist maps. Nevertheless, the pilot survey was limited to two maps and only gives an impression of the types of concerns people have.

The provinces should recognize the importance of user feedback and solicit more user input. Market research is a valuable tool, especially today when economics and society dictate that the tax payers' resources be put to the best possible uses. Knowing what map users want and need can only

improve the effectiveness of future tourist maps, whether analogue or digital.

Finally, provinces ought to look into innovative tourist information delivery technologies as new ways of communicating information. By default, these technologies may help offset problems such as those associated with contemporary analogue map scale constraints. The eventual adoption of these digital techniques to tourist information delivery is inevitable. Those regions of the world which accept and embrace this eventuality will no doubt have a greater competitive advantage in a highly competitive tourist market.

Little doubt exists that innovative digital technologies can augment the value of the tourist map both as a source of and as a key to tourism information. Acceptance of digital technology will allow us to circumvent some of the constraints of the paper map, notably those of scale and the fact that the paper map is all too soon out-of-date. Nevertheless, embracing this digital revolution will no doubt, bring with it new problems as yet unrecognized.

#### **7.4 RECOMMENDATIONS FOR INNOVATIVE TECHNOLOGICAL TOURISM INFORMATION DELIVERY INITIATIVES**

The objective of the research has been to make suggestions for the design of a future map-based multi-media tourism information system to assist in the decision making process of tourists when planning and executing a trip.

Towards this goal, this study has attempted to get an impression of map users' reactions towards alternative formats for delivering tourism information.

The conclusion, unfortunately, is that more work is required before definitive answers can be put forth concerning the design and delivery of innovative multi-media tourism information systems. While this survey was a solid first step, the sample was too small and potentially too biased to reach definitive conclusions that would merit the investment of considerable resources towards the design and implementation of such a system.

In a discussion of marketing for home interactive media systems Wilson (1988:17) describes the challenge that lies ahead. "Because there is no evidence, to date, of consumer or citizen need for these systems, markets will have to be created and cultivated." This certainly holds true for the design and delivery of a multi-media tourism information system. The providers of multi-media technology will have to prove to tourists that their experiences can be enhanced through the use of this new technology.

The problem is that not everyone is going to view the effects of technology as enhancing or beneficial. There are a number of impacts associated with both the technology and the increased access to tourism resources that it promises. Will people be interested in paying for information which was previously free, simply to gain access to these new

presentation media? Will this access lead to overuse of tourism resources? Cultivating a market will require a change in attitudes towards travel planning on the part of tourists. Traditional sources of travel information are trusted and established, and the majority of people don't like change. It will surely take time to convince people of the benefits to be gained by embracing this new tourism information delivery technology. The research undertaken in this thesis would indicate that a base of interest exists, however, the agencies providing the technology will have to establish what media formats to use, what information to include, and what query and analysis capabilities to support.

The research reported suggests some starting points towards this end. Logic dictates that a digital tourist mapping agenda can only benefit from the assessment of and reaction towards current practice presented in the previous chapters.

Nonetheless, the inclusion of specific media, information, and functions will depend such factors as cost, feasibility, access to data, and issues regarding control. To provide the range of data requested by users surveyed in this study alone would involve the co-operation of numerous groups within the tourism industry. Coordinating this involvement will require extensive planning and, perhaps, a re-thinking of how the tourism industry is organized at present.

## 7.5 RECOMMENDATIONS FOR FURTHER RESEARCH

The study of tourist maps has been neglected in the published literature both, in cartography and tourist studies. Research conducted and reported in this study represents a starting point towards a tourist map and tourist research agenda. Further research is required on a number of issues which are identified here.

With respect to the current tourist maps, the development of general classification and symbology schemes for tourism information is required. While obscure or speciality features will no doubt remain in use, general tourist features would benefit from consistency in data classification and symbolization.

Further research regarding user satisfaction with existing tourist maps is suggested. User reactions to the other ten official tourist maps in Canada would be useful, especially given the diversity of styles noted on the maps. It would be both fascinating and useful to get user's reactions to the old and revised tourist maps of Nova Scotia, given their shift in emphasis. Why did Nova Scotia abandon what many claimed to be a leading initiative in innovative presentation of tourist maps?

Future research should identify sub-groups with respect to tourist map likes and dislikes. It should investigate correlations between tourist map preferences and tourist typologies that have been recognized in the tourism literature

such as the *organized mass tourist* and the *explorer* (Cohen, 1972). Similarly, the intangible factors which influence user attitudes must be investigated further. The fact that in this study few such factors were found to hold any influence does not definitively reflect a lack of importance. Rather it suggests the need for more directed research approaches to reveal possible relationships.

In terms of alternative formats for delivering tourism information, considerable further research is required. How and in what format and packaging digital tourism information would be most appealing to tourists remains unknown. This study has provided the impetus for further research by suggesting that considerable tourist interest in innovative technologies does exist. How this interest can be manifested in a multi-media tourism information system remains to be seen.

Ultimately, the adoption of multi-media technology within the tourism industry will take place. The hardware and software solutions exist today although clearly, a number of issues remain to be resolved. The potential for technology to change how tourist maps are perceived is great. Whether or not these changes are desirable is arguable, but they are certainly worth exploring. This is a research agenda which stands to benefit cartographers, tourism planners and tourists alike.

## LITERATURE CITED

- Aangeenbrug, R.T. (1991) "A Critique of GIS", in GIS: Principles and Applications. London: Longman, pp. 101-107.
- Abrahamson, M. (1983) Social Research Methods. Englewood Cliffs: Prentice-Hall.
- Ahner, A.L. (1993) "Modern Cartography Plays Essential Role In GIS", GIS World, October, 1993, pp. 48-50.
- Andersen, A. & Co. (1988) "Technology in the Tourism Industry", report presented to the National Conference on Tourism, Culture and Multiculturalism, April 17-19, 1988, Montreal.
- Anderson, J. M. (1977) "Map User Research and Modern Road Map Design", The Canadian Surveyor, March, 1977, pp. 52-64.
- Antenucci, J.C., K. Brown, P. Croswell, M.J. Kevany and H. Archer (1991) Geographic Information Systems: A Guide to the Technology. New York: Van Nostrand Reinhold.
- Aronoff, S. (1989) Geographic Information Systems: A Management Perspective. Ottawa: WDL Publications.
- Asche, H. and C.M. Herrmann (1993) "Electronic Mapping Systems: A Multimedia Approach to Spatial Data Use", 16th International Cartographic Conference, May 3-9, 1993, Cologne, Germany, Proceedings 1, pp. 1101-1107.
- Astley, R.W. (1969) "A Note on the Requirements of Road Map Users", Cartographic Journal, 6(2), pp. 130.
- Backstrom, C.H. and G. Hursh-Cesar (1981) Survey Research. New York: Macmillan Publishing Company.
- Blok, C. (1987) "Testing Symbols on a Dutch Tourist Map", ITC Journal, 1, pp. 67-71.
- Brannon, G. (1989) "The Artistry and Science of Map-Making", Geographical Magazine, September, 1989, pp. 38-40.
- Brannon, G. (1991) "Is Map Design a Lost Art?", The Bulletin of the Society of Cartographers, 25(2), pp. 7-8.
- British Tourist Authority (1978) "Symbols for Tourist Guides and Maps and Countryside Recreation". London: British Tourist Authority, 40 pp.

- Bruce, M. (1987) "New Technology and the Future of Tourism", Tourism Management, 8(2), pp. 115-120.
- Burrough, P.A. (1986) Principles of Geographical Information Systems for Land Resources Assessment. Oxford: Clarendon Press.
- Butler, R.W. (1974) "The Social Implications of Tourist Developments", Annals of Tourism Research, 2(2), pp. 100-110.
- Buttenfield, B.P. and W.A. Mackaness (1991) "Visualization", in GIS: Principles and Applications. London: Longman, pp. 427-443.
- Bylinsky, G. (1989) "Managing With Electronic Maps", Fortune, April 24, 1989, pp. 237-254.
- Clarke, L.M. (1989a) "An Experimental Investigation of the Communicative Efficiency of Point Symbols on Tourist Maps", The Cartographic Journal, 26, December, 1989, pp. 105-110.
- Clarke, L.M. (1989b) "Recreational Mapping at a Tourist Attraction: An Experimental Map Evaluation Involving User Feedback", The Bulletin of the Society of Cartographers, 22(2), pp. 13-18.
- Cohen, E. (1972) "Toward a Sociology of International Tourism", Social Research, 39, pp. 64-82.
- Cohen, E. (1984) "The Sociology of Tourism: Approaches, Issues, and Findings", Annual Review of Sociology, 10, pp. 373-392.
- Coppock, J.T. and D.W. Rhind (1991) "The History of GIS", in GIS: Principles and Applications. London: Longman, pp. 21-43.
- Crouch, G.I. (1991) "Expert Systems in Tourism: Emerging Possibilities", Journal of Travel Research, 29(3), pp. 3-10.
- Davies, K. (1986) "A Venture into Tourist Mapping", Cartography, 15(1), pp. 36-43.
- Davis, J.S. and R.S. Deter (1990) "Hypermedia Application: Whole Earth Decision Support System", Information and Software Technology, 23(7), pp.491-496.
- Day, C.O. (1986) "Putting Your Business on the Map", PC Magazine, September 30, 1986, pp. 219-234.

- Denno, N. and R.K. Brail (1993) "Decision Support Systems Offer Organizational Efficiency for Transportation Planning", GIS World, June, 1993, pp. 40-45.
- Densham, P.J. (1991) "Spatial Decision Support Systems", in GIS: Principles and Applications. London: Longman, pp. 403-412.
- Essex, S. (1992) "The Use of Maps in Tourism Marketing and Management", The Bulletin of the Society of Cartographers, 26(1), pp. 1-10.
- Farrell, B. (1987) "Map Evaluation", in World Mapping Today. London: Butterworths, pp. 27-34.
- Forer, P. (1993) "Envisioning Environments: Map Metaphors and Multimedia Databases in Education and Consumer Mapping", 16th International Cartographic Conference, May 3-9, 1993, Cologne, Germany, Proceedings 2, pp. 959-981.
- Forrest, D. and H.W. Castner (1985) "The Design and Perception of Point Symbols for Tourist Maps", The Cartographic Journal, 22, pp. 11-19.
- Freitag, U. (1987) "Maps for Tourists: A Systematic Approach to Tourist Cartography", Nachrichten aus dem Karten- und Vermessungswesen, 46, 1987, pp. 213-219.
- Gamble, P.R. (1988) "Tourism Technology: Developing Effective Computer Systems", Tourism Management, 9(4), pp. 317-325.
- Gerber, R., P. Burden and G. Stanton (1990) "Development of Public Information Symbols for Tourism and Recreational Mapping", The Cartographic Journal, 27, pp. 92-103.
- Goodchild, M.F. (1988) "Stepping Over the Line: Technological Constraints and the New Cartography", The American Cartographer, 15(3), pp. 311-319.
- Hocking, D. (1991) "Explorations into Design and Content for a New Provincial Atlas of British Columbia Incorporating Digital Technology and a User Survey, unpublished M.A. thesis. Victoria: Department of Geography, University of Victoria.
- Hocking, D., C.P. Keller and C. Peterson (1991) "Thematic Content of Canadian Provincial Atlases", Cartographica, 28(2), pp. 38-50.
- Hocking, D. and C.P. Keller (1992) "A User Perspective on Atlas Content and Design", The Cartographic Journal, 29, pp. 109-117.

- Hocking, D. and C.P. Keller (1993a) "Alternative Atlas Distribution Formats: A User Perspective", Cartography and Geographic Information Systems, 20(3), pp. 157-166.
- Hocking, D. and C.P. Keller (1993b) "Analysis of State and Provincial Atlas Reviews", Professional Geographer, 45(1), pp. 73-83.
- Holsti, O.R. (1969) Content Analysis for the Social Sciences and Humanities. Menlo Park, California: Addison-Wesley Publishing Co..
- Keller, C.P. and R.W. Butler (1990) "Tourism Mapping: Past, Present and Future". Paper prepared for the Annual Meeting of the Association of American Geographers, Toronto, April, 1990.
- Keller, C.P. and Nigel M. Waters (1991) "Mapping Software for Microcomputers", in Geographic Information Systems: The Microcomputer and Modern Cartography, D.R.F. Taylor ed., Toronto: Pergamon Press, chapter 6, pp. 97-128.
- Keller, C.P. and J.D. Strapp (1993) "Design of a Multi-Criteria Decision Support System for Land Reform Using GIS and API", 2nd International Conference/Workshop on Integrating Geographic Information Systems and Environmental Modelling, September 26-30, 1993, Breckenridge, Colorado, ringbound proceedings.
- Kent, R.B. and T.J. Tobias (1990) "State Atlases: Funding Sources and Thematic Content", Professional Geographer, 42(3), pp. 313-323.
- Kidder, L. (1981) Research Methods in Social Relations. New York: Holt, Rhinehart and Winston.
- Kindleberger, C.P. and T. Meyers (1993) "Local Governments Tap Affordable Multimedia Applications", GIS World, June 1993, pp. 46-50.
- Kirby, R.P. (1970) "A Survey of Map User Practices and Requirements", The Cartographic Journal, 7(1), pp. 31-39
- Kolacney, A. (1969) "Cartographic Information - A Fundamental Concept and Term in Modern Cartography", The Cartographic Journal, 6(1), pp. 47-49.
- LeBlanc, C. (1988) "A Survey of Tourism/Highway Maps in Canada". Paper presented at the Canadian Cartographic Association Conference, Toronto, May, 1988.
- LeBlanc, C. (1994) Personal Communication.

- Li, L. (1987) "GIS for the Tourism Professional", in GIS '87, San Francisco. Second Annual International Conference: Exhibits and Workshops on GIS, Vol. 2, October 26-30, 1987.
- Maguire, D.J. (1991) "An Overview and Definition of GIS", in GIS: Principles and Applications. London: Longman, pp. 9-20.
- Mariot, P. (1978) "Problems of the Cartographic Representation of Tourism" in Studies in the Geography of Tourism and Recreation. Vienna: Hirt, pp. 110-116.
- Martin, W.J. (1988) The Information Society. London: Association for Information Management.
- Marles, A.C. (1984) "Identifying and Meeting Map User Needs", Cartographica, Monograph 31, 21(1), pp. 135-138.
- McGrath, G. and R.P. Kirby (1969) "Survey Methods on the Use of Maps and Atlases", Canadian Cartographer, 6(2), pp. 132-148.
- Monmonier, M.S. (1991) How to Lie With Maps. Chicago: The University of Chicago Press.
- Monmonier, M.S. (1985) Technology Transition in Cartography. Madison: University of Wisconsin Press.
- Monmonier, M.S. (1984) "Geographic Information and Cartography", in Progress in Human Geography, chapter 8, pp. 381-391.
- Moser, C.A. and Kalton, G. (1971) "Question Wording", in Survey Methods in Social Investigation, chapter 13. London: Heinemann Educational Books, pp. 318-331.
- Murphy, P.E. (1985) Tourism: A Community Approach. New York: Methuen & Co. Ltd..
- Noyes, L. (1979) "Are Some Maps Better Than Others?", Geography, 64, pp. 303-306.
- Openshaw, S. and H. Mounsey (1987) "Geographic Information Systems and the BBC's Domesday Interactive Videodisk", International Journal of Geographical Information Systems, 1(2), pp. 173-180.
- Oppenheim, A.N. (1966) "The Quantification of Questionnaire Data", in Questionnaire Design and Attitude Measurement, chapter 9. London: Heinemann Educational Books, pp. 227-248.

- Pearce, D. (1979) "Towards a Geography of Tourism", Annals of Tourism Research, 6, pp. 245-266.
- Poon, A. (1988) "Tourism and Information Technologies", Annals of Tourism Research, 15, pp. 531-549.
- Raveneau, J., M. Miller, Y. Brousseau and C. Dufour (1991) "Micro-Atlases and the Diffusion of Geographic Information: An Experiment with HyperCard", in Geographic Information Systems: The Microcomputer and Modern Cartography, D.R.F. Taylor ed., Toronto: Pergamon Press, chapter 10, pp. 201-223.
- Robbins, R.G. (1993) "The Automobile Association's Digital Database of Europe", 16th International Cartographic Conference, May 3-9, 1993, Cologne, Germany, Proceedings 1, pp. 85-92.
- Robinson, A.H., R.D. Sale, J.L. Morrison and P.C. Muehrcke (1984) Elements of Cartography, fifth edition. Toronto: John Wiley & Sons.
- Schulman, R.D. (1994) "Portable Systems Increase Productivity, Profits and Pleasure", GIS World, January, 1994, pp.48-53.
- Sheldon, P.J. (1993) "Destination Information Systems", Annals of Tourism Research, 20, pp. 633-649.
- Shepherd, I.D.M. (1991) "Information Integration and GIS", in GIS: Principles and Applications. London: Longman, pp. 337-357.
- Sheskin, I.M. (1985) Survey Research for Geographers. Washington D.C.: The Association of American Geographers.
- Slocum, T.A. and S.L. Egbert (1991) "Cartographic Data Display" in Geographic Information Systems: The Microcomputer and Modern Cartography, D.R.F. Taylor ed., Toronto: Pergamon Press, chapter 9, pp. 167-199.
- Stefanovic, P. (1987) "The Many Faces of Cartography", ITC Journal, 1987(1), pp. 93-97.
- Strapp, J.D. (1992) "A Spatial Decision Support System for Agricultural Land Consolidation", unpublished M.Sc. thesis. Victoria: Department of Geography, University of Victoria.
- Sykes, J.B. (ed) (1982) The Concise Oxford Dictionary of Current English. Oxford: Oxford University Press.

- Taylor, D.R.F. (1974) "The Canadian Cartographer and the Computer: Present Trends and Future Challenges:", The Canadian Cartographer, 11(1), pp. 35-44.
- Taylor, D.R.F. (1991a) "A Conceptual Basis for Cartography: New Directions for the Information Era", Cartographica, 28(4), pp. 1-8.
- Taylor, D.R.F. (1991b) "Geographic Information Systems: The Microcomputer and Modern Cartography" in Geographic Information Systems: The Microcomputer and Modern Cartography, D.R.F. Taylor ed., Toronto: Pergamon Press, chapter 1, pp. 1-20.
- Times-Colonist (1993) Victoria, British Columbia, October 2nd.
- Tomlinson, R.F. (1984) "Geographic Information Systems: A New Frontier", The Operational Geographer, 5, pp. 31-36.
- Tomlinson, R.F. (1988) "The Impact of the Transition from Analogue to Digital Cartographic Representation", The American Cartographer, 15(3), pp. 249-261.
- Wilson, K.G. (1988) Technologies of Control: New Interactive Media for the Home. Madison: University of Wisconsin Press.
- Wood, M. and I. McCrorie (1993) "Panorama Maps: The Old Magic on a New Digital Plane", 16th International Cartographic Conference, May 3-9, 1993, Cologne, Germany, Proceedings 1, pp. 103-113.
- Wong, D.W.S. and J.W. Meyer (1993) "A SDSS Approach to Evaluating the Efficiency of a Meals-on-Wheels Program", The Professional Geographer, 45(3), 332-341.
- Yarnal, C.M. and M.R.C. Coulson (1982) "Recreational Map Design and Map Use: An Experiment", The Cartographic Journal, 19(1), pp. 16-27.
- Zhou, S. and X. Liu (1993) "Development and Improvement of Tourist Maps in China", 16th International Cartographic Conference, May 3-9, 1993, Cologne, Germany, Proceedings 1, pp. 117-122.

**APPENDIX 1: TOURISM MAP USER SURVEY**

Survey # \_\_\_\_\_

**PROVINCIAL TOURISM MAP SURVEY****THE UNIVERSITY OF VICTORIA****DEPARTMENT OF GEOGRAPHY**

*Dear traveller, thank you for agreeing to complete this survey. We are interested in improving official provincial tourism maps. In order to do so, we would like to hear your opinion. This survey is conducted as part of a graduate research project in geography, at the University of Victoria.*

*Your participation is voluntary and you may withdraw at any time. Your responses will be treated as anonymous and confidential. Once completed, we would like you to keep the two attached maps as a gesture of our appreciation for your help.*

*If you require any additional space please feel free to use the back of the page. The survey should take approximately 15 minutes to complete.*

**PART 1**

*We would like to learn how well you think the official road maps of British Columbia and Prince Edward Island display information.*

1. How familiar are you with the two provinces?

	Not At All	Somewhat Familiar	Very Familiar
British Columbia			
Prince Edward Island			

***Please study the two attached maps.***

2. For the map of British Columbia, please circle on a scale from 1 to 5 how well the following information items are communicated to you (1 = poorly and 5 = very well).

Very Poorly    Poorly    Fair    Well    Very Well  
                   1            2            3            4            5

**MAP OF BRITISH COLUMBIA**

INFORMATION ITEMS	EFFECTIVENESS				
	Poorly				Well
Highway	1	2	3	4	5
Other Transportation	1	2	3	4	5
National Parks	1	2	3	4	5
Provincial Parks	1	2	3	4	5
Tourism Infocentre Locations	1	2	3	4	5
Tourist Attractions	1	2	3	4	5
Tourist Routes	1	2	3	4	5
Outdoor Recreation Facilities	1	2	3	4	5
City Information	1	2	3	4	5
General Information	1	2	3	4	5
Map Reading Instructions	1	2	3	4	5
Other (please specify)	1	2	3	4	5
_____					
_____					

Please repeat the exercise for the map of Prince Edward Island

**MAP OF PRINCE EDWARD ISLAND**

INFORMATION ITEMS	EFFECTIVENESS				
	Poorly				Well
Highway	1	2	3	4	5
Other Transportation	1	2	3	4	5
National Parks	1	2	3	4	5
Provincial Parks	1	2	3	4	5
Tourism Infocentre Locations	1	2	3	4	5
Tourist Attractions	1	2	3	4	5
Tourist Routes	1	2	3	4	5
Outdoor Recreation Facilities	1	2	3	4	5
City Information	1	2	3	4	5
General Information	1	2	3	4	5
Map Reading Instructions	1	2	3	4	5
Other (please specify)	1	2	3	4	5
_____					
_____					

3. In your opinion, is there anything important that is missing from the maps?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please specify:

**BRITISH COLUMBIA**

**PRINCE EDWARD ISLAND**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

4. Do you feel that there is unnecessary information on the map?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please specify:

**BRITISH COLUMBIA**

**PRINCE EDWARD ISLAND**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

5. Overall, how well do you like each of the two maps?

	Dislike	Dislike Somewhat	Neutral	Like Somewhat	Like A Lot
B.C.					
P.E.I.					

6. Do you find that there are specific aspects of each map that you like or dislike?

**LIKE ABOUT THE MAP OF B.C.**

**DISLIKE ABOUT THE MAP OF B.C.**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**LIKE ABOUT THE MAP OF P.E.I.**

**DISLIKE ABOUT THE MAP OF P.E.I.**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**PART 2**

We are also interested in learning from you if you have used or have an interest in "alternative format" tourism information systems to plan your vacation, and to make decisions while travelling.

In particular, we are interested in your opinions about computer information systems. These range in purpose from those which simply display information, to those which involve the traveller in the selection of destinations. The traveller may also obtain maps, and other information based on the preferences they express.

7. Have you ever used a **T.V. touch screen** information system such as those used by shopping centres, visitor areas, bridal registries etc...?

Yes\_\_\_\_\_ No\_\_\_\_\_ Don't Understand\_\_\_\_\_ Not Sure\_\_\_\_\_

8. Do you think you would use a computer based touch screen "TOURISM INFORMATION SYSTEM" when travelling?

Yes\_\_\_\_\_ No\_\_\_\_\_ Don't Know\_\_\_\_\_

If yes, what are the most important information items that you would want to access through such a system?

_____	_____
_____	_____
_____	_____

9. If the only way that a touch screen "TOURISM INFORMATION SYSTEM" could be made available to you was by charging a user fee, would you be willing to pay to access the system?

Yes\_\_\_\_\_ No\_\_\_\_\_ Maybe\_\_\_\_\_

If yes, how much (flat fee per access)? \$\_\_\_\_\_

The development of multi-media information systems has created a whole new approach to vacation planning. The user can "experience" a range of information about possible destinations. This may include: videos, maps, photographs, voice narration, music, natural sounds, tables (such as a list of hotel rates), drawings and so forth. In this way, the traveller becomes better informed before making a selection about where to go.

10. Would you be interested in access to an electronic multi-media "TOURISM INFORMATION SYSTEM" to plan a vacation - one that you could use in your home via a computer or the television?

Yes \_\_\_\_\_ No \_\_\_\_\_ Don't Know \_\_\_\_\_ Don't Understand \_\_\_\_\_

If yes, would you want to access such a system by:

Personal computer \_\_\_\_\_  
 Interactive television \_\_\_\_\_  
 Other (please specify) \_\_\_\_\_

11. Would you be willing to pay for access to such an information source, either at an hourly fee or as part of a cable service?

Yes \_\_\_\_\_ No \_\_\_\_\_ Maybe \_\_\_\_\_

If yes, how much at an hourly rate? \$ \_\_\_\_\_

If yes, how much per month as part of cable service? \$ \_\_\_\_\_

12. What types of information and analysis capabilities would you want to have access to via such a multi-media tourism information system? (tick as many as apply)

**Types:**

Watch Video	_____	Voice Narration	_____
View Maps	_____	Music/Sound	_____
Look at Photographs	_____	View Tables	_____
		(ie: hotel rates)	_____

Other (please specify)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Analysis:**

Select Routes	_____	Make Reservations	_____
Plan Itineraries	_____	Create Maps	_____
Measure Time/Distances	_____	Select Destinations	_____

Other (please specify)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Survey # \_\_\_\_\_

**PARTICIPANT INFORMATION QUESTIONS TO BE  
ASKED BY INTERVIEWER**

*We would like to learn a little about you. Could you please answer the following questions. Again, your answers will be treated fully confidentially and anonymously.*

1. On a scale from 1 to 5, where would you place your preference for the following types of holidays?

(1 = don't like at all, 5 = most preferred)

Touring - Hotel/Motel/Bed & Breakfast	_____
Touring - Camping	_____
Camping	_____
Cruises	_____
Wilderness/Hiking	_____
Sun holiday	_____
Other Cultures	_____
Educational Holiday	_____
Other (please specify)	_____

2. Do you prefer package tours or self-guided trips?

Package Tours \_\_\_\_\_ Self-Guided \_\_\_\_\_

3. Where is your principal residence?

Country \_\_\_\_\_  
Province/State \_\_\_\_\_

4. What is the purpose of this trip?

Pleasure	_____
Business	_____
Personal	_____
Conference /Convention	_____
Other (please specify)	_____

5. What is your employment status?

Employed	_____	Self-employed	_____
Student	_____	Retired	_____
Homemaker	_____	Looking for Work	_____

*Thank you for taking time to fill out this questionnaire.  
Please enjoy the rest of your trip.*

**OBSERVATION QUESTIONS  
TO BE ANSWERED BY RESEARCHER**

Survey # \_\_\_\_\_

Date \_\_\_\_\_ 1993

Sailing \_\_\_\_\_

1. Type of vehicle:

Make: \_\_\_\_\_

Car:

Mini Van	_____	Tent Trailer	_____
4 Door	_____	Motorhome	_____
2 Door	_____	Pick Up	_____
Station Wagon	_____	Van	_____
Convertible	_____	Other	_____

2. Gender of respondent:      Female\_\_\_\_\_ Male\_\_\_\_\_

3. Number of people in vehicle: \_\_\_\_\_

4. Estimated age group of respondent:

18 to 24	_____
25 to 39	_____
40 to 60	_____
60 and up	_____

## VITA

Surname: Grant

Given Names: Lesley Anne

Place of Birth: Toronto, Ontario

Date of Birth: October 1, 1965

### **Educational Institutions Attended:**

University of Victoria 1988-1994

University of Western Ontario 1984-1988

### **Degrees Awarded:**

B.A. (Honours) University of Western Ontario 1988

### **Honours and Awards:**


University of Western Ontario In-Course Scholarship 1987


U.W.O. Dean's Honour Student 1986-1988

## Partial Copyright License

I hereby grant the right to lend my thesis to users of the University of Victoria Library, and to make single copies only for such users or in response to a request from the Library of any other university, or similar institution, on its behalf or for one of its users. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by me or a member of the University designated by me. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Title of thesis:      Toward a Digital Multi-Media Spatial  
                          Tourism Information System

Author: 

  
LESLEY ANNE GRANT

May 30, 1994